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Sovereignty Versus Space - Public Law and Private Launch in the Asian Context

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Sovereignty Versus Space – Public Law and Private Launch in the Asian Context*

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I. INTRODUCTORY REMARKS

IN the more than forty years which have gone by since the birth of space law, there has not been a more revolutionary development than the rapidly increasing involvement of private entities in space activities. International space law in the narrow sense – essentially five space treaties and five United Nations Resolutions on space[1] constituting the core of the *corpus juris spatialis internationalis* – developed

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1 This concerns the following treaties and resolutions:

- 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, adopted 19 December 1966, opened for signature 27 January 1967, entered into force 10 October 1967; 6 ILM 386 (1967); 18 UST 2410; TIAS 6347; 610 UNTS 205;
- Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space, London/Moscow/Washington, adopted 19 December 1967, opened for signature 22 April 1968, entered into force 3 December 1968; 19 UST 7570; TIAS 6599; 672 UNTS 119;
- Convention on International Liability for Damage Caused by Space Objects (hereafter Liability Convention), London/Moscow/Washington, adopted 29 November 1971, opened for signature 29 March 1972, entered into force 1 September 1972; 10 ILM 965 (1971); 24 UST 2389; TIAS 7762; 961 UNTS 187;
- Convention on Registration of Objects Launched into Outer Space (hereafter Registration Convention), New York, adopted 12 November 1974, opened for signature 14 January 1975, entered into force 15 September 1976; 14 ILM 43 (1975); 28 UST 695; TIAS 8480; 1023 UNTS 15;
- Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, New York, adopted 5 December 1979, opened for signature 18 December 1979, entered into force 11 July 1984; 18 ILM 1434 (1979); 1363 UNTS 3;

for its most fundamental part when only states (and a few international organisations) were undertaking space activities in any meaningful sense of the word. Its exclusively public character, for example in terms of rights and obligations provided for, was a direct consequence of this.

This poses the fundamental question whether international space law is adequate to deal with private space activities, and notably to balance valid private interests with the general public one in outer space and space activities. In other words: are private enterprise's interests sufficiently heeded by the body of international space law, and are, at the same time, the interests of the public at large sufficiently protected against the undesirable (side-) effects of private enterprise's entry into outer space?

This question is perhaps of special importance for Asian countries. Traditionally, Asian societies and states have been inclined more than *eg,* European ones to focus upon the general collective, *ie,* public, benefits of any economic activities, including those in outer space. In this context, private economic initiatives have often been frowned upon, alternatively kept on a short leash. In legal terms, this notion of 'the collective' translates largely into the concept of 'sovereignty', as a legal tool to defend a state's interests both on the international and on the national plane.

At the same time, the advance of private enterprise into the space arena over the last decade or two has probably been nowhere as marked as in Asia. Economic tigers such as Singapore, Taiwan, Malaysia and Thailand, having already considerable experience with the role of private enterprise in a general economic sense, are increasingly

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- Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space, UNGA Res 1962 (XVIII), of 13 December 1963; UN Doc A/AC 105/572/Rev 1, at 37;
- Principles Governing the Use by States of Artificial Earth Satellites for International Direct Television Broadcasting, UNGA Res 37/92, of 10 December 1982; UN Doc A/AC 105/572/Rev 1, at 39;
- Principles Relating to Remote Sensing of the Earth from Outer Space, UNGA Res 41/65, of 3 December 1986; UN Doc A/AC 105/572/Rev 1, at 43;
- Principles Relevant to the Use of Nuclear Power Sources in Outer Space, UNGA Res 47/68, of 14 December 1992; UN Doc A/AC 105/572/Rev 1, at 47;
- Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of all States, Taking into Particular Account the Needs of Developing Countries, UNGA Res 51/122, of 13 December 1996; (1997) XXII-I *Annals of Air and Space Law,* at 556; 46 Zeitschrift für Luft- und Weltraumrecht (1997), at 236.

becoming present also in outer space through private and commercial participation. Major powers such as India and Indonesia are moving away from their traditional distrust of private enterprise and private intentions, and structured efforts are under way to facilitate private entities' participation in various fields of space activity. Even the People's Republic of China is taking fundamental steps to take part in an international, read global space economy being increasingly liberalised – not in the least in the field of launching.

Yet, there is an almost complete silence of the aforementioned treaties and resolutions of international space law on private entities and private activities. For Asian countries, the question of the fitness of international space law and its major instruments in dealing with the private character of a considerable and growing measure of space activities is of crucial importance. As launching in a sense represents the key to most other relevant space activities – without launch, satellite communications, satellite remote sensing, satellite navigation or space station operations are not possible – such a general analysis applies to this field in particular.

II. The Structure of International Space Law and Private Space Activities

This issue of 'fitness' in general has to be approached at two levels. On the one hand, the question arises whether current international space law, by way of the rules, rights and obligations it defines, takes into due account both the valid and justified interests of the private sector itself, and the specific consequences of private involvement in space activities upon the whole human endeavour in space. In other words, whether the valid and justified interests of other players as well as society and humanity at large are duly considered.

This could be labelled the 'substantive' approach, since it focuses on the substance of contemporary international space law. Whether in terms of launching only or more generally for all space activities, the special impact of substantive space law rules upon private activities would be the subject here. Such an analysis, whilst certainly crucial for a beneficial development of further private involvement in outer space and launch activities, would overstep the boundaries of this paper. By way of illustration, within the context of 'Project 2001', a research project undertaken at the University of Cologne in Germany together with the German space agency, more than 130 experts from around the world are involved in discussing and analysing these issues.

On the other hand, prior to such analysis the particular structure of international space law as a public legal regime also calls for a

'structural' approach, preceding analysis of the substance. Whatever rules, rights and obligations international space law may be seen to provide, whether adequate in substance for dealing with private launch and other space activities or not, they are addressed primarily to states, and only in some secondary manner to international–public organisations. Thus, the question remains: how, in the abstract, are private entities tied or to be tied in to this international legal framework for space activities?

The present paper will focus on this 'structural' question of binding private enterprise to public space law, and how private enterprise must be factored into a consideration of any areas of 'substance'. This essentially also confines the scope of the present paper to the two treaties that elaborate the key concepts structuring international space law – the Outer Space Treaty and the Liability Convention.

It is here where launching as one space activity amongst others stands out in particular. Not only does it represent the most basic space activity in the sense that without launch, few other space activities of interest here would be possible; it is through the launch that the most directly quantifiable issue of space activities, the liability for damage caused by such activities, is regulated.[2] Obviously, from a legal perspective this is even more important.

By way of point of departure, the normative system of international space law (the 'substance'), though addressed to states, obviously is also applicable to private space activities, which are allowed under space law albeit subject to authorisation (and continuing supervision) by a state.[3] These private activities should conform to the same rights and obligations which public space activities are obliged to comply with even if, private enterprise is currently not directly bound by those rights and obligations.[4] Consequently, the task of authorisation and continuous supervision rests squarely upon the shoulders of states to realise this.

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2 See Art VII, Outer Space Treaty; Art I(c), Liability Convention. These provisions define the entity/ies liable for damage as a consequence of space activities as those states involved in the launch of the space object causing the damage in either of the four ways mentioned. See further *infra*, para 9.

3 See Art VI, Outer Space Treaty.

4 See also *eg*, PL Meredith & GS Robinson, *Space Law: A Case Study for the Practitioner* (1992), 58, 67.

At least in theory a state will be inclined to exercise any jurisdiction available to it primarily *vis-à-vis* those particular categories of private activities for which it can be held accountable under international (space) law.[5] Such accountability under international space law has a twofold character, as it does under general international law. It comprises both a general accountability in the form of state responsibility, and the specific accountability for damage that is provided by the phenomenon of state liability.[6]

The two concepts of responsibility and liability as defined under space law have a structural component in that they effectively carry their own respective definitions regarding the entities for which a particular state might be held accountable. For state responsibility, this component is essentially dealt with by Article VI of the Outer Space Treaty, whereas liability for damage is largely given shape by Article VII of the Outer Space Treaty, as repeated in or supported by provisions in the Liability Convention.

Finally, especially in view of state responsibility, Article VIII of the Outer Space Treaty plays a fundamental role. This touches upon the relationship between jurisdiction and the exercise thereof on the one hand and the international responsibilities and liabilities on the other hand, which provides the basis for any regulation of private space activities by individual states for the purpose of international space law.

III. Articles VI and VIII of the Outer Space Treaty and State Responsibility

Article VI of the Outer Space Treaty provides that states are internationally responsible for 'national activities in outer space', including cases where these activities are 'carried on (...) by non-governmental entities'. This responsibility pertains to 'assuring that national activi-

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5 *Cf eg,* B Cheng, *The Legal Regime of Airspace and Outer Space: The Boundary Problem. Functionalism versus Spatialism: The Major Premises,* (1980) 5 *Annals of Air and Space Law,* 340; B Cheng, *The Commercial Development of Space: the Need for New Treaties,* (1991) 19 *Journal of Space Law,* 37.

6 See also extensively NLJT Horbach, *Liability Versus Responsibility Under International Law* (1996), 20-34, for a fundamental discussion of the two concepts as they arise out of national legal orders where they are differently interpreted, applied and inter-related, with the consequence that at the international level a large measure of confusion has arisen as to the scope, meaning and consequences in law of the respective principles. Thus, experts differ for instance fundamentally in their qualification of responsibility and liability as primary or secondary obligations under international law.

ties are carried out in conformity with the provisions set forth in the present Treaty'. With the Outer Space Treaty providing the legal framework for all space activities and laying the foundation also for further regulation, violation of its terms would amount to violation of the outer space legal regime in general.

Similarly, the general doctrine on state responsibility provides, that states are responsible for 'internationally wrongful acts': acts violating obligations under international law.[7] International law in general is held to apply also to outer space.[8] Therefore, under Article VI, the concept of state responsibility for activities undertaken in outer space generally becomes operative whenever these activities violate obligations under international space law.

In deviation from the general doctrine of state responsibility, under the terms of Article VI states are responsible to the same extent for private activities as they are for public activities. No exemption from international responsibility for private activities can be claimed by arguing that a state acted with 'due care'.[9] Private space activities are without further qualification equated, for the purpose of international responsibility, to the activities of states. Here, the major impetus arises for states to actually take legislative action, for they would have to answer internationally for private space activities violating international space law.

This central presumption underlies the attribution of private space activities to states. Article VI then begs the question: for which categories of private space activities is which particular state to be held responsible on the international plane? The answer to this question

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7 See Arts 1, 3, 4, ILC Draft articles on State responsibility, ILC Yb 1980 Vol II, 30-4; further *eg*, Horbach, 23; I. Brownlie, *The System of the Law of Nations* (1983), 22-31; K Zemanek, *Responsibility of States: General Principles*, 10 *Encyclopedia of Public International Law* (1987), 362 ff; R Wolfrum, *Internationally Wrongful Acts*, 10 *Encyclopedia of Public International Law* (1987), 271 ff.

8 See Art III, Outer Space Treaty. General public international law functions as a *lex generalis* where the *lex specialis* of space law itself is moot, unclear or open to conflicting interpretation; see M Lachs, *The Law of Outer Space* (1972), 14-5, including at note 3; HA Wassenbergh, *Principles of Outer Space Law in Hindsight* (1991), 15-6; G Zhukov & Y Kolosov, *International Space Law* (1984), 48-9; S Hobe, *Die rechtlichen Rahmenbedingungen der wirtschaflichen Nutzung des Weltraum* (1992), 75-6.

9 As to the doctrine of due care responsibility, *cf eg*, FV Garcia Amador, *State Responsibility – Some New Problems*, (1958-II) 94 *Recueil des Cours*, 403-5; Zemanek, 368.

lies in the interpretation of the two key-terms 'national activities' and 'appropriate State', and it is here where the first problems arise as far as private space activities are concerned.

IV. The Roles of 'Jurisdiction' and 'Sovereignty' in Space

As referred to, from a logical perspective the most effective interpretation of private 'national activities' would make states internationally responsible precisely for those activities over which they can exercise legal control. The opportunity to exercise legal control is encompassed in the concept of 'jurisdiction', which is of course a well-known fundamental concept of general public (international) law. In that context it is in many intricate ways linked to the sovereignty of states.

This brings the analysis to the question of the specific impact on space activities of the concept of sovereignty in general, and the fundamental clause of Article II of the Outer Space Treaty in particular.[10] As to the former, sovereignty indeed is in effect very much linked directly to territory. The effects of (exclusive!) sovereignty are most comprehensively felt on the territory of the particular state at issue, to such an extent that the concepts of (territorial) sovereignty and exclusive (territorial) jurisdiction are considered to be two sides of the same coin, often used interchangeably.

What Article II for its part therefore really establishes or confirms[11] is that 'national appropriation' of the *area* of outer space (or any part thereof) is not possible, and that such traditional international law-concepts as 'occupation' do not apply. Outer space is no *terra nullius,* which can be occupied and incorporated into a certain state's territory. Neil Armstrong's planting of the US flag on the moon (not a real flag anyway) did not and could never signify that the moon or any part thereof had or would become US territory.

Therefore, the exclusion of sovereignty and legal control by means of Article II of the Outer Space Treaty refers to the exclusion

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10 Art II, Outer Space Treaty, provides: 'Outer space, including the Moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means.'

11 The choice between 'establishes' or 'confirms' depends upon one's view as to whether, in the absence of any explicit provisions in international treaties or customary law allowing for (the exercise of) sovereignty, such sovereignty could be presumed or not.

of sovereignty and legal control on a territorial basis. It did not mean that the drafters of the Outer Space Treaty intended to allow a lawless void to exist, or even that they allowed for (new) law only to the extent the whole community of states could agree thereupon. In legal terms it only meant that, for any particular part of outer space, no single state could call the tune to which (private) space entrepreneurs would have to dance, especially once private enterprises become involved in space activities. However, the freedom of outer space and activities undertaken therein could and should not be regulated solely on the global international level, in view of the difficulties inherent in all the world's states agreeing to any elaborate and effective legal regime on the private level.

Article VI of the Outer Space Treaty thus provided for international state responsibility for space activities that could be considered 'national activities in outer space' of that particular state. Consequently, it was the crucial provision of Article VI on 'authorisation and continuing supervision', which leads to the question whether sovereignty, in one form or another as a background to or basis for any exercise of jurisdiction, still has effect in space in spite of its formal absence.

V. Territorial Jurisdiction and Space Activities

The most direct consequence of a state's sovereignty in general international law-terms is the exclusive jurisdiction of any state over its territory. 'Territory' here includes the land territory, the internal waters, the territorial waters (where the exclusivity of sovereignty *viz,* territorial jurisdiction is fundamentally limited only by the concept of 'innocent passage') and the airspace above these three terrestrial areas. However, outer space itself, as mentioned, is not included, and this triggers the question of the relevance of territorial jurisdiction.

Here, one becomes aware of the special character of (most) space activities. Manned space flight, *ie,* with human (and hence also legal) persons as actors being themselves in outer space, albeit perhaps the most visible category of space activities, concerns only a minor part of human activities related to space. Such activities indeed could not be subjected to territorial sovereignty and jurisdiction, in view of the non-applicability of these concepts to the area of outer space.

The overwhelming part of space activities, however, is actually conducted by persons in ground control stations. They push the buttons and pull the handles that make a rocket shed its first stage or a telecommunications satellite change frequencies out in space. In other words: most space activities are 'remote controlled activities'

in the sense that the actors undertaking those activities are present somewhere on earth whereas the results of their physical actions occur far away in outer space. The result is that territorial sovereignty, in respect of such 'remote controlled activities', still allows states to control activities in outer space in a legal fashion.

Moreover, from this perspective the category of launch activities presents yet another picture. While by definition aimed at outer space, so far all launches in any meaningful sense of the word for their first and crucial part do not, geographically speaking, take place in outer space. Most of them are even undertaken from 'territory' as such. For launch activities, consequently, territorially based jurisdiction continues to represent a very effective legal tool for states to control private involvement. Even better, of course, such legal control over launch activities in turn provides such states with an effective legal tool of control over any space activities consecutive to the launch proper.

In view of the responsibility of states under Article VI of the Outer Space Treaty for national activities in space, *viz,* their responsibility to authorise and continuously supervise such activities, states are thus capable to control in law the overwhelming majority of space activities already by using their territorial jurisdiction in spite of the absence of territorial sovereignty in outer space proper.

VI. Personal Jurisdiction and Space Activities

In addition to the concept of territorial jurisdiction, in general public international law a concept of personal jurisdiction exists.[12] The power to control by law persons and entities *because of* a nationality is certainly an asset of states only: only states can bequeath nationality, and only states have the comprehensive right to act on their behalf

12 When the concept of 'personal jurisdiction' is discussed, one has to be aware of the further distinction between 'active personal jurisdiction' (*ie,* over activities undertaken by nationals) and 'passive personal jurisdiction' (*ie,* over activities of which nationals are 'victims'). However, the latter form of personal jurisdiction is as such much more disputed and less developed. Since moreover it does not touch upon the legal realm of outer space unless one deals with the quite exceptional area of manned space flight (where usually special agreements between states concerned are concluded to deal with such jurisdictional issues), it is generally left out of the analysis here. Therefore, references to personal jurisdiction in this paper should henceforth be read as referring to active personal jurisdiction.

at the international level.[13] Thus, next to the more visible and more physical attribute of territorial jurisdiction it, forms a central attribute of a state's sovereignty.

In general international law, limits to this principle of personal jurisdiction are only provided in the sense that under certain circumstances, the opposability of nationality of certain persons or entities to third states may be subject to discussion, if international conflicts on jurisdictional issues are at stake.[14] Also, the monitoring and enforcement of laws and regulations basing themselves upon this principle of personal jurisdiction depend upon the actual presence of the person or entity on the territory of the state concerned, *viz,* upon treaties or arrangements with states where such persons or entities are actually present.[15]

There is nothing in international space law however that further limits or even contradicts the application of the concepts of nationality and personal jurisdiction to outer space. Astronauts do not loose their nationality because of their presence outside of any state's territory any more than a sailor looses his nationality on the high seas. Consequently, national laws – in subservience to the 'authorisation and continuing supervision' required by Article VI of the Outer Space Treaty – can continue to be used for exercising legal control over space activities.

Naturally, the same applies also, firstly, to human actors not themselves in outer space. An American engineer controlling spacecraft from Russian territory does not loose his nationality merely for that reason, and consequently remains in principle subjected to US jurisdiction on a personal basis. In view of the concurrent jurisdiction of the Russian Federation on the basis of the territorial criterion, the

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13 To a limited extent general international law has accepted the notion of certain intergovernmental organisations to act on behalf of certain individuals, namely to the extent that these are to be considered officials of that organisation; *cf Reparation for Injuries Suffered in the Service of the United Nations,* Advisory Opinion, International Court of Justice, 11 April 1949, ICJ Rep 1949, 174. This, obviously, is still a long way from granting anything like an 'international nationality' or derogating from the nationality of the persons concerned.

14 *Cf* the *Nottebohm* Case (Second Phase)(*Liechtenstein* v *Guatemala*), International Court of Justice, 6 April 1955, ICJ Rep 1955, 4.

15 An obvious example would consist of the manifold bilateral extradition treaties that exist in today's world, as well as some multilateral treaties providing for *aut dedere aut judicare*-provisions.

obvious possibility of a conflict on competence arises. However, this is of course not uncommon in general international law. It is usually solved along the lines of priority of territorial jurisdiction over personal jurisdiction at least when it comes to adjudication or enforcement, alternatively by means of special agreements between the states concerned.[16] The same tableau of solutions presents itself to any jurisdictional conflict pertaining to space activities and space law.

The continuing legal validity of nationality in outer space applies also, secondly, to legal persons undertaking space activities. The nationality of companies active in the space arena is not differently determined from that of those active in other fields.[17]

States as a consequence can exercise their personal jurisdiction to control by law any company incorporated and headquartered in their respective territories,[18] even if that company's activities proper are taking place in outer space and/or are conducted from outside the state's territory. Of course, dealing with adjudication and/or enforcement remains another matter.

VII. Registration-based Jurisdiction and Space Activities

In addition to territorial jurisdiction and personal jurisdiction, a third, space law-specific approach to law-making in space has been elaborated which takes the concept of nationality one step further. Article VIII of the Outer Space Treaty provides for the duty for certain states to register space objects. Whilst the term 'nationality' is carefully avoided in this context, the effect of registration of a space object for all practical purposes can be compared to that of registration and the consequent nationality of ships and aircraft.[19] For a start, the

16 Examples would concern multilateral or bilateral treaties regarding personal immunities.

17 Art III, Outer Space Treaty, confirms that rules of general public international law continue to apply to outer space and space activities unless clear *lex specialis* can be discerned as overriding such *lex generalis*.

18 *Cf* the *Barcelona Traction Case* (Case Concerning the Barcelona Traction Light and Power Company, Limited) (Second Phase)(*Belgium* v *Spain*), International Court of Justice, 5 February 1970, ICJ Rep 1970, 4, as the authoritative ICJ judgment defining the nationality of a company for international law purposes.

19 *Cf* resp Art 91, United Nations Convention on the Law of the Sea (hereafter UNCLOS-III), Montego Bay, adopted 30 April 1982, opened for signature 10 December 1982, entered into force 16 November 1994; 21 ILM 1261 (1982); Art 17, Convention on International Civil Aviation (hereafter Chicago Convention), Chicago, done 7 December 1944, entered into force 4 April 1947; 15 UNTS 296; TIAS 1591.

Registration Convention of 1975 (which essentially elaborates Article VIII of the Outer Space Treaty) excludes the possibility of multiple registrations[20] – just as double nationality for ships and aircraft is not acceptable under the respective regimes, too.[21]

Most importantly, as Article VIII of the Outer Space Treaty and Article II of the Registration Convention jointly make clear, the registration of a space object leads to the retention of jurisdiction of the registration state over the space object. Registration of space objects therefore is a matter for states; in every other case the retention of jurisdiction-provision immediately causes difficulties.[22]

In other words: the effect of Article VIII amounts to quasi-nationality. States are entitled to extend any national legislation based on the personality principle and operating *in rem* to space objects registered with them. The sovereign right to register space objects is linked here to the sovereign right to exercise jurisdiction on a personal basis.

The effect of Article VIII of the Outer Space Treaty on jurisdictional issues, however, does not stop there. The quasi-nationality provided to a space object by registration in effect results in a quasi-territorial status of the space object in question. The retention of jurisdiction under Article VIII of the Outer Space Treaty, namely, also extends to 'personnel thereof', just as if the space object was a floating piece of (quasi-) territory of the registration state. This is, of course, similar to the legal status of ships or aircraft.

The exact scope of the phrase 'personnel' has only recently become an issue, in the sense that certain human beings in outer space can hardly be called 'personnel' since this concerns such unqualified and untrained passengers as journalists or millionaires. The tendency however is clearly to stretch the scope of 'personnel' so as to include also non-astronaut passengers, *ie,* so as to read 'all humans'.

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20 See Art II(2), Registration Convention.

21 *Cf* resp Art 92(2), UNCLOS-III; Art 18, Chicago Convention.

22 Art VII, Registration Convention, does allow intergovernmental organisations to act as *de facto* registration-state for the purposes of the Convention. However, this still requires the majority of the member states to be a party to both the Outer Space Treaty and the Registration Convention itself; whereas para 2 calls for states to try to ensure that in appropriate cases intergovernmental organisations do take steps to accept rights and obligations under the convention. In practice it will be hard to imagine any intergovernmental organisation to take such a step as envisaged under Art VII against the will of at least a majority of its member states, which in turn means that likely the core issue of jurisdiction will also be dealt with.

The exact scope of the phrase 'thereof' meanwhile is beyond doubt larger than only 'on board thereof'. In other words, as long as the presence of a person in outer space – during a moon walk or an extra-vehicular activity for example – can be unequivocally traced back to a particular space object, the state of registration of that space object continues to be allowed to 'retain jurisdiction and control' over such person.

The result is that this instrument for states to exercise a certain measure of legal control over activities in outer space shows considerable similarity to the concept of territoriality, in spite of the clear exclusion of that concept from the area of outer space as such. It even stretches such a concept of quasi-territoriality so as to include those temporarily outside the 'quasi-territory' under consideration. Sovereignty, even territorial sovereignty, thus creeps into outer space through the backdoor, albeit so far limited to space objects and 'personnel' therefrom. This might lead to problems once specific space objects are established as more or less fixed and permanent bases on *eg*, the moon, *vis-à-vis* the principled unlawfulness of exercising sovereignty over any part of the moon as such.

VIII. The Problems with International Space Law Responsibility

In sum, private 'national activities' should essentially comprise 'activities undertaken by nationals of that state', as subject to that state's personal jurisdiction, 'activities undertaken from the territory of that state', as subject to that state's territorial jurisdiction, and 'activities undertaken with the involvement of space objects registered in that state', as subject to that state's quasi-personal *viz*, quasi-territorial jurisdiction.[23] Such an interpretation would allow states to effectuate their international responsibilities for private space activities best. It should be pointed out that the 'space activities' considered here do not only encompass launch activities, but for instance satellite communications and remote sensing as well.[24] This interpretation could be summarised by the following schematic representation.

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23 *Cf* also Wassenbergh, Principles, 23, at note 5.

24 This represents one major reason for not concurring with an interpretation of 'national activities' of a state as the activities for which that state can be considered a 'launching state', as the last interpretation would – at best – make sense only for national *launching* activities.

Table A. Space law responsibility and the control of private space activities

Basis for exercise of jurisdiction	**Relevant categories of Private space activities**	**International responsibility for those categories of private space activities?**	**Subjects of possible exercise of jurisdiction by that state - *ie*, national space legislation**
Territorial jurisdiction	Activities undertaken from territory of a state	If 'national activities' include 'activities undertaken from territory'	Private entities undertaking space activities from territory of that state
Personal jurisdiction	Activities undertaken by nationals of a state	If 'national activities' include 'activities undertaken by nationals'	Private entities having nationality of that state undertaking space activities
Registration-based jurisdiction	Activities involving space objects registered with a state	If 'national activities' include 'activities undertaken with nationally-registered space objects'	Private entities undertaking space activities involving space objects registered with that state
Absence of jurisdiction	All other activities	Not necessary	No one, in principle

However... no definition (of the non-governmental 'national activities' of a state, for which it is to be held responsible) has actually been put forward by the Outer Space Treaty, or for that matter by any other space law document. Consequently, there is no agreement as to the interpretation of this term.[25] This absence of a generally accepted interpretation *de facto* allows individual states, where applicable, to interpret the term at their own discretion. And indeed, diverging national interpretations and resulting different implementations in national space legislation have emerged in actual fact.[26]

25 *Cf* for various common interpretations *eg*, Wassenbergh, Principles, 23; Cheng, The Commercial Development, 36-40; H Qizhi, *Certain Legal Aspects of Commercialization of Space Activities,* (1990) 15 *Annals of Air and Space Law,* 337; HL van Traa-Engelman, *Commercial Utilization of Outer Space* (1993), 281-2.

26 See for more details *eg*, the author's *Future Developments Relating to Outer Space Treaties,* in Proceedings of the Fortieth Colloquium on the Law of Outer Space (1998), 449-53, discussing national United States, Swedish, British, Russian and South African space laws from this perspective.

Similarly, and in close connection with the issue of 'national activities', there is the issue of 'the appropriate State' as dealt with by Article VI of the Outer Space Treaty. This state has to authorise and continuously supervise activities undertaken by non-governmental entities, authorisation and continuing supervision unequivocally being forms of the exercise of jurisdiction. Thus, whichever state would be 'the appropriate State', it would be required to actually exercise jurisdiction. However, whichever state would be the 'appropriate state' is precisely the question, since this key phrase of Article VI is not defined authoritatively, either in the Outer Space Treaty or anywhere else. Hence, uncertainty at the theoretical level might lead to national discretion at the level of implementation.[27]

As argued, the most logical interpretation of 'national activities' should imply that states are internationally responsible for those private activities falling under their respective (territorial, personal and registration-based) jurisdictions. Since the 'appropriate state' would actually be obliged to exercise such jurisdiction, it follows that this would concern the responsible state in case there is only one state to be held responsible in respect of a particular private activity. The term 'appropriate state', on the other hand, is explicitly used in its singular form. Therefore, in cases where two (or more) states can be held responsible for the same private activity – for example one on the basis of territorial jurisdiction, another on the basis of personal jurisdiction – only one of the responsible states actually would be obliged to exercise its jurisdiction.

The resulting differentiation between having jurisdiction and being obliged to exercise it would not effect international responsibility. Both states under whose jurisdictions a certain private activity has occurred would remain internationally responsible if that activity violates international space law. This holds true also for the state not being

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27 See for differing interpretations *eg*, HA Wassenbergh, *The Law Governing International Private Commercial Activities of Space Transportation*, (1991) 21 *Journal of Space Law*, 108-9; V Kayser, *An Achievement of Domestic Space Law: US Regulation of Private Commercial Launch Providers*, (1991) 16 *Annals of Air and Space Law*, 343; KH Böckstiegel, *The Term 'Appropriate State' in International Space Law*, in Proceedings of the Thirty-Seventh Colloquium on the Law of Outer Space (1995), 77-9; Hobe, 157-9; Cheng, The Commercial Development, 36-8; S Gorove, *Liability in Space Law: an Overview*, (1983) 8 *Annals of Air and Space Law*, 377-8; MG Bourély, *Rules of International Law Governing the Commercialization of Space Activities*, in Proceedings of the Twenty-Ninth Colloquium on the Law of Outer Space (1987), 159-60.

the 'appropriate state', for it still could have exercised jurisdiction and issue relevant controlling legislation. It even holds true in cases where responsible states would have decided, in deviation from the principle provided by Article VI, to have a third state acting as the appropriate state actually exercising authorisation and continuing supervision.[28]

In conclusion, Article VI does indeed provide an important part of the framework for binding private entities to international space law. It defines the categories of non-governmental, that is, private activities for which a particular state will be held responsible – at least in the abstract. That is at the same time where problems begin. To the extent that the state under consideration should be deemed the appropriate state, Article VI effectively obliges that state to make private entities in law adhere to the *corpus juris spatialis internationalis*. However, the key terms defining the scope of such domestic implementation lack precision or even consensus as to a general interpretation. It remains to be seen, to what extent this remains a merely theoretical problem or has, at least potentially, profound consequences for private involvement in space activities.

IX. Article VII of the Outer Space Treaty, the Liability Convention and State Liability

Apart from the general issue of international responsibility, states will also want to deal with the potential international liability, which arises from private space activities. Liability, to the extent it has been dealt with by international space law, operates on the public level also, with no private liability whatsoever being involved – but in a manner distinct from that of (general) international responsibility. Therefore, space law liability apart from its substantive contents presents a particular form of accountability in addition to responsibility.[29]

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28 *Cf* HA Wassenbergh, *Public Law Aspects of Private Space Activities and Space Transportation in the Future,* in Proceedings of the Thirty-Eighth Colloquium on the Law of Outer Space (1996), 246: a launching state could be qualified as an 'appropriate state' because of its quality as a launching state, and in spite of it not being the state whose 'national activities' are under consideration under appropriate definitions.

29 Alternatively, it may be seen as presenting a form of responsibility which deals with material damage inflicted by space objects, separated from other, more general forms of responsibility by the terms of space law.

Article VII of the Outer Space Treaty provides that states are 'internationally liable for damage to another State (...) or its natural and juridical persons', if such damage is caused by relevant space objects.[30] This clause is elaborated by the Liability Convention, affirming that states are the only entities[31] which can possibly incur international liability as 'launching States'.[32]

Which particular state or states are to be held liable in respect of a specific space object causing damage is determined by a well-known and quite precise fourfold criterion provided by Article VII itself. These relate to the state which 'launches' the space object, the state which 'procures the launching' of that space object, the state 'from whose territory' the launching of that space object occurs, and the state from whose 'facility' that space object is launched.

X. The Problems with International Space Law Liability

The problems with a view to dealing with private space activities by law do not lie in lack of precision in defining the liable states: they lie in the implementation of this fourfold definition in cases where private entities are fundamentally involved in the launch of the space object causing damage at a particular juncture. How far does a particular state have to go in exercising legal control over (in other words: establish some sort of national space legislation with regard to) private space enterprise in order to cover its potential liabilities at the international level?

For the purpose of analysis every activity should be envisaged as being either a state activity or a private activity. With respect to the first criterion for becoming liable under international space law, either a state or a non-state entity would be seen to launch the space object under consideration. In the former case, the state concerned is liable itself. In the latter case, it is questionable whether any entity is liable

30 *Cf* also CQ Christol, *The Modern International Law of Outer Space* (1982), 90-1; Horbach, *eg*, 28.

31 With the exception, of course, under circumstances, of international intergovernmental organisations; see Art XXII, Liability Convention. Since this still concerns public entities, not legally authorised or supervised moreover through a single sovereign jurisdiction, this does not detract from the public character of international space law, and therefore is of little consequence for the issue of private space activities here.

32 See Art I(c), Liability Convention.

at all under this criterion of Article VII.[33] In consequence, no state might feel obliged for example to provide for any recourse of financial consequences by means of national space legislation in this respect. The impact on private participation in launches will be obvious. The second criterion, of procuring the launch,[34] leads to a similar result. To the extent that states fall under this heading themselves, they are held liable. To the extent that non-state entities procure or co-procure the launch at issue, no recourse might be necessary, if international liability would be seen to apply to no particular state under this criterion. No state would then be held liable internationally in the case of private entities procuring a launch, unless it is liable itself under any of the other criteria.[35]

The same holds true finally for the fourth criterion presented by Article VII. Launch facilities may be privately owned, which might result in no entity being liable under this criterion for any damage caused by space objects launched from such facilities. No state would incur international liability for the acts of private entities with launch facilities. If the launch facilities are on the other hand government

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33 Unless one takes 'a state which launches' to mean to include 'a state whose private entities launch'; *cf* amongst many also V Kayser, *Private Involvement in Commercial Space Activities, Legal Issues and Recent Trends,* in Proceedings of the Thirty-Seventh Colloquium on the Law of Outer Space (1995), 317-8. *Contra* for example is HA Wassenbergh, see *eg,* Principles, 91. A wide interpretation of 'a state which launches' would come up against the arguments that, contrary to Art VI, Outer Space Treaty, Art VII *does* not refer explicitly or even implicitly to private entities, and on the other hand *does* refer to activities not completely or predominantly taking place in outer space, which might include private activities much more readily. Also, the question would arise as to which categories of private entities the word 'whose' would refer: entities with the nationality of, or operating from the territory of, or both, or yet another category?

34 'Procurement' should be defined as 'bringing about', by paying for it or making it happen by other means; *cf,* also *eg,* Christol, 105; Qizhi, 337; KH Böckstiegel, *The Term 'Launching State' in International Space Law,* in Proceedings of the Thirty-Seventh Colloquium on the Law of Outer Space (1995), 81-2.

35 This holds true of course, unless one interprets 'procurement' even wider, so as to include 'effectively allowing its private entities to bring about'; *cf eg,* Böckstiegel, The Term 'Launching State', 81-2; WB Wirin, *Practical Implications of Launching State-Appropriate State Definitions,* in Proceedings of the Thirty-Seventh Colloquium on the Law of Outer Space (1995), 111. Here, the same arguments as put forward *supra,* in note 33, would be valid. In any case, another issue offering itself for discussion of more exact and authoritative interpretation arises here.

property, the state concerned obviously will be held liable. Thus, the three aforementioned criteria operate along the same lines: they apply either to a state itself – but then such a state is actively involved, 'in the know' and hence able to take any desired measures. Or, arguably, no state is liable under these criteria – and would see no need for further legislative measures *vis-à-vis* these private activities. Of course, these criteria do not work in isolation: it is obvious therefore that in respect of all of these three criteria, recourse in principle would be desirable for a state to the extent it could be held liable itself under any of the remaining criteria. For example, launch activities which are both privately conducted and privately procured, may use governmental launch facilities. The state owning such a launch facility will be held liable for damage caused by any space object launched from this facility, and thus will have a clear interest in the legal regulation of such private launches. On the other hand, the launch facility cannot be used without a conscious approval of the government in question, at least *de facto*. Therefore, such regulation could also be established by means of a launch agreement for each individual case; the contractual approach might suffice here. This situation is radically different with respect to the remaining criterion for becoming a liable entity as presented by Article VII, which applies exclusively to states: only states can possess 'territory' in the international public legal sense of the word. As long as all launches are conducted from some state's territory, there will always be a state liable under this criterion, even in case of (otherwise) completely private launches. This led Professor Kerrest de Rozavel to characterise the territorial criterion for becoming a 'launching state' as the 'safety device'[36] or even the 'lock'[37] on the system from the perspective of victims: they would always be able to find at least one state qualifying as launching state and therefore liable to pay compensation. As will be seen, however, this need no longer be automatically the case. The above analysis leads to the following schematic illustration of the structural aspects of liability.

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36 See A Kerrest de Rozavel, *The Launch of Spacecraft from the Sea,* in Outlook on Space Law over the Next 30 Years (Eds G Lafferranderie & D Crowther)(1997), 230.

37 See A Kerrest de Rozavel, *Launching Spacecraft from the Sea and the Outer Space Treaty: the Sea Launch Project,* in Proceedings of the Fortieth Colloquium on the Law of Outer Space (1998), 269.

Table B. Space law liability and the control of private space activities

Basis for exercise of jurisdiction	**Relevant categories of Private space activities**	**International liability for those categories of private space activities?**	**Subjects of possible exercise of jurisdiction by that state - *ie*, of national legislation**
Territorial jurisdiction	Activities undertaken from territory of a state	◆ Launching: yes ◆ All other space activities: only, if that state qualifies as launching state	◆ Private entities undertaking launching activities from territory of that state ◆ Private entities undertaking any other space activities from territory of that state only to the extent it qualifies as launching state
Personal jurisdiction	Activities undertaken by nationals of a state	Only, if that state qualifies as launching state	Private entities having nationality of that state undertaking launching activities only to the extent it qualifies as launching state
Registration-based jurisdiction	Activities involving space objects registered with a state	By definition	Private entities undertaking space activities involving space objects registered with that state (*ie*, registration should include licensing obligation)
Absence of jurisdiction	All other activities	If that state qualifies as launching state ...!	Possible as far as allowed by relevant arrangements; required to the extent it qualifies as launching state

In conclusion, Article VII thus may present us with a much more clearly defined part of the framework for binding private entities to international space law than Article VI does – albeit only for the special cases of damage caused by space objects. At the same time, it is much more complicated, when it comes to private participation in launches – let alone a fully-privately conducted launch.

Such problems might seem academic and rather theoretical but will be of practical concern especially in parts of the world where sovereign states are rapidly coming to terms with private partners in outer space activities, including launching. To see how the implicit structure of international space law *vis-à-vis* private enterprise as resulting from the twin concepts of responsibility and liability would further operate in practice, and might lead to difficulties of a serious nature, two recent specific developments will be dealt with.

XI. Problems in Practice: The Case of Sea Launch

Firstly, it turns out that the 'safety device' or 'lock' provided by the territorial criterion as regards the establishment of liability is no longer fool-proof: it can be circumvented by moving a fully private launch out to the high seas, as the case of Sea Launch shows. 'Territory' in a legal sense is not involved; at best, it could be argued that the moveable launching platform of Sea Launch constitutes 'quasi-territory' of the state of registration – which is Liberia. Even if this would be accepted, what remains of the often-praised victim-orientation of the Liability Convention if one considers Liberia is neither party nor signatory to any of the space law treaties?

The Sea Launch consortium itself, by contrast, because of its registration in the Cayman Islands, has a British nationality. Would the United Kingdom perhaps be liable if Sea Launch's launches cause damage, in view of the nationality of Sea Launch and the United Kingdom for that reason qualifying as the 'State which launches'? Apparently, at the outset, the United Kingdom did not consider this to be the case, as Sea Launch was left to go ahead without being required to operate under a license under the UK Outer Space Act of 1986.[38]

However, once the British authorities got wind that they should perhaps (have) require(d) Sea Launch to operate under a UK license, since they might be held accountable for its operations under international space law, the result was a considerable delay for the private consortium. Sea Launch was, after its test flight had gone unobstructed, stopped in mid-course towards its first commercial launch by the obligation imposed by the UK government to obtain a UK license after all, and could proceed only after that had been arranged.

38 Outer Space Act, 1986 (UK), 1986, c 38; Space Law – Basic Legal Documents, EI; 36 Zeitschrift für Luft- und Weltraumrecht (1987), at 12. See esp ss 2(1), 3(1) & (3).

Certainly with respect to the test flight, we may therefore consider it fortuitous from a legal point of view that the United States had itself – for reasons largely of an economic and political nature – taken the initiative earlier, and obliged Boeing CSC, as the largest shareholder in Sea Launch, to apply for a license under the US Commercial Space Launch Act.[39] After all, strictly legally speaking the 40% share of Boeing does not make the United States a launching state in regard of Sea Launch even under an extensive interpretation of 'the State which launches', as it does not detract from Sea Launch's British nationality: it does not provide Sea Launch with the US nationality or make it a 'US entity'. Since moreover neither US territory nor US facilities are used for the launch, and procurement by the United States or even a private US company would be merely accidental, the United States would not automatically qualify as a 'launching State' in respect of any or all of Sea Launch's activities.

Would, on the other hand, Article VI of the Outer Space Treaty and the concept of international responsibility change this evaluation? Could the activities of Sea Launch, by virtue of the British nationality of Sea Launch, by virtue of the registration of the launching platform in Liberia, or by virtue of the 40% share of Boeing in Sea Launch, be seen as 'national activities in outer space' of, respectively, the United Kingdom, Liberia and the United States? Furthermore, could that responsibility ever entail an obligation to pay for damages on the part of these states even if they would not fall within the scope of application of Article VII and the Liability Convention?

What, finally, if the 40% share of Boeing would lead to United States responsibility for Sea Launch activities: would that be a 100% responsibility, or would not Norway, the Ukraine and Russia each also bear some responsibility, in view of the shares held by Kvaerner Moss, NPO Yuzhnoye and RSC Energia, respectively?

This brings to the fore the problems hiding behind the system of Article VII, which causes a particular state to be internationally liable for damage as long as the launches of the space object causing the damage are conducted by it, or are procured by it, or are undertaken from either its territory or its facility (whether under a restrictive or wide interpretation). The private entities involved in this way in such launches are, therefore, the ones with respect to which a state needs

39 Commercial Space Launch Act, Public Law 98-575, 98th Congress, HR 3942, 30 October 1984; 98 Stat 3055; Space Law – Basic Legal Documents, E III 3. See esp s 6(a).

to establish national space legislation in order to deal with their liability. Yet it is far from clear, to what extent and for which categories of private activities respectively private entities of any particular state would need to take such measures.

These problems and uncertainties are further compounded by the fact that it is the responsibility system provided by Article VI, not the liability system of Article VII and the Liability Convention, which obliges states to authorise and continuously supervise non-governmental entities. Establishment of national space laws, including licensing regimes as the most efficient and comprehensive means for a state to take care of international liability on the domestic level, is referred to in the context of international responsibility. The relationship between state responsibility and state liability under space law, however, has never been authoritatively defined.[40]

XII. Problems in Practise: Satellite Leasing and Sales-on-Orbit

Secondly, another recent phenomenon, arising within the satellite communications sector but with considerable impact on the launching sector might be illustrative of the problems which could arise from the complexity of the twin concepts of international responsibility and liability. The fourfold definition of the liable state is established, in a fashion, through the notion of launching. This makes sense perhaps where the launching phase is the most prominent phase of any space activity, and the states involved in the launching in a substantial way (as defined by the four criteria) are the only relevant entities concerned.

The liability regime provided by the Liability Convention, however, effectively amounts to 'once a launching state (and hence liable), always a launching state (and hence liable)'.[41] With the increasing life span of satellites, a growing practice of leasing or even selling satellites

40 Reference may be had to the author's *Liability Versus Responsibility in Space Law: Misconception or Misconstruction?*, in Proceedings of the Thirty-Fourth Colloquium on the Law of Outer Space (1992), 363-71, which represented a first effort to map the complexity and problems regarding this issue.

41 *Cf* also *eg*, the author's *The Illogical Link: Launching, Liability and Leasing*, in Proceedings of the Thirty-Sixth Colloquium on the Law of Outer Space (1994), 354; and *Loopholes in Liability? Aspects of Liability for Damage Sustained in the Course of Satellite Telecommunications Activities*, 2 Telecommunications & Space Journal (1995), 163, and note 30.

while in orbit may be discerned. Thus, a conceptual separation for legal purposes between the launching phase and the operational phase of a satellite, after launch, is increasingly feasible and logical. A state may for example be involved only in the launching of a telecommunication satellite to the extent of allowing its territory to be used. Would it still be valid to hold that state liable if the operators of that satellite (whether another state or its private entities) by their operations cause damage to third states (or their entities) some years after that launch has occurred? This question becomes even more salient, if the operators have only started operating the satellite after leasing or buying it in orbit from the original operators, and therefore need not have any (direct) legal relationship with the launching state! On the other hand, under most interpretations of Article VI, such operations would entail the state responsibility of the operator state, even if the operator was a private entity, as being a 'national activity in outer space'.

Of course, problems of derogation of liability or other legal consequences can be taken care of by contractual relations between the various launching states, and provisions taking care of in-orbit lease or sale. Yet, the complicated legal chains which would thus arise would threaten the consistency and uniformity of dealing with damage caused by space activities. In addition, they would perhaps unnecessarily obstruct the solution in practice of any dispute in this respect, since every element in the chain would tend to give rise to its own delays and disputes. The question would have to be asked what then would remain of the professed victim-orientation of the space law-liability regime.

In conclusion, while national space legislation crucially involving licensing regimes and/or, under circumstances, relevant contractual arrangements would clearly provide an efficient means of dealing with private involvement in space activities, the problems arise at the international level where the exact contours and scope of such fundamental concepts of 'responsibility', 'liability', 'national activities' and 'launching state' are far from clear. As discussed, this situation has led to considerable divergence in those few national space law regimes which have been established, and probably also to the absence of national space legislation where one would be desirable.

XIII. Concluding Remarks

Though the foregoing analysis is far from comprehensive and final, it can be concluded in the Asian context that international law does not principally obstruct private space activities, and actually in some ways is quite conducive thereto. The fundamental freedom to undertake space activities applies, in principle, to private space activities also;

the related obligations posed by Article VI of authorisation and continuing supervision as such are principally a concern for states. Once states have taken up the baton and start to exercise some substantial measure of authorisation and supervision – in other words, jurisdiction – the question becomes acute for private enterprise, whether this freedom has also been translated on the national and private level.

The twin concepts of state responsibility for activities not in conformity with any rule pronounced – including private activities – and state liability for damage caused by space objects – including space objects run by private operators – is perhaps the most fundamental issue of international space law from the perspective of privatisation of space activities. This twin concept forces (or at least induces) the relevant states to take domestic action to monitor and control those activities for which they could be held accountable at the international level. Yet, it has been shown to suffer from considerable uncertainties and inconsistencies. This also threatens private enterprise's interests, in stable, coherent, transparent and uniform legal regulation of their activities and an (ultimately perhaps worldwide) level playing field.

The almost comprehensive absence of substantive provisions specifically circumscribing private space activities at the level of the core instruments of international space law means that a large margin of discretion remains for individual states on a national level. They are free to legislate domestically in a liberal fashion, to accord with international principles, or in a restrictive fashion, since these principles can hardly be seen to prohibit restrictive national implementation. Launching as a space activity certainly is included in this analysis.

The major legal tools to achieve legal control are territorial jurisdiction (to the extent space activities are still largely conducted by humans in earth-bound launch centres, tracking-and-control stations and uplink facilities), personal jurisdiction over entities with the nationality of the particular state and registration-based jurisdiction over relevant space objects. The best way to achieve such legal control in turn is through establishment of a licensing system as part of a national space law, providing for the necessary controls and safeguards. So far, only eight states have done so in a more or less comprehensive fashion: the United States, Norway, Sweden, the United Kingdom, the Russian Federation, South Africa, the Ukraine and Australia. In addition, France has established a 'quasi-national' and (because of substantial involvement of the European Space Agency and its other member states) rather complicated arrangement *vis-à-vis* Arianespace, dealing at least with liability.

France is also, along with Germany, Italy, Brazil, India and Japan, currently seriously considering the establishment of some focused body of national space legislation. This still leaves a number of states where private participation in space activities has become substantial – a number which is moreover growing – but not yet taking any domestic legislative activities *vis-à-vis* those private activities for which they might be held responsible and/or liable at the international level. It is submitted, that this is at least partly the consequence of the uncertainties and inconsistencies detected at the international level.

Finally, the interaction between international and national legislation on issues of outer space and space activities is crucial if the entry of private enterprise in the space arena is to be dealt with to the benefit both of private enterprise itself and of the public at large. A somewhat self-evident division of tasks suggests itself here. States are the obvious controllers of private enterprise in any meaningful sense of the word: they have the legislative machinery to establish comprehensive licensing regimes and make them work – monitoring, adjudicating and if necessary enforcing them. In terms of substance, moreover, there would be many areas sensibly left to the discretion of individual states, to give substance to specific national political, social, economic, philosophical or cultural ideas.

It should be left to the international level, however, to define the parameters and scope within which such a control of private space activities should take place. This applies to issues of substance where a number of topics have been touched upon, which call for substantial uniformity at the international level or for some international regulation in the first place. It applies even more to issues of structure, where states should have minimal discretion in deciding implicitly or explicitly, which categories of private activities they feel they could be held accountable for at the international level.