Space Legislation for Developing Countries

Lessons from Europe

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Abstract

Today outer space has a vast potential of solving the social problems on Earth and is upcoming lucrative business for private participants. With the advancement in technology many developing nations are entering into space activities. To reap the commercial benefits of outer space many states have promoted or desiring to allow private players participation. The Outer Space Treaty demands the respective state to continuously authorize and supervise their national activities failure of which may make them liable. Though Private participation is desirable but it has to be in accordance with rule of law and international obligations. Since the motivation to go into space is commercial aspects, it is the interest of developing nations to lay down their respective national space legislation.

In Europe many countries are not so active in space *per se* but through European Space Agency they play a significant role. Perhaps they have realized liabilities may be imputed to them for space activities and accordingly the respective nations have adopted their national space legislation. This paper shall explore the basis for national space legislation and determine the minimum legislative agenda. It shall study the national space legislation of space faring nations in Europe and will draw lessons for them, which can be suited for developing countries. The reason for choosing Europe is that national space legislation has been recently drafted suited as per the need of current time. The researcher has a hypothesis that European space legislations are progressive in nature which can significantly inspire developing nations. Countries like India and China are in the process of drafting their national space legislation and European legislation can be a path shower.

I. Introduction

At the beginning of space era, only states were active in outer space and capable to meet the enormous financial commitment involved. Today private investment is significant and as such has a profound influence on the nature of space activities and space based applications. Although non-state actors

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have freedom to participate in the space exploration but states have to authorize and even bear responsibility for their activities. Thus space activities governed by private players are also governed by public international law. Due to rapid change in space technology, at present it is not possible to regulate them exclusively by international public law, new legal rules belonging to insurance law, law of contracts, intellectual property rights, among others, must be added and the integration by national legislation becomes urgently necessary.[1]

States have a general obligation to supervise and continuously authorize activities of their non-governmental entities failure of which may make them internationally liable. In Europe the States are active in space largely through European Space Agency. They have realized even if they do not perform space activities themselves or participate in limited extent, responsibility and liability may be imputed by virtue of procurement of space activities, thereby the necessity of national space legislation. The legislation in Europe appears to be progressive in nature encouraging space commerce and promoting private participants within the contours of public international law.

This paper shall explore the basis for national space legislation and determine the minimum legislative agenda. It shall study the national space legislation of space faring nations in Europe and will draw lessons for them, which can be suited for developing countries. The reason for choosing Europe is that national space legislation has been recently drafted suited as per the need of current time.

II. The Basis for National Space Legislation

States bear international responsibility for national activities in outer space.[2] Interestingly outer space treaty presumes both governmental and non-governmental activity as national activity. Since space activities are inherently dangerous, therefore it is the responsibility of respective state under whose jurisdiction non-governmental entity operates, to ensure that their activities are in conformity with international obligations, largely treaties governing space activities. Some of the provisions of Outer Space Treaty have become customary in nature and have even acquired the status of *jus cogens*.[3] By and large State must ensure activities of non-governmental entities are for peaceful purpose,[4] does not amount to appropriation of space,[5] is in accordance

1 Elisabeth back Impallomeni, *Necessity for the Development of National Space Law* in Christian Brunner & E Walter (Eds.) National Space Law Development in Europe – Challenges for Small Countries, Bohlau verlag Wien.
2 Article VI OST, 1967.
3 V. S. Vereschetin and G. M. Danilenko, Custom as a Source of International Law of Outer Space, 13 *Journal of Space Law* (1987) at p. 87.
4 Article IV OST, 1967.

with international law[6] and does not cause any irreversible harm to the environmental of outer space.[7]

Any damage caused by a private space actor may make the state internationally liable because the activity is private but liability is public.[8] The liability becomes much clearer if the respective state is also the launching state. A launching state is always liable for damage resulting from its launched space object. This liability being unlimited in time and amount[9] make it necessary that non-governmental activities are regulated.

Article VI of the Outer Space Treaty has devised a safety valve by which liabilities may be avoided if due diligence is exercised. Article VI of the Outer Space Treaty imposes an obligation upon the respective state to authorize and continuously supervise the activities of non-governmental activities. Authorization and supervision being procedural aspect creates the fundamental basis to legislate.[10] Since non-governmental activity demands authorization it means though they have freedom of participation in exploration of space but they need prior approval from the respective State under whose jurisdiction they operate. This approval may be in the form of a license or even by way of a contract but if nation wants to promote space commerce and privatization, it is necessary to have 'rule of law' and not 'rule of men' because the former shall promote transparency and define an institutional mechanism granting access to space. Therefore National Space Legislation shall prescribe the conditions for access to space.

As a licensing condition the primary concern of any State shall be its national security, safety and compliance with international obligation.[11] The other conditions might be protection of environment, the technological and financial

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5 Article II OST, 1967.

6 Article III OST, 1967.

7 Article IX OST, 1967.

8 "Those states that has a launching capability residing in their territory and has opened or is willing to open it up to private operators, have all found it necessary to establish some sort of licensing control over these operations, all including at least the launches of space objects from their territory in view of the unequivocal qualification of any state whose territory is so used as a "launching State" under the Liability Convention, and hence is liable for damage caused by these space objects under that Convention" Frans G. von der Dunk, The International Law of Outer Space and Consequences at the National Level for India: Towards an Indian National Space Law? *In India Yearbook of International Law and Policy* (2009).

9 Armel kerrest, Special Need for National Legislation: the Case for Launching in K.H. Bockstiegel (eds.) 'Project 2001 – Legal Framework for the Commercial Use of Outer Space, 2002 p. 27.

10 Michael gerhard, Article VI – Outer Space Treaty in Hobe, Schmidt-Tedd, Schrogl (eds.) *Cologne Commentary on Space Law,* Carl Heymanns Verlag, Volume 1 2009, p. 103-125.

11 Ronald. L. Spencer, Jr. International Space Law: A Basis for National Regulation in Ram Jakhu (Eds.) National Regulation of Space Activities, Springer 2010 p. 7.

capacity of private operator, indemnification in case of damage being paid because of the liability any arising.
Since the damage resulting from space activities is unlimited in time and amount, it is likely a corporate entity which has financial capacity at the time of license seeking may not have the same financial capability when damage occurs in future. In such case it will be a burden upon the State to meet financial obligation. Such a scenario may be avoided considerably if National Space Legislation prescribes mandatory insurance depending upon the risk involved. If the Government has to pay in remotest possibility it can always seek indemnification from the insurer. But as space insurance will involve a large capital, the success of insurance company will depend upon the lesser claims being brought i.e. minimum damage occurrence. Once again herein the role of State becomes prominent. The obligation of 'continuous supervision' of non-governmental entity shall ensure minimum damage occurrence. For effective supervision it shall be incumbent upon the respective private players to timely furnish all necessary information related to the space object.
Information shall be needed for registration of space object as well. Registration of a space object enables the State of registry to retain jurisdiction and control over such space object.[12] This puts the State in an advantageous position with regard to private players. If a licensed activity fails to comply with licensing condition State always retains the jurisdiction over such space object. At the same it keeps a proper check on the private players as well that if they do not want State to take over their licensed space activity they must comply with the licensing conditions. Thus National Space legislation is an enabling tool for space commerce promoting private space activity.

III. The Legislative Agenda

Having established the basis of national space legislation, now I shall reveal the contours of national space legislation. As discussed earlier the primary concern for any state promoting private space activities is national security, safety and compliance with international obligation national space legislation must give these issues topmost priority. The other licensing conditions may be compliance with registration requirements, insurance and indemnification factors, and environmental safeguards, financial and technological capacity of private space actors.
Since it is the age of commercialization and privatization, space objects are likely subject to sale and transfer. So long the sale/ transfer is within the national jurisdiction problem may not be there but if there is an international sale/ transfer problem may arise. In case of international transfer the launching state remaining the same without have any actual control will still remain

12 Article VIII OST.

internationally liable for damage caused by such object.[13] Therefore for international transfer it is necessary the respective transferee State take up the responsibility for damage caused by space object. Thus national space legislation must define the conditions of transfer as well.
The UNGA Resolution on national space legislation[14] has recommended eight 'elements' that states could consider when enacting regulatory frameworks for national space activities: (1) the scope of application; (2) the definition of national jurisdiction over space activities; (3) the authorization procedure; (4) conditions for authorization; (5) ways and means of supervision of space activities; (6) establishment of national registry of object launched into space; (7) possible recourse mechanisms and insurance requirements; (8) transfer of ownership or control of a space object in orbit. State practices also suggest that national space legislation has generally addressed these issues.

IV. National Space Legislation in Europe

In Europe, seven member states of the European Space Agency (ESA) have enacted national space laws so far. In a chronological order they are Norway, Sweden, the United Kingdom, Belgium, the Netherlands, France and Austria.

Norway

Norway was the first state to enact its national space legislation primarily with the objective to regulate private space activities. The Norwegian Act consist of only three articles prohibiting launch of any object into outer space from Norwegian territory or Norwegian vessels, aircrafts and such like without the permission from the concerned ministry. The scope of application of the law is limited to 'launches', so that other space activities are not covered. The act does not specify the licensing conditions giving large discretion to the concerned Ministry.[15] Norway only applies territorial jurisdiction and not personal jurisdiction. Also it does not talk about registration, liability or insurance.

Sweden

The Swedish Act on Space Activities encompasses territorial and personal jurisdiction over space activities. Launching of space objects and all measures for maneuvering such launched space objects by non-governmental entities

13 See Michael Gerhard, Transfer of operation and Control with respect to Space Objects – Problems of responsibility and Liability of States, German Journal of Air and Space Law, ZlW 51.Jg.4/2002 p. 571-581. Also See Michael Chatzipanagiotis, Registration of Space Objects and Transfer of Ownership in Orbit, German Journal of Air and Space Law, ZlW 56.Jg.2/2007 p. 229-238.
14 UNGA adopted on 11 December 2013, UN Doc. A/RES/68/74.
15 Irmgard Marboe, National Space Law in Frans von der Dunk (et al.) Handbook of Space Law, Edward Elgar Publishing, 2015 pp. 127-204.

require a license from the Swedish National Space Board.[16] However since the Swedish Act does not provide details of the conditions of authorization, a large discretionary power vest with the board. With regard to international liability the Swedish State has reserved its right for indemnification from such persons on whose behalf Sweden incurs any liability but it does not contain an express provision for insurance. Nevertheless this does not disable the licensing authority to include it in the conditions for authorization.[17]

The United Kingdom

The United Kingdom's Outer Space Act of 1986 has been enacted in response to British companies engaged in launch or procurement of launch, operation of space objects and any activity in outer space.[18] The UK Outer Space Act is relatively an elaborate act prescribing detailed inclusive condition for licenses. The general conditions addressed are public health and safety. Contamination of outer space or adverse changes in the environment of the Earth, international obligation of UK and national security concerns. Registration of space object is in accordance with the Registration Convention. As a licensing condition the Act prescribes for compulsory insurance against liability in respect of damage or loss suffered by the third parties and the Government reserves its right to seek indemnification in case of any liability incurred on behalf of private players. As of now the right to seek indemnification is unlimited but proposals are there to limit it to 60 million euro.

France

The French Space Act 2008 establishes the rules with appropriate legal safeguards for public and private players in space. The new French outer space law consist of eight titles: i) definition & concepts; ii) regime for authorization for outer-space operations; iii) registration; iv) liability; v) research code; vi) IPR issues; vii) space-based data and viii) transitory and final provisions. The Act is concerned with outer-space operations namely launching/ attempted launching of space object; control over an object in outer space for the period it is there and control over an object during its return.[19] It also applies in the case of a transfer of a space object.

An authorization is granted by the administrative authority by way of license for a determined period of time. The licensing conditions include moral, financial and professional guarantees of the applicant, compliance with tech-

16 N. Hedman, Swedish Legislation on Space Activities in C. Bruneer & E. Walter (Eds.) National Space Law Development in Europe – Challenges for Small Countries, Bohlau Verlag Wien 2008.

17 *Supra* n. 15.

18 Roger Close, Outer Space Act 1986: Scope and Implementation, in K.H. Bockstiegel (eds.) 'Project 2001 – Legal Framework for the Commercial Use of Outer Space, 2002.

19 See Article 1(3) of the Space Operations Act 2008.

nical regulation, safety of persons and property, protection of public health, environment protection in particular to limit risks related to space debris, National defence, France's international commitment, furnishing of information and document in support of license application, insurance covering the risk of having to compensate for the damages, transfer conditions, Registration of space object.

An operator subject to authorization has to maintain insurance or other financial guarantee as approved by the competent authority. The insurance or financial guarantee should cover the risk to compensate for damages that could be caused to third parties. The amount of insurance coverage is dependent upon the risk involved.

In case the Government of France makes any payment towards its international liability arising for such authorized space activities, the Government reserves its right to seek indemnification from such operators. While seeking indemnification due consideration is to be given for the amount which the Government has already recovered from the insurance agency.[20]

A monetary penal sanction is levied in case of unauthorized activities including unauthorized transfer of space object[21] and data operation.[22] Non-cooperation with authorized agents or disobedience to the administrative or court orders and data operators operating in non-compliance of the conditions imposed also invite the same penal sanctions. In case the holder of authorization contravenes the provisions of the Act the authorization may also be suspended or revoked.[23]

The French law on Space Operations represents a comprehensive legal basis for the implementation both of the French aspirations in space sector, its national safety and security concerns and its international obligations and foreign policy priorities.[24]

Belgium

Though Belgium does not have its national space programme per se but through European Space Agency it has continued to participate in space activities. The Law on the Activities of Launching, Flight Operation or Guidance of Space Object, 2005 together with the Royal Implementing Decree 2008 constitutes the Belgium Space Law. The Belgium Space Act is based on three pillars[25] – Authorisation and supervision of operational space activities

20 Art. 15. of the Space Operations Act 2008.
21 Art. 11 (I) &(II) of the Space Operations Act 2008.
22 See Art. 23-25 of the Space Operations Act 2008.
23 Art. 9 of the Space Operations Act 2008.
24 *Supra* n. 15.
25 Jean-Francois Mayence, Introduction To Belgium Space Act in Space Law Basic Legal Documents Voulme 5 Karl-heinz Bockstiegel, Marietta Benko, Stephan Hobe (Eds.) Eleven International Publishing 2013.

performed under Belgian jurisdiction; the National Registry of Space Objects, allowing the registration of space objects launched into space by Belgium; the special liability of the operator towards the Belgian State in case of damage caused by the space objects to the third parties.
Authorisation may be granted subject to the Belgium's international obligation, national security and safety of people. Belgium has also given prime consideration to environment apart from considerations like registration of space objects, insurance & indemnification, return of space objects. A detail plan for environmental impact assessment has been envisaged in the act. Another highlight of the Act is provisions for transfer of space object which can be done only with the authorisation of Minister. The violation of any provision of the act will invite penalty for such offenders ranging from suspension of authorisation to imprisonment.
The Belgium's Law on the Activities of Launching, Flight Operation or Guidance of Space Object, 2005 reflects Belgium's commitment to continued supervision of space activities.

The Netherlands

The Dutch Space Activities Act of 2007 represents a comprehensive act of implementing the major obligations stemming from the UN space treaties in the light of Dutch companies engaging in space activities.[26] The authorization and continuing supervision obligation has been taken care of by means of an elaborate licensing system with, at least with a view to foreseeable future, rather comprehensive scope, and in the process adequate liability, reimbursement and insurance related tools have been inserted as well as establishment of a national register.[27] Violation of licensing conditions or registration condition may invite monetary sanctions.
But Netherland has restricted the applicability of the Act to the European part of the Netherlands, not to its overseas territories. Also Netherland does not take up responsibility of registering the space object whose launch has been procured by its private national.[28] As a result, the danger rises that no state registers such space objects.[29]
The Dutch Space Act introduces compulsory insurance for space activities and the liability for damage caused by space activities of license holder is limited only up to the value of sum insured.

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26 Frans G. von der Dunk, Implementing the United nations Outer Space Treaties – The Case of the Netherlands in C. Bruneer & E. Walter (Eds.) National Space Law Development in Europe – Challenges for Small Countries, Bohlau verlag Wien 2008.
27 *Ibid.*
28 D. Howard, A Comparative Look at National Space Laws and Their International Implications. Report of the 6th Eileen Gallow Space symposium on Critical Issues in Space Law, in Proceedings of the International Institute of Space Law 2011 (2012).
29 *Supra* n. 15.

Austria

The Austrian Law on Space Activities of 2011 is the most recent of the space law s in Europe. The salient feature of the Act is it even covers small satellites. The Act provides for an authorization regime for space activities. The conditions for authorization refer to the qualification of the operator, the safety of the operation, Austria's international and national interest, protection of the environment, and emphasize compliance with internationally recognized guidelines for the mitigation of space debris. All space objects for which Austria is a launching state is to be registered in the national registry in accordance with the Registration Convention.

Like other European Space Law, Austria has also reserved its right to seek indemnification from such operator on whose behalf Austria has paid compensation. In order to cover liability for damage caused to persons and property, the operator is under an obligation to take out insurance. However if space activity is in public interest serving science, research and education, the insurance amount may be reduced to the extent of complete waiver.

Austrian has been engaged in space activities mainly within the framework of European Space Agency and other international cooperative projects, in which the regulatory issues were taken by the partners.[30] The need for regulation was felt because the small satellite projects were being developed by Austrian Universities.

V. Lessons for Developing Countries

Many developing countries have an operational vibrant space programme without having any domestic law. For the reasons discussed in this paper gradually the nations have realised the necessity of law. Countries like India and China are in the process of drafting their respective national space legislation. The European model might be of some significance for these countries.

Though the basic contours of national space legislation has been highlighted by the UNGA resolution on national space legislation. The interstitial step for these countries is how these issues are addressed in legal language. Do they intend to enact law for promoting private space players or want to frame law as an impediment? Should the private players bear absolute liability for damages or should there be a cap? Whether the Government can waive of insurance condition if the space activity is in public interest? How best the environment could be safeguarded? In case of violation of law should there be a penal sanction or a civil sanction? Should it be monetary compensation or imprisonment?

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30 Irmgard Marboe, Introduction to Austrian Space Act in Karl-heinz Bockstiegel, Marietta Benko, Stephan Hobe (Eds.) Space Law Basic Legal Documents vol. 5 Eleven International Publishing 2013.

Such challenges will be there while drafting a space act but study of existing legislation might be path shower. However while drafting the legislation ultimately it has to kept in mind what best suits the domestic need of a country.