

National Space Legislation for Emerging Space-Capable Nations

*Joyeeta Chatterjee**, *Christopher Johnson*** and *Aleksandra Puścińska****

The Space Generation Advisory Council is a non-profit organization that aims to represent the international group of young professionals and students from around the world interested in all aspects of humankind's understanding, exploration, and utilization of outer space. Within the SGAC membership, those interested in and pursuing education and training related to the legal aspects of outer space established a Space Law Working Group in the summer of 2012. One of the focuses of the group is investigating the role and importance of national space legislation. In addition to many large and established space-faring nations with large space agencies and long heritages of space capability, many more nations are becoming space capable. In the African continent, Nigeria, South Africa, and Maghreb countries are cooperating and coordinating their space activities. In Europe, ESA membership is growing, with Poland to become the 19th Member State in the fall of 2012. Domestic European space agencies are also growing in size and capability. In the future, many new companies and many more countries will increase the size and scope of the space field, including nations with limited space experience. Consequently, the need for rational, efficient, and balanced national space legislation for countries previously lacking it will become more clear and urgent. This paper will first examine existing national space legislation, looking to see common themes and crucial hallmarks. Insights from existing national experience, along with cross-disciplinary takeaways from international relations theory and space policy, and the overriding requirements from public international space law, should intelligently inform the drafting of national space legislation.

1 Space Generation Advisory Council

The Space Generation Advisory Council (SGAC) is an international non-governmental organization created during UNISPACE III in 1999. With

* Space Generation Advisory Council, Canada, joyeeta.chatterjee@mail.mcgill.ca.

** Space Generation Advisory Council, United Kingdom and United States of America, johnson.c@gmail.com.

*** Kings College London, United Kingdom and Poland, apuscinska@gmail.com.

headquarters in Vienna, Austria, the SGAC has over 4000 young space professionals and university students from more than 90 different countries across world and from a widely- varied academic and with varied professional aspirations. The SGAC's focus is on pragmatic space policy advice to policy makers based on the views of this demography, having a permanent member status at the ECOSOC and UNCOPUOS. SGAC goals are to provide access to SGAC's members to inject their thoughts, views, and opinions on the direction of international space policy; to provide a dynamic forum and network; and to undertake projects on key topics of relevance to international space policy and SGAC's members.

2 Space Law Working Group

In light of their increasing interest in space law, participants at the 11th Space Generation Congress in 2011 in Cape Town, South Africa, decided to establish a space law working group within the existing SGAC framework and open to members of the SGAC community. Dedicated to investigating and addressing the current issues in international and national space law, and anticipating likely space law issues in the coming decades, the Working Group expects to increase in size and grow in scope. Aligned with the SGAC goal of undertaking projects on key topics of relevance in space policy and law, the SGAC Space Law Working Group will pursue projects on space law relevant to both the space law and the broader international space community. The Space Law Working Group is co-chaired by Ms. Joyeeta Chatterjee and by Mr. Christopher D. Johnson. Both are students of space law - Ms. Chatterjee is currently a Masters in Law candidate at McGill University's Institute of Air and Space Law, in Montreal, Canada. Mr. Johnson is Masters Candidate in Space Business and Management at the International Space University, in Strasbourg. The other current members of the Working Group are also beginning their careers in the space field. The Space Law Working Group is looking to partner with other academic and civil society organizations such as the International Institute of Space Law, with a hope of creating synergies between academia, industry and with those interested in the global space endeavour and with its impact on space law – both now and in the years to come. As SGAC represents the next generation of global space professionals from all academic disciplines, the vision of the Space Law Working Group is necessarily geared toward the future, which will see the globalization of space activities to an unprecedented extend, with privatisation, commercialization, and international partnerships and collaboration being the rule, rather than the exception.

3 Introduction

This paper reflects the findings of the Working Group as it investigated and analysed the existing practice of nations in their regulation of national space

activities. For brevity and clarity, the work reflected in this paper reflects our investigation into only four countries: the United States of America, Canada, the United Kingdom, and the Russian Federation. We began with these four because there exists a large amount of secondary material on these bodies of law, and because this legislation exists in legal traditions we are most familiar with (with the exception of Russia). Subsequent to the work reflected in this paper, we will continue to investigate national legislation in other countries. The aim of this work is to understand what constitutes successful national space legislation, for recommendation to emerging space capable nations. As will be shown, not all aspects of national space legislation will be appropriate for the next era of globalized and interconnected space activities.

It must be recognized that all space activities are conducted within the framework of international space law, which establishes certain rules and which balances rights with obligations [1]. Under international space law, the nation-state is the principle entity, which both retains jurisdiction and control over space-objects on its registry (or on the United Nations registry) and whom is charged with authorizing and exercising continuing supervision over its national space activities. The state is internationally responsible for its national activities, and would be held internationally liable for damage caused - even by the activities of non-governmental actors, such as private commercial firms. The direct imputability of the nation state for non- governmental/private activities is seen as novel in international law.

Consequently, as their international obligations are therefore implicated, states are given an impetus to supervise and authorize their national space activities. One method of standardizing their activities and the risks they and their private entities share is through national legislation related to national space activities. The legislation itself might serve to allocate the risks implicated by the international regime, and make transparent and uniform the rights and obligations of non-governmental actors. As can be seen from the various national regimes detailed hereunder, many space faring and space-active states have taken different approaches.

This paper operates under a few fundamental (though non-trivial) assumptions, which deserve enunciating. Firstly - and has been argued elsewhere - international space law imposes substantial obligations on states and national legislation can help to standardize those responsibilities [2]. Such national legislation can serve to allocate risks in ways compatible with the national space and technology policies of the state enacting them (*e.g.*, with a focus on nationalized activities, or towards commercialization, or towards greater international cooperation and collaboration).

It should also be noted that the body of international space law, beginning with the 1963 Principles Declaration, and continuing on from the 1967 Outer Space Treaty and following treaties, establish the international regime for states. It is worth considering that even those states which are not a party to the 1967 Outer Space Treaty, or resulting treaties, are not wholly outside of its scope, as certain fundamental provisions such as responsibility, liability, non-appropriation, peaceful uses, and jurisdiction and control through registration,

might be considered to have passed into the realm of customary international law by virtue of their consistent worldwide state practice and by statements by states expressing their obligations under those provisions. Consequently, non-State parties to the treaties might be considered to be affected by both their obligations and their rights.

4 National Space Legislation

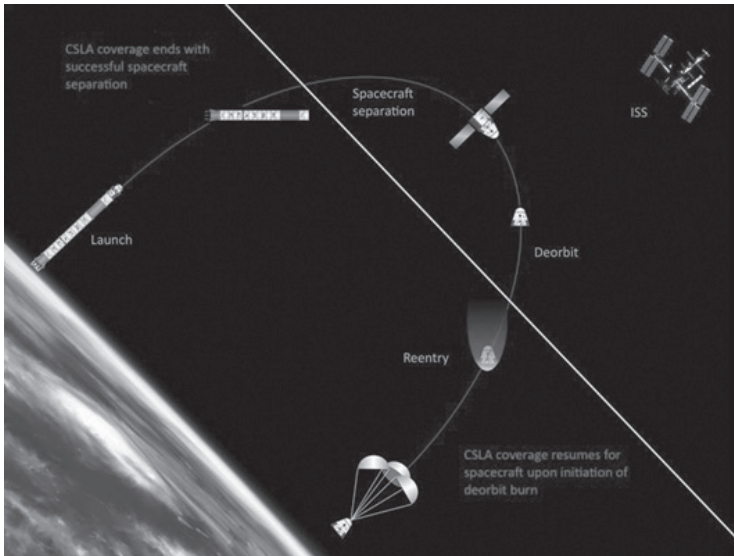
4.1 The United States of America

America has a robust and complex body of national space legislation which matches its complex and varied space activities. Governmental regulation of space activities in the United States has traditionally been along two avenues – national, governmental activities by national space agencies, and the regulation of private entities [3]. The National Aeronautics and Space Act of 1958 established the National Aeronautics and Space Administration (NASA) and established NASA's aims and the administrative framework in which it exists. Notably, NASA is not merely an governmental agency – it is an administration – a choice purposefully taken so as to give the Administration a greater degree of discretion and leeway as it conducts its space activities [4].

In 1984, the U.S. Department of Transportation was given oversight of commercial launch services, which subsequently delegated that authority to the Federal Aviation Administration, which in turn established the Office of Commercial Space Transportation to execute these duties [5]. In 2004, the Commercial Launch Act was Amended to encompass human spaceflight, in anticipation of (what was then expected to be began shortly) commercial suborbital tourism. The 2004 Amendments Act established a liability regime, which allocates risk using private insurance requirements followed by governmental indemnification, mandatory waivers of claims, and informed consent for space flight participants. In order to receive a license from the FAA, a private entity must demonstrate secure private insurance (or show financial responsibility) to cover the maximum probable loss of the accident (to an amount it can find along reasonable terms on the world insurance market). Next, it must enter waivers of claims, and it must also fully inform the spaceflight participant of all of the risks of spaceflight. The 2004 Amendments Act, along with the 1958 NASA Act, as well as with all existing national space legislation which had existed in various sections of the United States Code, was consolidated in the spring of 2011 [6]. All US national space legislation can now be found in its own chapter of the US Code, Title 51. What is important to note for the future of US space activities, is that while the FAA has regulatory authority over private commercial spaceflight, its jurisdictional authority extends only to orbit – and it has no power to regulate on-orbit activities (See Figure 1).

The US Federal government has extended the FAA's jurisdictional/rulemaking authority in the past, first to regulate space activities, and then for human spaceflight. It would need another legislative extension of its rulemaking authority to orbital activities where it to be the principal regulatory for private US national

Figure 1.1 USC Title 51 - The FAA's Regulatory Authority (image courtesy the Tauri Group)



activities in outer space. One takeaway lesson from the US legislative experience is that, while governmental and non-governmental activities were separately regulated for the first half-century of space activities, the complex nature of privatisation of space activities has now rendered this bifurcation problematic. The FAA's regulatory authority does not extend into orbit, while NASA is not a regulatory authority – nor does it seek to be on. A country looking to enact legislation would do well to learn from this experience in crafting its own legislation.

4.2 The United Kingdom

Prior to the establishment of the UK Space Agency on 1 April 2010, the British National Space Agency (BNSC) was responsible for the development of UK space policy and regulation of space activity. The UK Space Agency (UKSA) will integrate all civil space activities in the UK under its ambit. It is also responsible for coordination and liaison with the European Space Agency (ESA) and the European Commission. The UKSA Policy Unit offers advice to the Government on policy issues.

The primary piece of legislation regulating the conduct of space activities in the UK is the Outer Space Act 1986 (OSA). It seeks to ensure compliance with the international obligations of UK with respect to the use of outer space, including liability for damage caused by space objects, the registration of objects launched into outer space and the principles for the remote sensing of the Earth.

The salient feature of this Act is that it exercises jurisdiction *in personam*, rather than territorially, or based on subject-matter.¹ It provides the legal and regulatory framework for space activities carried on by organisations established in the UK and by UK nationals, irrespective of the fact even if it is not conducted on the territory of UK. The OSA mandates licensing for all space activities carried out by individuals or organisations established in the UK or its Crown Dependencies and Overseas Territories. The Secretary of State for Business, Innovation and Skills is empowered to grant licences through the Agency.

All subjects under the scope of OSA are required to indemnify the UK Government against any claims for damage or loss arising out of licensable activities. This is a mandatory statutory obligation, without any cap on the financial limit.

A licence for launch is granted on satisfactory fulfilment of the preservation of the space environment, compliance with the international obligations of UK and continuing authorisation and supervision of the activities by UKSA. Prior to issuing of an authorisation, the Secretary of State evaluates compliance of the space activity with requirements imposed expressly by the OSA, namely public health, safety of persons and property concerns, UK international obligations as well as considerations of national security. The requirements are applicable to all launch activities, with the exception of those that the Agency does not consider licensable such as the leasing of transponders.

Pursuant to the OSA, private enterprises have to indemnify the UK government against any claims arising in connection with the conducted space activities. The UK Act does not stipulate any indemnification cap and until recently, there has been an unlimited liability and a minimum of £100 Million third party liability claims coverage for all private entities. However, in 2011, the government has announced a planned reform of the OSA liability regime. The first part, which reduced the insurance requirement to a maximum of €60 Million, was concluded on 4 July 2011. Part two of the reform, aims to place the upper limit on liability at €60 Million and waive entirely the liability cap and insurance requirement for small satellites, called 'CubeSats'. In order to introduce such changes, the proposal requires, however, secondary legislation, hence the consultation phase of part 2 has only recently been concluded.² It remains to be seen whether the new liability regime will enter into force.

The 2003 Communications Act, which regulates telecommunications systems and services, has established a regulatory authority known as the Office of Communications (Ofcom). Under this Act, telecommunications operators do not require a license but an affiliation under a self-certification scheme is necessary to provide networks and services. Ofcom is also responsible for the management of satellite filings to the ITU by operators through the UK.

-
1. See Sa'id Mosteshar, Regulation of Space Activities in the United Kingdom, in Ram S. Jakhu (ed.), National Regulation of Space Activities.
 2. UK Space Agency, Reform of the Outer Space Act 1986, Consultation Document, May 2012.

Although there is no particular law dealing with the regulation of earth observation data, its collection and distribution is subject to national security considerations, data protection and privacy issues.³

4.3 Canada

Outer space activities fall within the exclusive jurisdiction of the Canadian federal Parliament, which has exercised legislative authority over the regulation of space activities in Canada to give effect to its international treaty obligations. Canada has ratified all the major United Nations space treaties, except the 1979 Moon Agreement. The Government of Canada bears international responsibility for national space activities carried out by Canadian governmental agencies or non-governmental entities. It is also under an obligation to authorize and continually supervise any activities conducted by the non-governmental entities. Further, the Government of Canada could also be internationally liable to pay compensation in the event of any claim by a State for damage caused as a result of Canadian launch activities or space activities carried out from within Canadian territory or from a Canadian facility.

In 1989, the Canadian Space Agency was established as the governmental entity to carry out space research and development under the Canadian Space Agency Act. Section 4 of the Act mandates CSA “to promote the peaceful use and development of space, to advance the knowledge of space through science and to ensure that space science and technology provide social and economic benefits for Canadians.”

The Canadian Aeronautics Act along with the Canadian Aviation Regulations governs the regulation of launch activities in Canada. The Canadian Department of Transport (Transport Canada) is responsible for its implementation, whose Launch Safety Office reviews requests for launch authorisations.

The Telesat Canada Act 1969 which established a Crown Corporation “to establish satellite telecommunication systems providing, on a commercial basis, telecommunication services between locations in Canada”,⁴ § was replaced by the Telesat Canada Reorganization and Divestiture Act in 1991 when the company became privatised. There are three principal domestic legislations in Canada which regulate communications: (a) Radiocommunication Act (implemented by the Department of Industry, i.e., Industry Canada) (b) Telecommunications Act, and (c) Broadcasting Act (both implemented by an independent regulatory authority known as the Canadian Radio- television and Telecommunications Commission, which was created under the Canadian Radio-television and Telecommunications Commission Act). No general license is required to provide satellite communications services in Canada.

Pursuant to the 2000 Canada – U.S. bilateral agreement concerning the operation of commercial remote sensing satellites (including RADARSAT-2),

3. See Sa’id Mosteshar, Regulation of Space Activities in the United Kingdom, in Ram S. Jakhu (ed.), National Regulation of Space Activities.

4. Telesat Canada Act, Section 5.1.

the Government of Canada undertook to develop a regulatory regime for these systems, which led to the enactment of the Remote Sensing Space Systems Act in 2005 and the accompanying Regulations in 2007. Under the Act, the Minister of Foreign Affairs is responsible for the implementation of its provisions. Section 5 of the Act makes licensing mandatory for the operation of a remote sensing satellite system. The factors taken into account while granting, renewing or amending a license are national security, the defense of Canada, the safety of Canadian Forces, Canada's international relations and obligations.⁵ This licensing requirement is based on nationality, and not on territoriality.⁶ The provisions of this Act also regulate the distribution of raw data and remote sensing product.

Canada is also a member of the revised 1998 Inter-Governmental Agreement (IGA) on International Space Station. In order to implement its obligations under Article 22(1) of the 1998 IGA whereby Canada is entitled to "exercise criminal jurisdiction over personnel in or on any flight element who are" Canadian nationals, the Civil International Space Station Agreement Implementation Act was enacted to amend the Canadian Criminal Code.

The policy objective of Canada with respect to space security "is to ensure secure and sustainable access to, and use of, space, and freedom from space-based threats."⁷ Although Canada has not yet developed any satellite system for military purposes, the launch of a space-based surveillance satellite called Sapphire is being planned.⁸

4.4 Russian Federation

Despite the pioneering role of the erstwhile Soviet Union in achieving milestones in space exploration, there was no domestic legislation establishing an appropriate framework for space activities. Following the disintegration of the Soviet Union, the Russian Government was inclined towards setting up a legal regime for the governance of space activities. The Russian Space Agency (Roscosmos) was created under the Decree 185 on Space Activities Administration Structure in the Russian Federation adopted in February 1992. As the Federal executive body responsible for the execution of space activities in Russia, it is responsible for drafting as well as implementing the Federal Space Policy. Apart from being in charge of the commercial space projects, it also has the authority to issue licences and enter into international agreements on space activities.

The Supreme Council of the Russian Federation passed the Law on Space Activities in August 1993. It is the central piece of legislation in Russia for the

5. Remote Sensing Space Systems Act, Section 8.

6. Remote Sensing Space Systems Act, Section 6

7. Department of Foreign Affairs and International Trade, Space Security. <www.international.gc.ca/arms-armes/non_nuclear-non_nucleaire/space_security-secureite_spatiale.aspx?lang=en&menu_id=120&menu=R>.

8. National Defence and the Canadian Forces, "Surveillance of Space (Sapphire)," 18 June 2009, <www.cfd-cdf.forces.gc.ca/sites/page-eng.asp?page=6250>.

regulation of space activities. This legislation is supplemented by other federal laws containing legal norms connected with space activities (the Civil Code, the Air Code, the Land Code of the Russian Federation etc.), presidential decrees, governmental regulations and other normative acts governing space related issues conducted under the jurisdiction of the Russian Federation – all of which together constitute the Russian national legal and regulatory framework for space activities.⁹

The legislation contains provisions describing the status of the federal space programme – a long-term plan document drafted by Roscosmos and approved by the President.¹⁰ The latest document covering the period from 2006 to 2015 was adopted in 2006. The Law on Space Activities endorses the mandate of the Russian Constitution inasmuch as it considers space activities as an economic endeavour and empowers the President, the federal Government, Roscosmos and the Ministry of Defence to exercise jurisdiction over the Russian space activities with clearly defined rights and obligations for each actor.

The Law on Space Activities enumerates the guiding principles behind space activities in Russia – advancements in space science and technology, mobilisation of extra-budgetary resources, space safety and security, protection of the space environment, fostering international cooperation through equal access to space, international responsibility, dual-use space technology. It also stipulates sustainable access to space and anthropogenic influence on the space environment as a result of carrying out space operations.

It lays down jurisdictional principles for space objects and confirms the international non-appropriation principle. It also contains detailed provisions for the training process and professional activities of cosmonauts. The licensing procedure established in the Law on Space Activities for Russian nationals as those conducted under Russian jurisdiction by foreigners is supplemented by an additional resolution. In the event of accidents, the law prescribes a two-tier system of compulsory as well as voluntary insurance. It also upholds the liability provisions set out in Articles II and III of the Liability Convention.

5 Further Work from the SGAC Working Group

The Foregoing sections are brief summaries of the national space legislations of three developed and space capable countries. The work on the SGAC Space Law Working Group will continue to analyse and discuss the merits of the different approaches taken by both established and emerging space capable nations, with an aim at discovering some of the most important hallmarks which nations considering national space legislation should consider. The SGAC Space Law Working group is newly established and seeks to bring new students and young

9. S.P. Malkov and Catherine Doldirina, Regulation of space activities in the Russian Federation, in Ram S. Jakhu (ed.), *National Regulation of Space Activities*.

10. Ibid.

professionals interested in space law and policy into its activities, as analysing national space legislation is only one of its various activities

6 References

- [1] United Nations Office for Outer Space Affairs, United Nations Treaties and Principles On Outer Space, related General Assembly resolutions and other documents, United Nations, Vienna, 2010.
- [2] J. Hermida, Space Regulations Library - Legal Basis for National Space Legislation, Kluwer Academic Publishers, Dordrecht, 2004.
- [3] F. Lyall, P.B. Larsen, Space Law - A Treatise, Ashgate Publishing, Ltd., Farnham, 2009.
- [4] P.G. Dembling, The National Aeronautics and Space Act of 1958: Revisited, *Journal of Space Law*. 34 (2008) 203-220.
- [5] T.R. Hughes, E. Rosenberg, Space Travel Law (and Politics): The Evolution of the Commercial Space Launch Amendments Act of 2004, *Journal of Space Law*. 31 (2005) 1-79.
- [6] R. Sukhol, Positive Law Codification of Space Programs: The Enactment of Title 51, United States Code, *Journal of Space Law*. 37 (2011) 1 - 39.