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ETHIR: SINGAPORE AS A DELTA FOR SPACE LAW IN THE ASIA-PACIFIC

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National legislation is the method by which international space law is rendered effective at the national and sub-national levels. With the private sector's burgeoning involvement in space activities, the regulatory and participatory role of governments is being called into question. This question is compounded in the light of international co-operation in the space sector. States must ensure that they comply with their international obligations through the effective development, implementation and enforcement of their national space legislations. Against this backdrop, this paper focuses on the need for the development of national space legislation and a national space agency for the island-State of Singapore. It argues that Singapore is uniquely well-placed to serve as a crucible for regional co-operation in space activities in the Asia-Pacific. It then moots the case for the development of Singaporean space legislation and the establishment of a Singapore Space Agency. These steps allow Singapore to serve as a nexus for international space law in the Asia-Pacific region and beyond.

INTRODUCTION

The difficult relationship between international law and national legislation continues to be a point of debate, especially in international space law. International space law can only be rendered effective if enforced by States at the national and sub-national levels through national legislation. The urgency of this issue has been amplified in recent years with the growth of commercial activity and international co-operation in the space sector. Various factors, such as new actors and novel concerns, have caused the State's traditional regulatory role to come into question. This issue is no less important in small, newly-developed, non-space-faring States like Singapore. This paper moots the development and implementation of a national space legislation and agency in Singapore. It argues that this is necessary and urgent, and also outlines the methodology for the establishment of such a framework. To set this in context, it will first consider the obligations and considerations of a State such as Singapore from both the international and national perspectives. Further, this paper will discuss the possible implications of the establishment of this framework. Finally, it argues that this proposed framework will be a significant contribution to the field of international space law.

INTERNATIONAL OBLIGATIONS OF THE STATE

International space law does not specifically require States to enact national legislation in order to comply with its international obligations.[1] However, it is submitted that apart from being efficient and convenient, the establishment of national legislation is necessary to deal specifically with space activities in the framework of international law. This is due in large part to the existing *corpus juris spatialis*, as well as general international law.

Outer Space Treaty[2]: Article VI

Article VI of the Outer Space Treaty provides:

> States Parties to the Treaty shall bear *international responsibility for national activities in outer space*...whether such activities are carried on by governmental agencies or by non-governmental entities, and for assuring that national activities are carried out in conformity with the provisions set forth in the present Treaty.

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> The activities of non-governmental entities in outer space...shall require *authorization and continuing supervision by the appropriate State Party* to the Treaty. (Emphasis added)

This makes the State responsible for the space activities of its private citizens or organisations. Further, Article XIII makes it clear that the OST applies to all activities in outer space whether States carry them out individually or jointly with other States.

1975 Registration Convention[3]

Article II(1) of the 1975 Registration Convention provides:

> When a space object is launched into Earth orbit or beyond, the launching States shall register the space object by means of an entry in an appropriate registry which it shall maintain. Each launching State shall inform the Secretary-General of the United Nations of the establishment of such a registry.

While the Registration Convention allows States the discretion to decide on the means of its implementation and enforcement, it is submitted that national legislation would be the most effective and efficacious way in which the State can fulfil its obligations.

Issues of Jurisdiction & Responsibility: Registration Convention & Outer Space Treaty Articles VII & VIII

"Liability"[4] refers to the legal consequences (usually as damages) arising from a violation of international law. "Responsibility"[5] refers to the international obligations imposed on a party to carry out certain activities.[6] Article VII of the OST provides:

> "Each State party to the Treaty that launches or procures the launching of an object into Outer Space...and each State Party from whose territory or facility an object is launched, is internationally liable for damage to another State Party to the Treaty or its natural or juridical persons by such object pr its component parts on the Earth, in air space or in Outer Space..."[7]

Article VII creates the possibility of four different States being simultaneously, jointly and severally liable for any damage caused by the space object. These are: the State that launches the object; the State that procures its launching; the State from whose territory it is launched and the State from whose facility it is launched.[8] Thus if Singapore can be considered a launching States in any space activity, it would be liable in the event of damage occurring. This concept was expanded in the Liability Convention.[9]

Article VII of the Outer Space Treaty provides

> A State Party to the Treaty on whose registry an object launched into outer space is carried shall retain jurisdiction and control over such object, and over any personnel thereof, while in outer space or on a celestial body... (O)bjects or component parts found beyond the limits of the State Party... on whose registry they are carried shall be returned to that State Party...

Liability: The 1972 Liability Convention[10] **Articles II , III & IV**

The Liability Convention provides two standards of liability depending on the spatial area in which the damage occurred:[11]

(1) Damage on the surface of the earth or to aircraft in flight: Article II of the Liability Convention states that a launching State shall be absolutely liable for damage caused by its space objects on the surface of the earth or to aircraft in flight.[12] This liability is independent of fault or negligence. However, Article VI of the Liability Convention provides that the

launching state can be exonerated from absolute liability. This depends on its establishing that the damage resulted either (i) wholly or partially from gross negligence or (ii) from an act or omission done with intent to cause damage on the part of the claimant State or of natural or juridical persons it represents.[13]

(2) Damage elsewhere: Article III of the Liability Convention imposes liability for damage caused elsewhere than on the surface of the earth only if damage is due to the fault of the launching State or persons for whom it is responsible.[14]

Further, in all cases proximate causation would have to be proved.[15]

For liability to arise under the Liability Convention, damage caused by a national space object must result.[16] "Damage" is defined as loss of life, personal injury or other impairment of health; or loss of or damage to property of a state or of persons, natural or juridical, or property of international and inter-governmental organisations.[17] This definition is very broad. It probably leaves the State open to liability for loss of life, physical and mental injury[18], pain and suffering[19] and other non-material damages.[20] It is submitted that through national legislation, the State can ensure that entities that undertake space activities conduct them within the limits of the law, and should damage occur, would be liable through a licensing system in conformity with domestic law.

Analysis

These provisions do not specifically require registration. However, they are indicative that the State has an obligation to authorize and supervise its national space activities. Further, the State is internationally responsible, and would be liable for, damage caused by its space activities. National legislation would allow for such scenarios to be considered before the case of a violation of international law occurs. Hence the establishment of national legislation is in the State's national interest. It is also in keeping with the principles of international co-operation and due regard to the corresponding interests of other States.[21]

THE REASONS FOR THE NEED OF NATIONAL SPACE LEGISLATION IN SINGAPORE

The need for national space legislation in Singapore is both urgent and compelling for several reasons. These include allowing Singapore to fulfil its international obligations, the interaction of international space law with the dualist legal system of Singapore, and the ambient developments in the space field. This section will consider these reasons in detail.

Singapore's International Obligations

Singapore has ratified the OST and the Liability Convention. It has also signed the 1975 Registration Convention. Under Article 18 of the Vienna Convention on the Law of Treaties, Singapore is obliged to "refrain from acts which would defeat the object and purpose of"[22] the signed and ratified Treaties. As a signatory, Singapore's actions cannot detract from the international obligations under these Conventions. Further, any breach of an obligation incumbent upon a state under international law, regardless of the subject matter of the obligation, entails international responsibility. [23] A State cannot plead a rule of or a gap in its own municipal law as a defence to a claim based on international law.[24] Thus in the *Free Zones* case, the PCIJ said, "It is certain that France cannot rely on her own legislation to limit the scope of her international obligations".[25] Further, most States do not give primacy to international law over their own national law.[26] The effectiveness of international law generally depends on the criteria adopted by national legal systems. National legislation will allow Singapore to comply with its international

obligations, and render international law effective in the Singaporean domestic legal framework.[27]

Singapore's Dualist Legal System: Interaction between National Legislation & International Law

The Vienna Convention on the Law of Treaties defines the term "treaty" to mean a written international agreement between States governed by international law.[28] Accordingly an international court of tribunal called on to interpret a treaty will apply the relevant principles of international law and not the domestic law of the States which are parties to the treaties.

States must ensure that their domestic law permits them to meet their treaty obligations. In parliamentary systems based on the United Kingdom model, such as the one in Singapore, treaties only become part of the domestic law if an enabling act of Parliament has been passed.[29] The basis of this approach is the doctrine of the separation of powers.[30] Singapore is a dualist country, where international law cannot operate directly in the domestic sphere, needing to be transformed into domestic law by the legal acts of States.

Further, the traditional image of the international community composed solely of sovereign States is impractical. States have delegated or relinquished some of their functions to other actors on the sub-State level and inter-State level. With the increase of activities conducted by commercial entities, individuals and non-governmental organizations, the paradigm of the State's role is changing.[31] This ongoing dispersion of influence and power among myriad participants casts doubts on the State without national legislation.[32] While the model of the State will continue for some time, there is escalating proof that the reorganization of authority will carry on and that the verticality of State-sub-State interaction will persist. The national legal framework should be attuned to a reality consisting of legislations allowing for a variety of authoritative structures.[33] This is especially so in the case of dualist legal systems such as Singapore's.[34]

There is likely to be more inherent stability in a system backed by field-specific legislation. The potential contentious points will be covered by a buttress of national legislations between the State and sub-State entities at different levels. Further, functional specialization will lead to an optimum allocation of activities at different levels of government as well as non-governmental entities.[35]

Ambient Developments in the Space Field

Commercialisation is one of the developments in the space sector with the greatest impact on the role of the State. The space sector represents a billion-dollar annual market populated by increasingly varied actors. It is beyond the scope of this paper to consider the detailed developments in the commercial space sector and their legal implications. Much has been written about this elsewhere. This paper however, is concerned specifically about the need for national legislation in a three-pronged approach:

1) To regulate commercial space activity within Singapore so as to protect against the State's liability and to have measure of control and supervision of such entities,
2) To ensure a balanced and equitable commercial use of outer space, bearing in mind the basic principles of international space law and Singapore's obligations under those principles, and
3) To fully exploit the immense commercial potential of the space sector in the national interests of Singapore.

Article VI places Singapore under an

> "international responsibility for national activities in outer space...whether such activities are carried on by governmental agencies or by non-governmental entities..."[36]

Some publicists have written that private space activities are equated to the activities of states.[37] Further, Singapore would be hard put to ensure "authorisation and continuing supervision" of such activities if national legislation were not put in place.[38] Further, given the proliferation of parties at both the transnational and sub-State level, as well as burgeoning international cooperation with inter-governmental organizations and multi-national corporations, the government's traditional regulatory role has drastically altered.

However, the corpus of international space law still remains of essential significance in safeguarding and expanding upon a workable, equitable and beneficial legal framework for all space and space-related activities. It is however of grave importance that this does not stifle commercial activity in the space sector, so as to boost the Humankind's ventures into outer space.

For these reasons, there is a grave and urgent need for the establishment of national space legislation in Singapore.

CASE STUDY: THE UNIQUE CASE OF SINGAPORE

Singapore is a State of unique characteristics. It belongs to the Group of 77 – the developing nations, and it is at present considered a non-space-faring State. It is also a small State, which has next to no possibility of access to space without international cooperation. Further, Singapore has traditional a focus on cutting-edge technology in its ongoing efforts to promote its economy and research abilities. This puts Singapore in a special position to consider the use of space applications for sustainable development. Further, there is a complete lack of a legal framework in Singapore with regards to the specific space sector. This provides a unique possibility to create a comprehensive, balance, practicable and forward-looking legal framework for the best interests of Singapore.

Additionally, Singapore is in a unique position and can act as the focal point of regional cooperation in the space field. As a founding member of the Association of South-East Asian Nations (ASEAN)[39], and as a member of the Asia-Pacific Economic Cooperation (APEC)[40] and the Asia-Europe Meeting (ASEM)[41], Singapore is in an exceptional situation in being able to assist in regional development of space activities and access to outer space.

Singapore should pass national legislation that includes a licensing system to regulate space activities by its public and private entities. Article VI of the OST requires the State to authorise and continually supervise its space-faring entities.[42] Article IX of the OST provides that the duty of consultation by a State Party exists also with regard to "an activity or experiment planned by...its national in outer space". Further, in conducting space activities, States may also have to consider general public international law.[43] Adopting national legislation would reduce Singapore's liability insofar that it allows Singapore to better fulfil its international obligations and avoid liability. However, since Article VI of the OST mandates "continuing supervision", it is unlikely that simply passing legislation would significantly reduce Singapore's liability exposure.

Article VI does not provide any ruling as to how the launching State has to fulfil its duty of authorisation and supervision. It is therefore left to the respective State to decide upon an appropriate procedure.[44] However the supervision must be sufficient for the supervising State to become aware of any activities in

violation of the law of outer space. National legislation should consider both the legal obligations of the State under Space law and public international law.

Further, establishing a national space legislation will provide Singapore with a legal framework in relation to other States, entities and the international community, establish domestic legal rights and obligations with regard to space activities, and create a conducive environment for commercialization while ensuring a balanced and fair use of outer space in conformity with Singapore's international obligations. Additionally, such an establishment would demonstrate Singapore's commitment to its international obligations, making it a more secure country for international organizations and multi-national corporations to work with and from. It also demonstrates Singapore's commitment to the development of its space activities and industry, keeping Singapore at the forefront of cutting-edge technology.

Thus, it is mooted that Singapore should establish national space legislation as soon as practicable.

METHODOLOGY FOR THE ESTABLISHMENT OF NATIONAL SPACE LEGISLATION

Practically, the establishment of national space legislation in Singapore will occur only if critical will within the government is reached. It is necessary that the legislature and government of Singapore realize the vast potential – commercial, scientific, political or otherwise – of the space sector. It is proposed that a Working Group of legislators, academics, practitioners and international consultants be set up to oversee the drafting of Singapore's space legislation.

Commercialisation[45] is the next step in the evolution of the use of outer space.[46] Thus Singapore should pass uniform legislation with clear regulations for licensing space activities.[47] Uniformity makes clear what regulations companies must comply with.[48] This promotes a healthy business climate since companies will clearly know their obligations and liabilities.[49]

The following issues should be included in the legislation and licensing system:

a) Registration: A national register should be established. Entities that launch space objects should register that object within 30 days of launch.[50] Information provided should include: (i) Name of designator of the launch; (ii) Date and location of launch; (iii) Orbital perimeters and (iv) General function of the space object.[51] This provides the information Singapore needs to supervise the space activity in accordance with Article VI of the OST.
b) Liability & Indemnities: The licensing system should appropriately balance the liability risks between the Singapore government and the space-faring entities. Limits should be placed on liability that might result from a commercial space accident.[52] In Australia and the United States this cap has been set at US$200,000.[53] Issues dealing with governmental indemnities and legal actions should also be dealt with.[54]
c) Insurance: Entities should be required to insure all space activities. Insurance coverage should include events leading up to launch, launching, in-orbit operations and re-entry. Insurance ensures that victims of any damage caused will be compensated, while allowing risk management for entities engaged in space activities.[55]
d) Consultation: The licensing system should provide channels for consultation between the Singapore Government and the space-faring entities. Consultations provide frameworks for the supervision of space activities by the Singapore Government. Matters such as liability, technology and international obligations are areas in which consultations are important.

e) Revocation of Licence: The legislation should state situations in which the Singapore Government can revoke the licence. Circumstances leading to revocation may include situations where the licensee violates international law, does not comply with licence requirements, or where national security is at stake.

f) Mechanism for Legislation Review: Review of the Space legislation and licence system is important to keep up with the pace of technological and commercial breakthroughs. Thus the legislation should provide mechanisms for consultation with the Space industry and legislative review as and when necessary.

g) Promotion of Commercialisation: The national legislation adopted should promote commercialisation of space activities. Government funding is becoming rapidly insufficient for the efficient exploration and use of outer space. Private funding through commercialisation is increasingly important. Hence the legislation should ensure that market climates remain conducive for space commercialisation. National agencies should purchase expendable launch services from private entities to the greatest extent feasible.[56]

h) Establishment of a Singapore Space Agency: A specific Space Agency should be set up to oversee these initiatives. The establishment of this Agency is crucial to the efficacy of any enacted space legislation. The next section will deal with the reasons for the need of such an Agency, and the methodology for its establishment.

THE SINGAPORE SPACE AGENCY: IMPORTANCE & ESTABLISHMENT

There are six reasons for the urgent need of a Singapore Space Agency:

1) Legal: To secure the legal interests, rights and obligations of the Singapore State, its citizens and its entities, and to provide a focal point for any legal disputes

2) Technical: To develop and maintain technical and scientific expertise in outer space by

a) Initiating and coordinating regional and international cooperation in science, research & development,

b) Sourcing for a talent pool of technical, commercial and scientific expertise in outer space for Singapore and

c) Serving as a conglomerate and nexus for scientists, engineers and technicians and lawyers, businesses and policy decision makers

3) Policy: To serve as a tool for Singapore's national interests and foreign policy by acting as State representative in multilateral fora and functioning as a conduit between the State and non-State entities conducting space activities

4) International, Regional & Global Cooperative Ventures: To negotiate and establish cooperative ties with other national agencies, private entities and intergovernmental organizations, while providing a centered, coherent framework to monitor developments and opportunities abroad that may be of interest to Singapore

5) Economics: To provide economic, legal and material security for Singaporean space ventures and activities by

a) Sourcing for funding, interest and will for the initiation and maintenance of a Singaporean space industry

b) Assessing and exploiting the possible linkages between various space and non-space industries, and

c) Facilitating the possible connections between industry, academia, business and the State.

6) Education & Outreach: To enable cross-exchanges of students in the space sector and thereby

a) Increase the awareness of the viability of space as a career choice

b) Foster ties between universities and industry

c) Increase public awareness of the importance of exploration and use of outer space.

The establishment of this proposed Singapore Space Agency should be in parallel development to the national space legislation. This allows the consultation with the gathering of experts, consultants and policy decision makers in space and non-space fields, including non-technical personnel. It should also harness the ideas, energy and contributions of the Singaporean youth and students in establishing a policy-level Working Group. This should culminate in the creation of a Secretariat Office, together with attachés placed globally through the Singaporean Embassies abroad.

CONCLUSION: LOOKING TO THE FUTURE

Singapore has to venture into Space in order to remain a relevant and competitive economy in the new Space Age. An understanding of the technical, commercial and legal aspects of Space is essential to Singapore's survival in this fast-moving arena. Passing legislation to better fulfil its international obligations in space law and promoting commercial endeavours in space is the correct path to take. Further, Singapore should take the lead in forming a panel of interdisciplinary experts to formulate ways in which Singapore can contribute to the exploration and use of Space.

Internally, a national Space Agency should be established for the fostering of legally, economically and technically secure space activities. This should be established together with a proper legal framework comprising national legislation for the proper authorisation, regulation and supervision of space activities. Externally, Singapore could act as a springboard for regional cooperation in the race towards access to outer space, as well as an example for other small, developing States with an eye on the future. Its legislative experience can also serve as a case study in the application of international space law to small, non-faring States with the Common Law tradition.

Outer space and international space law presents Singapore with a unique opportunity to soar into the unexplored regions of the Universe, and to partake in Humanity's sojourn into the immense potential of outer space. It is crucial not to sit out and let this brilliant opportunity slip by. Singapore can be the *ethir*[57], the delta, of international space law both to the Asia-Pacific, as well as to the category of small, developing countries. The crucial dynamic is act on it; the time to act on it is now.

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[3] Convention on Registration of Objects Launched into Outer Space, 1023 UNTS 15 (1975) [hereinafter "Registration Convention"]

[4] Article VII, OST, see *supra* note 2 and Articles II and III of the Convention on International Liability for Damage Caused by Space Objects (1973) T.I.A.S. 7762 [hereinafter the "Liability Convention"]

[5] Article VI, OST, see *supra* note 2

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[7] Article VII, OST, see *supra* note 2

[8] Cheng, B., "International Responsibility and Liability for Launch Activities" see *supra* note 6; and von der Dunk, F.G., "Liability versus Responsibility in Space Law: Misconception or Misconstruction" (1991) IISL Proceedings 363 – 371 at 365

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[10] Convention on International Liability for Damage Caused by Space Objects, 961 UNTS 187 [hereinafter "Liability Convention"]

[11] Article II, Liability Convention, see *supra* note 10

[12] Article II, Liability Convention, see *supra* note 10

[13] Article VII(a), Liability Convention, see *supra* note 10

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[16] Article II, Liability Convention, see *supra* note 10, see also Gorove, S., *Developments in Space Law: Issues and Policies* (1991) at 132
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[22] Article 18(1), Vienna Convention on the Law of Treaties, U.N. Doc. A/CONF. 39/27 (1969). 8 I.L.M. 679 (1969)
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[40] For more information see http://www.apec.org/ (Last accessed September 2004)
[41] For more information see http://www.asem.inter.net.th/ (Last accessed September 2004)
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