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Do National Space Laws Look beyond Liability for Damage? - The Case of India

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Abstract

This paper seeks to critically analyze and review the draft Space Activities Bill, 2017 ("Space Activities Bill") that was issued by the Government of India on 21 November 2017 for comments. The critique provided in this paper is especially from international law perspective. As the Space Activities Bill provides, its aim is to encourage enhanced participation of non-governmental/ private sector agencies in space activities in India, in compliance with international treaty obligations. Yet a closer look at the said Bill reveals that it essentially only provides for the following: (a) authorisation and license for commercial space activities and prohibition of unauthorised space activity; (b) liability and indemnification to Central Government for damage arising out of commercial space activities; and (c) registration of space objects. Thus, the Space Activities Bill is immoderately focused on liability for damage due to private space activities. While focusing on authorization and liability, other important aspects that may incur international responsibility have been ignored; for example, the definitions under the Space Activities often do not clarify the legal position well. India being a space player for decades and party to most space treaties, the Space Activities Bill should provide a mechanism and procedure for implementing the international obligations undertaken by India under these treaties, such as, carrying out space activities out for the benefit of all; non-appropriation of outer space; and space-sustainability. However, the said Bill, which aims to act as an umbrella space legislation, does not include several such international obligations.

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Thus the paper argues that while liability and registration are important aspects of space law, there are other important aspects, which should not be ignored while enacting a national space legislation.

1. Introduction

This paper seeks to critically analyze and review the draft Space Activities Bill, 2017 ("Space Activities Bill") that was issued by the Government of India on 21 November 2017 for comments. The critique offered in this paper is from an international law perspective.

India has been a spacefaring nation since 1963 when it began its indigenous space program in 1963 by setting up the Thumba Equatorial Rocket Launching Station. Since then, India has emerged as a major spacefaring nation and is one of few States with launch capacities. Yet, India lacks a legal framework to address its national space activities. The lack of national space legislation has not led to any consequences because till now, all of India's space activities were channelized through the Indian Space Research Organization (ISRO), which is under the Department of Space, and its commercial arm, Antrix.

However, the 'Make in India' campaign through which the Indian government has been encouraging the private sector to participate in space industry,[1] opens the door for new challenges. Besides, recently on 4 December 2018, India's first privately built satellite Exseed Sat-1 was successfully launched by the USA-based SpaceX.[2] Exceedspace,[3] an Indian company, built the satellite in just 18 months. It is interesting to note that due to unavailability of slots in ISRO launch services, Exceedspace decided to launch the satellite through SpaceX, thus paving the way for Indian private sector for shopping for launch services.[4] This particular incident portrays the importance of having a national space law in India, as India is both liable and responsible[5] for such launches, overseas or not, by Indian operators.

The lack of a national space law in India, despite its commendable progress

1 "ISRO participates in "Make In India Week", *Depart of Space ISRO,* online <https://www.isro.gov.in/isro-participates-make-india-week>

2 Srinivas Laxman and Surendra Singh, "Mumbai startup first Indian private firm to have satellite in Space", *Times of India* (5 December 2018), online <https://timesofindia.indiatimes.com/city/mumbai/mum-startup-first-indian-pvt-firm-to-have-satellite-in-space/articleshow/66944968.cms>

3 Website of the company, <https://www.exseedspace.com/>

4 Rakshita R, "India's first home-grown private satellite to hit space", *Deccan Herald* (16 November 2018), online <https://www.deccanherald.com/state/india-s-first-home-grown-703343.html>

5 It is to be noted that the concepts of liability and responsibility are different from each other in space law. Liability refers to liability for damage by space object on earth, aircraft or space object whereas responsibility refers to general responsibility of a State for its national space activities.

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in space activities, has been criticized by several interest groups, including the private space industry which wanted a clarity in the legal situation. This paper seeks to critique the Space Activities Bill, which is presently undergoing the process of analysis of public comments and inter-ministerial consultations,[6]and suggest necessary amendments in order for India to respect its international obligations and to be covered for international responsibility.

The Space Activities Bill is considered as a welcome change by the Indian space community. It is the first time that the space law applicable in India has been drafted. The Bill provides a 'necessary legal environment for orderly performance and growth of space sector.'[7] However, Space Activities Bill has been criticized on certain fronts such as: (a) inclusion of criminal punishment for its violation; (b) excessive fine for violation of provisions which will deter private enterprises, especially the start-ups; (c) the right of governmental entities to inspect the premises of space activities at any time is a deterrence; (d) an independent nodal agency has not been appointed which would have ensured that fair opportunity and competition is provided to the private entities vis-à-vis the governmental space endeavours; and (e) no single-window clearance opportunity has been provided.[8] Critique of the Space Activities Bill in this paper is that, like the Sofia Guidelines for a Model Law on National Space Legislation of the International Law Association[9] (Model Law) on which it is based, Space Activities Bill puts too much emphasis on liability due to damage by space objects. In doing so, the said Bill, like several other national space laws, misses out on legislating on important international obligations of India, such as rescue and return of astronauts, non-appropriation of outer space and use and exploration of outer space for the benefit of all. With private space activities taking off in India, it is important to include India's international obligations in national law in order ensure that they are abided by the private space industry.

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6 Government of India, Department of Space, "*Space in Parliament" – Compilation of Replies given in Parliament during 2015*, Budget Session of Parliament 2015 (February – April 2018) at 47, online < https://www.isro.gov.in/sites/default/files/article-files/parliament-questions/budget_session_of_parliament_2018_february_-_april_2018.pdf> (Space in Parliament 2015)

7 Space Activities Bill, Explanatory Note

8 Madhumathi DS, "Draft space law has less than meets the eye", *The Hindu* (23 November 2017) online < https://www.thehindu.com/todays-paper/tp-national/tp-andhrapradesh/draft-space-law-has-less-than-meets-the-eye/article20668952.ece>; Narayan Prasad, "India's Space Activities Bill – A Good Start but Needs to get Better", *Space Alert* 6:1 online < https://www.orfonline.org/research/space-alert-volume-vi-issue-1/>

9 Resolution 6/2012, "Information on the activities of international intergovernmental and non-governmental organizations relating to space law", Committee on the Peaceful Uses of Outer Space Legal Subcommittee, Fifty-second session (8-19 April 2013), UN Doc A/AC.105/C.2/2013/CRP.6

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This paper aims to point out that excessive emphasis on liability leads to overlooking other important points in a national space law and as an example, elaborates on the case of India. In order to reach that goal, the paper does a critique of the Space Activities Bill, so as portray that the said Bill has missed out on provisioning for some important aspects because it is too focused on liability.

2. Article VI – the genesis of National Space Legislations

Article VI[10] of the Outer Space Treaty[11] is often considered to be the genesis and *raison d' être* of national space legislations in space-faring nations. Undeniably, one of the purposes of the Space Activities Bill is to domestically implement India's international obligation to continuously supervise its national space activities. Such implementation was not relevant earlier, even though India has always abided by its international space law obligations, because private India space sector was not independently operating and launching satellites, till now. However, with the 'Make in India' campaign and the recent launch of Exceedspace, the scenario is changing and the legislators should respond to the needs of the present times.
A compromise between the USA's stand that private participation be permitted in outer space and the former Soviet Union's stand that only governmental activity be permitted, Article VI of the Outer Space Treaty allows private space activities but holds the States directly responsible for such non-governmental space activities as opposed to the general indirect State responsibility for non-compliance of international law by its private entities. The second part of Article VI states that private space activities shall require (a) authorization and (b) continuous supervision; and has been often been interpreted as a provision requiring space-faring nations to enact

10 The language of the Article VI of the Outer Space Treaty reads as:
States Parties to the Treaty shall bear international responsibility for national activities in outer space, including the Moon and other celestial bodies, 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. The activities of non-governmental entities in outer space, including the Moon and other celestial bodies, shall require authorization and continuing supervision by the appropriate State Party to the Treaty. When activities are carried on in outer space, including the Moon and other celestial bodies, by an international organization, responsibility for compliance with this Treaty shall be borne both by the international organization and by the States Parties to the Treaty participating in such organization.

11 *Agreement Governing the Activities of States on the Moon and Other Celestial Bodies*, New York, 18 Dec. 1979, 1363 UNTS 3 (entered into force 11 July, 1984) (Outer Space Treaty)

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national space legislations.[12] However, the view that Article VI of the Outer Space Treaty mandates space-faring nations to enact space laws is incorrect. While Article VI of the Outer Space Treaty puts responsibility on States for their national space activities, including private space activities, the mechanism by which such responsibility is exercised, whether through an enabling law or not, is upto the States.[13] India, for example, till now has exercised this responsibility without an enabling legislation. However, India has been able to exercise such responsibility without a national law till now, because of lack of independent private participation in space sector. Now that independent private participation is becoming possible, the need for national space legislation seems imminent.

Thus, though Article VI does not mandate enacting national space laws, importance of national space legislations cannot be emphasized enough. However, language of Article VI which that "activities of non-governmental entities in outer space… shall require authorization and continuous supervision by the appropriate State Party" can certainly be interpreted as encouraging States to enact national space legislations. As General Assembly Resolution 59/115 provides, States conducting space activities should consider enacting and implementing national space laws for continuing supervision of non-governmental entities under their jurisdiction.[14] The GA Res 68/74 on "Recommendations on national legislation relevant to the peaceful exploration and use of outer space" [15] provides that it considers the national space laws as the appropriate means of ensuring that outer space is used for peaceful purposes and that the obligations under international law are implemented. The GA Res 68/74 also noted that national space legislations are desirable due to "the need for consistency and predictability with regard to the authorization and supervision of space activities and the need for a practical regulatory system for the involvement of non-governmental entities to provide further incentives for enacting regulatory frameworks at the national level".[16]

12 Testimony of Laura Montgomery, Before the Committee on Science, Space, and Technology Subcommittee on Space Regulating Space: Innovation, Liberty, and International Obligations (8 March, 2017)

13 Ibid; Ram Jakhu, "Implementation of Article VI of Outer Space Treaty in North America" (Paper delivered in Eilene M. Galloway Symposium on Critical Issues in Space Law, 2008); Space in Parliament, *supra* note 7, at 37

14 *Application of the concept of the "launching State"*, UN GA Res 59/115, UNGAOR, 2004,UN Doc A/RES/59/115 at 2 (GA Res 59/115)

15 *Recommendations on national legislation relevant to the peaceful exploration and use of outer space*, UN GA Res 68/74, UNGAOR, 2013, UN Doc A/RES/68/74 at 1 (GA Res 68/74)

16 *Ibid* at 2

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3. Should Articles VI of the Outer Space Treaty be the sole reason behind national space laws?

Article VI of the Outer Space Treaty is indeed an important reason for enacting national space legislations. However, there is another important reason for India, which is a dualist State, to enact a national space law. Generally in a dualist State, treaties are not self-executing and have to be translated and implemented as domestic law in order to have effect domestically.[17]

India, being a dualist State, international treaties should ideally be made part of the domestic law by an act of Parliament. Article 253 of the Indian Constitution provides that the "…Parliament has power to make any law for the whole or any part of the territory of India for implementing treaty, agreement or convention with any other country or countries or any decision made at any international conference, association or other body."[18] India is a party to the Outer Space Treaty and other multinational space treaties; and in order to properly execute the treaty within domestic context, a national space law is desirable. The requirement to harmonize international treaty obligations is inherent in the international space treaties themselves.[19] Harmonization represents the essential physical link between a nation's universally declared stand in the international arena on outer space (or any other matter) and its national application.[20] Besides, national space laws are also desirable in order to have a mechanism and procedure, administrative or otherwise, to implement the international obligations of a State into domestic context and enable behavior of space sector, especially the private space sector, in accordance with India's international obligations.

National law is also necessary in order to bring certainty and clarity of legal regime, which is desirable for the private sector, which finds it difficult to invest if the law is in a state of flux. With the national needs for space applications rapidly growing and the space industry proving to be profitable in global context, there is encouragement for participation of private entities in space sector.[21] However, without certainty of legal regime applicable, it is difficult for the private entities to operate independently. Hence, Article VI of the Outer Space Treaty, even though an important factor, should not be the only reason for a domestic space law.

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17 It is to be noted that though India is a dualist State, its Constitution provides for respecting international law. Article 51 of the Indian Constitution provides that the State shall endeavor to "(c) foster respect for international law and treaty obligations in the dealings of organized peoples with one another."

18 Constitution of India, Article 253

19 Ranjana Kaul and Ram S Jakhu, "Regulation of Space Activities in India", in Ram S Jakhu (ed) *National Regulation of Space Activities,* (Springer 2010) at 156-157

20 *Ibid*

21 *Space Activities Bill,* Explanatory Note

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4. Looking beyond liability for damage and authorization

States often formulate the domestic space laws in order to put liability and obligation to provide indemnity on private players in cases of damage by space object, so that the government does not have to pay from its own resources (or has to pay only the amount beyond the cap of liability) to the State that has suffered damage. Article VII of the Outer Space Treaty provides that the launching States are internationally liable in case of a damage caused by a space object. The Liability Convention,[22] which expounds on Article VII of the Outer Space Treaty, provides that the launching States are absolutely liable for any damage caused on earth or to aircrafts by a space object and there is fault-based international liability for damage caused by a space object to another space object. The space-faring nations thus, through regulatory framework, ensure that private players launching space objects either take insurance policies or commit to pay the government in cases of damage, whether or not upto a limit.

However, ensuring a framework, in order to fulfill international obligation under Article VII of the Outer Space Treaty and the Liability Convention or fulfilling obligations under Article VI of the Outer Space Treaty, should not be the only reason for formulating a national space law. India should formulate national law for bringing appropriate legal framework, to ensure certainty of legal regime and because it is a dualist State. Seen from this perspective, the important provisions of international space treaties should be translated into domestic laws.

The explanatory note to the Space Activities Bill provides that it aims to be a general umbrella legislation whereas laws for specific space activities may be made as delegated legislations. Therefore, the Space Activities Bill should implement the provisions of the Outer Space Treaty that contains certain universally accepted broad principles of international space law, domestically. However, such is not the case with the Space Activities Bill.

In fact, Model Law, adopted by the 75th International Law Association's (ILA) Conference on 30 August 2012 as resolution 6/2012, fails to look beyond liability (and registration which are interconnected). For example, the Rapporteur to the Space Law Committee of the ILA in his report states that: "there are indispensable requirements underlying any future model law, as follows: (a) Duty and details for authorization procedures and licensing, and respective requirements; (b) Duty of supervision; (c) Necessary insurance for private space actors". [23] In addition, in the Workshop on National Space

22 *Convention on International Liability for Damage Caused by Space Objects*, 29 March 1972, 961 UNTS 187, 24 UST 2389, 10 ILM 965 (1971) (entered into force 1 September 1972) (Liability Convention)

23 Resolution 6/2012, "Information on the activities of international intergovernmental and non-governmental organizations relating to space law", Committee on the

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Legislation, which was held in 2004, a number of so-called "building-blocks" for national space laws were adopted. Those building blocks which were considered crucial were (a) authorization of space activities; (b) supervision of space activities; (c) registration of space objects, (d) compensation regulation, and (e) additional regulation.[24] Though it may be argued that supervision and authorization includes within its ambit all other national law elements, it is apparent from the Model Law and the endeavours that led to it that there is a striking emphasis on liability.

Similarly, the Space Activities Bill, which is based on the Model Law, emphasizes on liability for damage by space object. It provides, on paper, that its aim is to encourage enhanced participation of non-governmental/ private sector agencies in space activities in India, in compliance with international treaty obligations.[25] Yet a closer look at the said Bill discloses that it essentially provides for the following: (a) authorisation and license for commercial space activities and prohibition of unauthorised space activity; (b) liability and indemnification to Central Government for damage arising out of commercial space activities; and (c) registration of space objects. The Space Activities Bill does not explicitly develop upon India's other international obligations, such as (a) carrying out space activities out for the benefit and in the interests of all countries; (b) non-appropriation of outer space; (c) space-sustainability; and (d) rescue and return of astronauts/ personnel in a spacecraft. Thus, the Space Activities Bill, though a commendable step, lacks in including within itself several important obligations of Indian space industry or lacks clarity while imposing obligations on the space actors.

5. Space Activities Bill – A critic's viewpoint

The emphasis on liability and authorization in the Space Activities Bill means that some basic issues, even those which have relation to liability and authorization, have been ignored.

Extent of the Bill

For example, Section 1(2) of the Space Activities Bill, which provides the extent of the said Bill, states that it extends to "whole of India." In order to clarify the extent, the words "territory of India including airspace and territorial sea" should have been added after the word "whole".[26] This is

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Peaceful Uses of Outer Space Legal Subcommittee, Fifty-second session (8-19 April 2013), UN Doc A/AC.105/C.2/2013/CRP.6

24 Hobe/Schmidt-Tedd/Schrogl, (Eds.), Towards a harmonized approach for national space legislation in Europe, Project 2001 Plus, Cologne 2004 at 48-49.

25 Space Activities Bill, Explanatory Note

26 Section 1(2): It extends to the whole of India and the exclusive economic zone of India including the off-shore platforms, ships and vessels under Indian flag in high

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particularly relevant because the definition of launching State, under the space treaties, includes the State from whose territory or facility the space object was launched. The suggested words will ensure that any private entity carrying out space activities from any territory of India, including its airspace and territorial sea, is covered under the proposed national space law.
Section 1(2) also states that it extends to space objects "of Indian origin."[27] But the term, "Indian origin" has not been defined anywhere in the Space Activities Bill, leading to ambiguity. The term "Indian origin" in Section 1(2) should be clarified to bring clarity on which space activities are considered "national space activities" of India and thus, for which India considers itself responsible. For example, the law should clarify that launch of Indian satellites from foreign territory like the case of Exceedspace, will be of 'Indian origin' and hence, covered under the Space Activities Bill.

Application of the Bill

The Space Activities Bill provides that its provisions applies to every citizen of India in India or outside India[28] but the said Bill does not include that it applies to "non-citizens carrying out activities in India". This loophole may be manipulated by foreign nationals, by carrying out space activities in India for which India will be internationally responsible and liable but the said non-citizens will not fall under the ambit of the Space Activities Bill. This is particularly relevant as India has emerged as "one of the most competitive and reliable launch service providers in the world" and earns significant revenue through launch of foreign satellites.[29] As of July-August 2018, India launched 237 customer satellites from 29 foreign countries.[30]
The case of four SpaceBEE satellites of Swarm Technologies, USA that were launched from India on 12 January 2018 may be cited here.[31] Application for the SpaceBEE satellites 1, 2, 3, and 4, had been earlier dismissed by the FCC,

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seas, aircrafts and other air-borne vehicles registered in India and the space objects of Indian origin in outer space and the space objects which are registered under the register of space objects maintained by the Central Government.

27 *Ibid*

28 Section 1(3) - The provisions of this Act shall apply to every citizen of India in India or outside India and every legal or juridical person, including Governmental, non-Governmental or private sector agency, company, corporate body registered or incorporated in India and engaged in any space activity in India or outside India.

29 Space in Parliament, *supra* note 7 at 38-39

30 Government of India, Department of Space, "*Space in Parliament" – Compilation of Replies given in Parliament during 2018*, Monsoon Session of Parliament (July – August 2018) at 54, online <https://www.isro.gov.in/sites/default/files/article-files/parliament-questions/monsoon_session_2018_eng.pdf>

31 *Ibid;* Loren Grush, "The FCC says a space startup launched four tiny satellites into orbit without permission", *The Verge,* (10 March, 2018), online <https://www.theverge.com/2018/3/10/17102888/the-fcc-says-a-space-startup-launched-four-tiny-satellites-into-orbit-without-permission>

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USA on safety grounds in public interest due to the small size of the satellites, which makes them difficult to track.[32]Yet Swarm Technologies went ahead with the launch, which took place from India.[33] Though FCC took action against Swarm Technologies, revoked authorisation for a follow up mission[34] and is deciding on the fate of future SpaceBEE missions, the question is whether the USA will deny responsibility and liability in case of damage caused by the said SpaceBEE satellites. In any case, India, being the territory from which the launch took place, is a launching State of the satellites and is hence liable under the space treaties for damage caused by them. Hence, as India will be liable for foreign space activities in India, the Space Activities Bill should cover within its ambit "non-citizens carrying out activities in India".

In addition, sub-section 1(4) should be added in the extent and application clause stating that "Provisions of this Act shall apply to any space activity as defined in Section 2(f) of this Act".[35] This provision is necessary in order to emphasize that the Space Activities Bill applies to any space activity.

Definition of Space Activity

The definition of 'space activity' is provided under Section 2(f) of the Space Activities Bill as "the launch of any space object, use of space object, operation, guidance and entry of space object into and from outer space and all functions for performing the said activities including the procurement of the objects for the said purposes." After the words "launch of any space object", the words - "procuring of launch,[36] use of territory or facility of India for any launch,[37] purchase of in-orbit operational satellite[38], attempted launch[39]" should be added. These activities have been included in space

32 Email from FCC, < https://apps.fcc.gov/els/GetAtt.html?id=203152&x=.>

33 Grush, *supra* note 32; Mark Harris, "FCC Accuses Stealthy Startup of Launching Rogue Satellites", *IEEE Spectrum* (9 March 2018), online <https://spectrum.ieee.org/tech-talk/aerospace/satellites/fcc-accuses-stealthy-startup-of-launching-rogue-satellites>

34 *Ibid*

35 Section 2(f) of the Space Activities Bill defines "space activities"

36 Outer Space Treaty, Article VII; Liability Convention, Article 1(c); Registration Convention, Article 1(a); Declaration of Legal Principles Governing the Activities of Sttes in the Exploration and Use of Outer Space, Adopted by the General Assembly in its resolution 1962 (XVIII) of 13 December 1963, paragraph 7

37 Outer Space Treaty, Article VII; Liability Convention, Article 1(c); Registration Convention, Article 1(a); Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space, Adopted by the General Assembly in its resolution 1962 (XVIII) of 13 December 1963, paragraph 7

38 GA Res 59/115, Recommendation 3; *Recommendations on enhancing the practice of States and international intergovernmental organizations in registering space objects*, UN GA Resolution 62/101, UNGAOR , 2007, UN Doc A/RES/62/101, online <http://www.unoosa.org/pdf/gares/ARES_62_101E.pdf>, paragraph 4

39 Liability Convention, Article 1(a)

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treaties such as the Outer Space Treaty, Liability Convention, Registration Convention[40], GA Res 59/115 and other international documents and are considered as space activities, either explicitly or implicitly, and hence should be included in the Space Activities Bill for clarity. It is necessary to cover all possible space activities within the ambit of the Space Activities Bill. This is to ensure that an Indian operator does not launch a satellite from an overseas territory without authorization from India, like Swarm technologies launched satellites without approval from the USA.

Definition of Space object

The definition of 'space object' in Space Activities Bill includes "any object launched or intended to be launched, on an orbital trajectory around the earth or to a destination beyond the earth orbit".[41] The words "or attempted" should be added after the word "intended", in order to reflect the language of the Liability Convention that provide that "launching includes attempted launching".[42] This will ensure that a failed launch activity also falls within the ambit of the Space Activities Bill.

Definition of supervision

Section 2(h) of the Space Activities Bill provides that "supervision means a procedure devised by the Central Government for permanent observation and monitoring of a space activity under this Act." The words "space activity" should be followed by, "by a person to which this Act applies and/ or in the territory over which India has jurisdiction." This is to clarify that supervision of India applies only in cases where it has jurisdiction and in cases where the national space law applies.

Space activity regulatory mechanism by Central Government

Section 3(a) provides that "it shall be the duty of Central Government to… frame policies in relation to exploration and use of outer space for peaceful purposes and in the interests of national security". In order to provide mechanism for implementing India's international obligations, Section 3(a) should also include phrases such as "for the benefit and in the interests of all countries"[43], "guided by the principle of co-operation and mutual assistance"[44] and "due regard to the corresponding interests of all other States"[45]. As emphasized in the Space Debris Mitigation Guidelines of the

40 Convention on the Registration of Objects Launched into Outer Space, 12 November, 1974, 1023 UNTS 15, art I(1) (entered into force 15 September 1976) (Registration Convention)
41 Space Activities Bill, Section 2(g)(i)
42 Liability Convention, Article 1(a)
43 Outer Space Treaty, Article I
44 Outer Space Treaty, Article IX
45 Outer Space Treaty, Article IX

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Committee on the Peaceful Uses of Outer Space[46] and in recent 2018 COPUOS meeting,[47] with the increasing population of space objects in outer space, including space debris, it is imperative that all space-faring nations take long-term sustainability of outer space seriously. However, this sub-section does not contain phrases requiring respect for space environment and long-term space sustainability.

Section 3(i) provides that "It shall be the duty of the Central Government to …monitor the conformity of space activity with international space agreements to which India is a party in the manner as may be prescribed." After the word "with" and before "international space agreements", the words "international law including" should be added in order to reflect the language of Article III of the Outer Space Treaty which provides that general international law applies to outer space. This will provide the Central Government that authority to ensure that general international law and other international obligations of India such as international environmental law and international law of responsibility are abided by the private sector.

Section 3(k) provides that "It shall be the duty of the Central Government to …supervise the conduct of every space activity in which India is the launching State for which a licence has been granted and the development of means, facilities and equipment necessary therefore in the manner as may be prescribed." Article VI of the Outer Space Treaty provides that States shall be directly responsible for their national activities in outer space" and "appropriate State" shall be responsible for monitoring and supervising its space activities. Article VII of the Outer Space Treaty, on the other hand, provides that the launching States shall be liable. The concept of "appropriate State" or "national activity" is accepted to be broader than launching State. However, Section 3(k) provides that India should supervise only space activities for which it is launching State, though under international law it is responsible for and required to supervise all national space activities. This is clearly a result of misreading of the provisions of the Outer Space Treaty. This provision, if kept in its present form, will result in insufficient supervision mechanism.

Prohibition of unauthorised space activity

Section 6(1) which deals with prohibition of unauthorized space activities, reads as follows:

> 6. (1) No person shall carry on any commercial space activity except with a licence referred to in sub-section (1) of section 7:

46 Endorsed by the Committee on the Peaceful Uses of Outer Space at its fiftieth session and contained in A/62/20, Annex and endorsed by the Generak Assembly in its resolution 62/217 of 22 December 2007

47 Report of the Committee on the Peaceful Uses of Outer Space, 61st session, 20-29 June 2018, UNGAOR, UN Doc A/73/20

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Provided that nothing shall apply to -....

(b) any activity which is certified under any international agreements that arrangements have been made between India and another country to secure compliance with international obligations.

An explanation or a sub-section should be added after Section 6(1)(b) stating that in case of an agreement for launch of foreign space object, providing that the foreign party shall be responsible to obtain all necessary authorization in its own State, India does not bear any responsibility for such authorization not obtained or discrepancies in the said authorization. This suggestion is following the SpaceBEE incident where India was criticized for not verifying the licenses of SpaceBEE satellites of Swarm Technologies.[48] As Antrix correctly summarized the legal situation in a statement, Cubesats namely SpaceBee-1, 2, 3 & 4 belonging to US startup company called Swarm Technologies were launched on PSLV C-40 on 12 January 2018 under a commercial agreement with Spaceflight, USA. It is reported that FCC has denied authorization for launch of these satellites due to their tiny size (i.e. less than 10 cms) which makes it difficult to track in the Space Surveillance Network of USA. It is also reported that FCC has withheld the launch of four more satellites of the same company through Rocket Lab, New Zealand. As per commercial launch services agreement of ANTRIX, the customer shall be responsible for obtaining all permits, authorizations and notices of non-opposition from all national and international authorities who have jurisdiction over the Customer Spacecraft Mission. Since this is an internal matter of US, Antrix has requested its US clients to cross check with FCC for compliance of regulations before exporting future satellites to India.[49]

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48 Ashok G.V., "A Swarm of Legal Issues Launched by First Rogue Satellites", *Observer Research Foundation,* VI:2 , online <https://www.orfonline.org/research/space-alert-volume-vi-issue-2/>

49 Ibid; Anusuya Datta, "Controversy over US nanosats launched by ISRO in January", *Geospatial World* (14 March 2018), online <https://www.geospatialworld.net/blogs/controversy-over-us-nanosats-launched-by-isro/>; G S Mudur, "US-halted satellites ride on Isro", *The Telegraph* (14 March 2018), online https://www.telegraphindia.com/india/us-halted-satellites-ride-on-isro/cid/1338584. In any case, it seems that in case of launch contracts, onus is put on the operator to obtain necessary licenses. For example, SpaceX launch service contract with ORBCOMM Inc, a USA operator provides as follows:
"15. Licenses. Each Party shall be responsible for obtaining any licenses, authorizations, clearances, approvals or permits necessary to carry out its obligations under this Agreement ("Licenses"). Each Party agrees to provide reasonable assistance to the other Party as necessary to obtain such Licenses. SpaceX shall be responsible for obtaining any Licenses required for the Launch of a Launch Vehicle and Customer shall be responsible for obtaining any Licenses required to launch and operate the Satellite Batch and each Satellite. SpaceX and Customer agree to provide information and execute any documentation needed to obtain such Licenses pursuant to

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However, something to the effect that India is not internationally responsible, in the aforesaid cases, should explicitly be provided in the Space Activities Bill in order to remove confusion for such future unfortunate events.

License for commercial space activity
Section 7(2) provides conditions subject to which a license for commercial space activity may be granted.[50] Section 7(2) does not include clauses such as that licenses may not be granted where space objects are harmful to space environment and space sustainability and where the space activity will be harmful to efficient space traffic management. Through interpretation of Article IX of the Outer Space Treaty and generally, by assessing the space environment, these issues have been identified by international community as important[51] and hence should be included in the Space Activities Bill.

Terms and Conditions of Licence
Section 8(2)(a) provides that one of the conditions that will be included in the license is "unconditional permission to the Central Government for inspection of any space activity and the material used for the activity either in the premises of the applicant or at any other place of its manufacturing or assembling." The question is how inspection will be carried out if some premises of the applicant or the place of manufacturing or assembling is not in India.

Section 8(2)(d) provides that a licence granted shall include the following particulars:

> Requiring the licensee to provide the Central Government within fifteen days of the grant of licence, the information relating to—
> (i) the date and territory or location of launch; and
> (ii) the basic orbital parameters, including nodal period, inclination,

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applicable U.S. laws and regulations, including the AECA and the CSLA. In the event that either Party is unable to obtain a requisite License, then such Party's inability to obtain a License shall be deemed to be a material breach of this Agreement by such Party." (Available online https://www.sec.gov/Archives/edgar/data/1361983/000119312513112208/d468141dex102.htm>)

50 Section 7(2) provides that "Licenses may be granted if the space activity fulfills the following conditions:
(a) does not jeopardise public health or the safety of individuals or property;
(b) is consistent with the international obligations of India; and
(c) does not compromise the sovereignty and integrity of India, security of State, defence of India, friendly relation with foreign States, public order, decency or morality."

51 *Report of the Legal Subcommittee on its fifty-seventh session, held in Vienna from 9 to 20 April 2018*, Committee on the Peaceful Uses of Outer Space, UN Doc A/AC.105/117; *Report of the Committee on the Peaceful Uses of Outer Space*, Sixty-first session (20–29 June 2018), UNGAOR, UN Doc A/73/20

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> apogee and perigee and such other information as the Central Government may think necessary concerning the nature, conduct, location and results of the licensee's activities

Section 8(2)(d) which maps the Article IV of the Registration Convention, does not require the licensee to provide information on "general function of the space object" as required under Registration Convention.[52] Section 8(2)(d) also does not require information on space objects "which have been but no longer are in earth orbit" as required to be provided by State of registry[53]. These information are to be provided by India internationally and unless similar information is maintained at national level, it will lead to discrepancies and difficulty in processing information. Section 8(2)(d) also does not include additional registration information recommended to be provided under GA Res 62/101,[54] which is widely recognized as best practice. If India does not require its private space sector to provide such information to the Central Government, then India may not be able to provide the information to United Nations and follow the best practice.

Further, Section 8, generally, which provides for terms and conditions of license, does not require the operators to develop space situational awareness (SSA). Developing SSA facilities i.e. ability to see what is happening in outer space, is crucial to protect the space environment and to prevent collisions in outer space because without knowledge of possible collisions and interferences, they cannot be avoided. At the moment, most States rely on SSA capabilities of the USA but it is not possible for a single State to provide comprehensive SSA data and it is desirable that India, a leading space-faring nation, develops such facilities and the best way to begin is to include it in the Space Activities Bill.

Punishment for causing damage or pollution to environment

Section 16 provides that any person "who causes damage or pollution to the environment of the earth, airspace or outer space including celestial bodies by any space activity shall be punished." Whereas Section 16 provides for punishment for causing damage or pollution to environment, the language is vague as it does not define what damage or pollution to environment of the earth, airspace or outer space means. A definition of such damage or pollution or elaboration in further terms will go a long way in ensuring sustainability of outer space and fulfilling obligations of India in protecting outer space environment.

52 Registration Convention, Article IV(1)

53 Registration Convention, Article IV(3)

54 *Recommendations on enhancing the practice of States and international intergovernmental organizations in registering space objects*, UN GA Resolution 62/101, UNGAOR, 2007, UN Doc A/RES/62/101, online <http://www.unoosa.org/pdf/gares/ARES_62_101E.pdf>

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Prevention of entry into prohibited areas

Section 21(a) provides that the Central Government may by order prohibit any person other than a public servant on duty from "entry, without obtaining permission into a prohibited area including fabrication and test facilities, installation, launch ports, tracking centre of space centers and related establishments" Question that arises is whether Section 21 also covers entry of spacecrafts owing to accident, distress, emergency or unintended landing covered by the Rescue Agreement.[55] This is because the Rescue Agreement provides that entry of such spacecraft and its personnel is to be assisted and the personnel shall be "safely and promptly returned to representatives of the launching authority".[56] In cases of emergency, the question is whether Section 21(a) will override obligation under the Rescue Agreement.

Power of Central Government to take over control of space object or installation

Section 30 provides that the "Central Government, may, in the case of emergency arising out of war, external aggression, natural calamity or such other eventuality as it may deem necessary, take over the management, control or supervision of any space object registered in pursuance of this Act or any installation relating to the space object for such period as it may deem fit." However, as already provided in the Space Activities Bill and under Article VI of the Outer Space Treaty, India is anyway responsible for supervision of its national space activity. The choice of word "supervision" is perhaps incorrect in this context.

Conclusion

The Space Activities Bill is thus heavily focused on liability and registration (which are interconnected). In fact, there is a separate chapter in the Bill for "Registration of Space Objects and Liability". In addition, there are various references to registration and liability in licensing conditions and rule-making power of the Central Government. The Space Activities Bill, of course also provides for authorization as that is the main purpose of the Bill. However, it does not contain important provisions of the space treaties such as 'benefit of all', 'non-appropriation', 'due regard to corresponding interests of others' and several other principles elaborated in the space treaties. It may be argued that the other obligations may be included as licensing conditions but it is

55 *Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space*, 22 April 1968, 672 UNTS 119, 19 UST 7570, TIAS No 6599, 7 ILM 151 (entered into force 3 December 1968) Article 4, [*Rescue Agreement*]

56 *Rescue Agreement,* Article 4

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doubtful whether such important obligations of India can be left to delegated legislation.

Further, there are several definitional problems with the Space Activities Bill as has been discussed in this paper. These definitional issues make implementation of liability and authorization difficult. Ignoring of these definitional issues will make the regime of liability, registration and authorization, itself, inefficient.