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ARISING OUT OF HUMAN ACTIVITIES IN OUTER SPACE.

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All correspondence with reference to this publication should be directed to the JOURNAL OF SPACE LAW, P.O. Box 1848, University of Mississippi School of Law, University, Mississippi 38677; jsl@olemiss.edu; tel: +1.662.915.6857, or fax: +1.662.915.6921.

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## FOREWORD

### THE PACIFIC RIM NATIONAL SPACE LAW SUMMIT

*Joanne Irene Gabrynowicz*<sup>1</sup>

This volume of the *JOURNAL OF SPACE LAW* contains most of the papers presented at the *Pacific Rim National Space Law Summit (Summit)* hosted by the National Center for Remote Sensing, Air, and Space Law at the University of Mississippi School of Law and held at the East West Center in Honolulu, Hawaii, U.S., on May 20-21, 2009.

The purpose of the Summit was to provide a forum for an in-depth experience in which the participants had the opportunity to learn from one another and to discuss, in detail, space law and its developing features in the Pacific Rim. Experts from Australia, the Asia-Pacific Space Cooperation Organization, China, Hong Kong (special administrative region of China), India, Japan, Korea (South), Thailand, the U.N. Office of Outer Space Affairs, and the United States of America participated. The meeting format was designed to promote the exchange and understanding of information. This was accomplished by providing each speaker with half an hour to present his or her paper and each presentation was followed by at least another half hour during which the participants raised questions and discussed the details of the presented paper. For most of the participants, it was the first time they had had the opportunity to meet one another and this added another dimension to the learning experience. Exchanges were lively, sometimes heated,

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<sup>1</sup> Joanne Irene Gabrynowicz is the Editor-in-Chief of the *JOURNAL OF SPACE LAW*. She is also a professor of space law and remote sensing law and the Director of the National Center for Remote Sensing, Air, and Space Law at the University of Mississippi School of Law. Prof. Gabrynowicz was the recipient of the 2001 Women in Aerospace Outstanding International Award and is a Director of the International Institute of Space Law and a member of the American Bar Association Forum on Air and Space Law.

but always professional and informative. In addition to the exchange of information and ideas that was occurring at the Summit itself, distant participants kept informed of its contents via a live, real-time broadcast that was made available in both English and Chinese.

This volume of the JOURNAL OF SPACE LAW includes the papers of Prof. Setsuko Aoki, of the Department of Policy Management, Keio University, Tokyo, Japan, on the *Current Status and Recent Developments in Japan's National Space Law and its Relevance to Pacific Rim Space Law and Activities*; Prof. Li Juqian, Council-Member of China Institute of Space Law, Director of Public International Law Research Institute School of International Law, China University of Political Science and Law Beijing, China on *Progressing Towards New National Space Law: Current Legal Status and Recent Developments in Chinese Space Law and its Relevance to Pacific Rim Space Law and Activities*; Dr. Ricky J. Lee, of Schweizer Kobras, Sydney, Australia on the *Current Status and Recent Developments in Australia's National Space Law and its Relevance to Space Law and Space Activities in the Pacific Rim*; Prof. V.S. Mani, Director, School of Law and Governance, Jaipur National University on *Space Policy and Law in India and its Relevance to the Pacific Rim*; Mr. Bruce Mann, Sr. Counsel, Justice Legal Services Division, Department of Foreign Affairs and International Trade on the *Current Status and Recent Developments in Canada's National Space Law and Its Relevance to Pacific Rim Space Law and Activities*; Prof. Sang-Myon Rhee, Seoul National University, Seoul, Korea (South) on *Current Status and Recent Developments in Korea's National Space Laws*; Dean Li Shouping, Dean of Space Law Institute of Beijing Institute of Technology, Beijing, China on *The Role of International Law in Chinese Space Law and Its Relevance to Pacific Rim Space Law and Activities*; Dean Haifeng Zhao, Harbin Institute of Technology School of Law, Harbin, China on the *Current Legal Status and Recent Developments of the Asian-Pacific Space Cooperation Organization and Its Relevance to Pacific Rim Space Law and Activities*; and Prof. Yun Zhao, Faculty of Law, The University of Hong Kong on the *Current Legal Status and Recent Develop-*

*ments in Hong Kong Law and its Relevance to Pacific Rim Space Law and Activities.*

Together, these papers demonstrate that space law is a dynamic, growing body of law that is developing, relatively rapidly, in response to the accelerated space activities of the Pacific Rim region. By and large, the emerging and established spacefarers are repeating the pattern that occurred in the earliest days of twentieth century Cold War space activities: they are promulgating law to implement their rights and obligations under the international space treaty regime as well as to identify and protect their own national interests. In fact, this dynamic was made manifest during the meeting when the authors of the Chinese papers identified changes in Chinese space law that had occurred between the time that they wrote and submitted their papers and the time they attended the Summit. To document those changes, they authored and agreed to the following statement:

The Change in the Administration Institution of Space Activities in China

The administration and management of facilities, payroll, and other similar functions fall to a ministerial-level department that is the State Commission of Science, Technology and Industry for National Defense (the COSTIND) established in 1998. The China National Space Administration (CNSA) was reformed to be an organ of the newly established COSTIND. In March 2008 China restructured the ministries and the COSTIND was canceled as a ministerial-level department and renamed as the State Bureau of Science, Technology and Industry for National Defense (BUSTIND), becoming an independent institution of the newly established Ministry of Industry and Information Technology, BUSTIND is now responsible for the administration and management of the industry for national defense. The CNSA become an independent organ of the Ministry of Industry and Information Technology.

Other participants, who do not have papers in the current volume include, Prof. P.J. Blount, National Center for Remote Sensing, Air, and Space Law, University of Mississippi School of Law; Prof. Nipant Chitasombat, Director of Commercial Uses of

Outer Space Project at Graduate School of Law, Sripatum University, Bangkok, Thailand; Dr. Ben Finney, University of Hawaii at Manoa, Emeritus Professor, Bishop Museum Distinguished Research; Prof. Joanne Irene Gabrynowicz, Director, National Center for Remote Sensing, Air, and Space Law, University of Mississippi School of Law; Prof. Ram Jakhu, Institute of Air and Space Law, McGill University, Montreal, Canada; Dr. Mazlan Othman, Head, United Nations Office of Outer Space Affairs; and, Dr. Jon M. Van Dyke, Professor of Law and Carlsmith Ball Research Fellow, William S. Richardson School of Law, University of Hawaii at Manoa.

Overall, when the meeting ended, the participants came away knowing more about space law in the Pacific Rim as well as the Pacific Rim space law community itself. The readers of the JOURNAL OF SPACE LAW will now also have the same opportunity by reading the contents of this volume and the on-line blogcast at <http://rescommunis.wordpress.com/?s=pacific+rim+summit>.

# CALL FOR PAPERS

## JOURNAL OF SPACE LAW UNIVERSITY OF MISSISSIPPI SCHOOL OF LAW

A JOURNAL DEVOTED TO SPACE LAW AND THE LEGAL PROBLEMS ARISING  
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### Volume 36, Number 1

The National Center for Remote Sensing, Air, and Space Law of the University of Mississippi School of Law is delighted to announce that it will publish Volume 36, issue 1 of the JOURNAL OF SPACE LAW in the first half of 2010.

Authors are invited to submit manuscripts, and accompanying abstracts, for review and possible publication in the JOURNAL OF SPACE LAW. Submission of manuscripts and abstracts via email is preferred.

Papers addressing all aspects of international and national space law are welcome. Additionally, papers that address the interface between aviation and space law are also welcome.

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To be considered for the next issue, submissions should be received on or before March 15, 2010. However, the JOURNAL OF SPACE LAW will continue to accept and review submissions on an on-going basis.



# CURRENT STATUS AND RECENT DEVELOPMENTS IN JAPAN'S NATIONAL SPACE LAW AND ITS RELEVANCE TO PACIFIC RIM SPACE LAW AND ACTIVITIES

*Setsuko Aoki\**

## I. JAPAN'S SPACE DEVELOPMENT AND ITS CHARACTERISTICS

### *A. Japan as a Spacefaring Nation*

Japan is a latecomer in the field of national space legislation. It is the fourth nation to have joined an exclusive space club, when, in February 1970, it launched a domestic communication satellite with its own solid propellant rocket from a launching site in its own territory.<sup>1</sup> Since then, Japan has extensively conducted exploration and use of outer space through its own program and through international cooperation. With respect to its national program, Japan has launched various kinds of space science and application satellites. Approximately 120 satellites have been placed into orbit to date. As for launch vehicles, after the N-1 (1975-1982), N-II (1981-1987), and H-I (1986-1992) rockets that were manufactured with the help of United States technology, the purely Japanese domestic H-II rocket was successfully launched in 1994. A current domestic mainstay rocket, H-IIA, conducted fourteen successful launches out of 15, and has proved to be a matured launch vehicle.

Japan is an active player in various universal cooperation programs such as the action plans of UNISPACE III under the auspices of the U.N.; the Group on Earth Observation (GEO); Committee on Earth Observation Satellites (CEOS); IGOS-P;

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\* Professor of International Law, Faculty of Policy Management, Keio University, Japan, aosets@sfc.keio.ac.jp.

<sup>1</sup> Even today, only eight countries have shown such an independent national space capability: the former U.S.S.R. (now Russian Federation), the U.S., France, Japan, China, India, Israel, and Iran.

and, the International Charter "Space and Major Disasters." It has also been participating in major space projects among spacefaring nations such as the *International Space Station (ISS)* project since its inception.

Cooperation between Europe and Japan started in 1972 mostly on scientific programs.<sup>2</sup> One of the recent cooperative projects with the European Space Agency (ESA) includes the *BepiColombo* Mercury mission to conduct comprehensive observation of Mercury's magnetic field and magnetosphere.<sup>3</sup> Within Asia-Pacific countries, for Japan, the most important platform for cooperation is the Asia-Pacific Regional Space Agency Forum (APRSAF) established in 1993. The 2005 annual APRSAF meeting set up a Disaster Management Support System (DMSS) in the Asia-Pacific Region. It is a best-efforts, voluntary initiative by the participating organizations. The first step for DMSS is a pilot project, *Sentinel Asia*. It will be followed by the establishment of an Earth observation and satellite communications system (2008-2009); and, then finally, a comprehensive DMSS (2010), using regional satellites including Japan's remote sensing satellite *ALOS-1 (Daichi)* and the *Wideband InterNetworking engineering test and Demonstration Satellite (WINDS) (Kizuna)*.<sup>4</sup>

As the U.S. being the only ally for Japan, Japan-U.S. bilateral space cooperation is the most important as far as Japan is concerned. The Japan-U.S. Exchange of Notes Constituting an Agreement Concerning Co-Operation in Space Activities for

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<sup>2</sup> Examples are observation of aurora and thermal energy balance of ionosphere by sounding rockets from, e.g., Norway or Greenland, Denmark as well as observation of planets, comets, and solar activity by space probes. See Japan Aerospace Exploration Agency (JAXA), *International Cooperation*, [http://www.jaxa.jp/about/int/index\\_e.html](http://www.jaxa.jp/about/int/index_e.html) (last visited Nov. 7, 2009).

<sup>3</sup> JAXA is responsible for the manufacturing of the *Mercury Magnetospheric Orbiter (MMC)* and ESA takes charge for the development of *Mercury Planetary Orbiter (MPO)* and the launcher that will place *BepiColombo* into Mercury's orbit. MMC and MPO will be launched by the *Soyuz-Fregat 2 B* rocket in 2013 and will observe Mercury for about one year. JAXA, *Mercury Exploration Mission "BepiColombo"*, [http://www.jaxa.jp/projects/sat/bepi/index\\_e.html](http://www.jaxa.jp/projects/sat/bepi/index_e.html) (last visited Nov. 7, 2009).

<sup>4</sup> See, e.g., *Sentinel Asia, Disaster Management Support System in the Asia-Pacific Region, Welcome to the Sentinel Asia Website*, <http://dmss.tksc.jaxa.jp/sentinel/> (last visited Nov. 7, 2009).

Peaceful Purposes in 1969<sup>5</sup> and two successive Exchange of Notes in 1975<sup>6</sup> and 1980<sup>7</sup> permitted U.S. industry to contract with the Japanese government or industry to provide unclassified technology, which accelerated Japan's ability to develop liquid propellant engines that enabled Japan to place a heavier satellite in a higher orbit.

As described above, Japan is undoubtedly one of the space-faring nations. However, it was not until June 20, 2007 when the Basic Space Bill, the first administrative bill on space activities, was submitted to the Diet<sup>8</sup> by the ruling coalition of the Liberal Democratic Party (LDP) and New Komeito. Almost a year later, May 21, 2008, the Basic Space Law was voted into a full-fledged law and made effective on August 27, 2008.<sup>9</sup> Until that time, approximately 15 nations had already legislated national space laws.<sup>10</sup>

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<sup>5</sup> Exchange of Notes Constituting an Agreement Concerning Co-Operation in Space Activities for Peaceful Purposes (with attachment) (Proclaimed July 31, 1969), registered by the USA Mar.4, 1970, No.10342, available at [http://untreaty.un.org/unts/1\\_60000/21/5/00040220.pdf](http://untreaty.un.org/unts/1_60000/21/5/00040220.pdf).

<sup>6</sup> Exchange of Notes Constituting an Agreement Relating to the Furnishing of Satellite Launching and Associated Services, May 23, 1975, registered by the USA Mar. 11, 1976, No.14641, available at [http://untreaty.un.org/unts/1\\_60000/28/11/00054507.pdf](http://untreaty.un.org/unts/1_60000/28/11/00054507.pdf).

<sup>7</sup> Exchange of Notes Constituting an Agreement Relating to Space Launch Assistance, Dec. 3, 1980, registered by the USA Mar. 1, 1982, No.20830, available at [http://untreaty.un.org/unts/60001\\_120000/9/8/00016378.pdf](http://untreaty.un.org/unts/60001_120000/9/8/00016378.pdf).

<sup>8</sup> Uchū kihonhōan [Basic Space Bill] Bill No.50 of 2007, available at [http://www.shugiin.go.jp/index.nsf/html/index\\_gian.htm](http://www.shugiin.go.jp/index.nsf/html/index_gian.htm) (last visited Nov. 7, 2009). The Diet is Japan's bicameral legislature, consisting of the House of Representative (the Lower House) and the House of Councillors (the Upper House).

<sup>9</sup> Uchū kihonhō [Basic Space Law] Law No.43 of May 28, 2008, available at <http://law.e-gov.go.jp/announce/H20HO043.html> (see unofficial English translation of the Basic Space Law, *Fundamental Act of Outer Space*, (Law No.43, 2008), 34 J. SPACE L. 471 (2008).

<sup>10</sup> Such nations include Norway (1969), Sweden (1982), U.S. (1984), UK (1986), South Africa (1993), Russia (1993), Ukraine (1996), Australia (1998), Brazil (2001), China (2001), Korea (2005), Belgium (2005), Canada (2005), Netherlands (2006) and Germany (2006). In the case of Brazil and China, although their regulations are not formal laws but merely administrative regulations or decrees, they are included in this list because such regulations contain provisions to license private entities for participating in space utilization including commercial launching. About two weeks after Japan's first national space law was voted into law, on June 3, 2008, the French Law Relating to Space Operations was made into law. See Lucian Rapp, *When France Puts Its Own Stamp on the Space Law*, 35 J. SPACE L. 313-336 (2009).

*B. The Reasons Japan Was so Late in Enacting  
National Space Legislation*

Why has Japan not had any space legislation until May of 2008 if it is a spacefaring nation? The simple answer is that it was not specifically needed due to insufficient activities by non-governmental entities. Under normal circumstances, there are three reasons that seem to require national space legislation. The first is to implement international treaties. The Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (Outer Space Treaty)<sup>11</sup> obligates States-Parties, now numbered at 100, to make sure that space activities by their respective non-governmental entities abide by international rules, including the Art. VI obligation of “authorization and continuing supervision.”<sup>12</sup> Accordingly, the more privatized that space activities become, the more State regulations are required. The second reason is to promote and assist the space industry as a national project. History shows that large national space industry develops only when substantial governmental assistance was conferred. Thus, the government nurtures the space industry in a variety of ways: transfer of technology with preferable conditions; a longtime commitment to purchase private space services (anchor tenancy); partial acceptance by the government of third-party liability caused by private space activities; and refraining from conducting space activities that preclude or compete with those of non-governmental entities. National laws address arrangements for the development of space industry. The third reason is to fill in the gaps of the current international space law regime. It does not properly address recent issues such as a joint launching of multinational enterprises; sub-orbital space tourism; and on-orbit transfer of ownership of satellites. Such necessity stems from the fact that the last of the UN space treaties, the Agreement Governing the

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<sup>11</sup> Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, *opened for signature* Jan. 27, 1967, 18 U.S.T. 2410, 610 U.N.T.S. 205 [hereinafter Outer Space Treaty].

<sup>12</sup> *Id.* at art. VI.

Activities of States on the Moon and Other Celestial Bodies (Moon Agreement)<sup>13</sup> was adopted in 1979. This third reason is also strongly connected with the growing commercialization of space activities. In short, the growth of private activities in the development and use of space necessitates national space laws.

In Japan's case, almost no private entities were engaged in space activities until recently. Until August 2008, Japan never conducted a commercial space launch, nor did Japan have a private remote sensing satellite in operation until today. Two reasons seem to explain the situation. The first is Japan's interpretation of "peaceful uses of outer space" as being "non-military" which prohibits space agencies from participating in any defense-related, "non-aggressive" use of outer space. This interpretation was officially adopted in 1969 in the form of a Diet Resolution.<sup>14</sup> It is often pointed out that without a continuous governmental military program, it is difficult to establish a robust space industry under which the private business sector can flourish. Yet, given such circumstances, the commercialization of satellite manufacturing almost started through a series of governmental contracts relating to communications, broadcasting, and meteorological satellites by the end of the 1980s.<sup>15</sup>

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<sup>13</sup> Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, *opened for signature* Dec. 18, 1979, 1363 U.N.T.S. 3 [hereinafter Moon Agreement].

<sup>14</sup> House of Representatives, 35 *Shūgiin kaigiroku* [Minutes of Plenary Session] 1 (May 9, 1969) [hereinafter *May 9, 1969 Minutes of House of Representatives*], available at [http://kokkai.ndl.go.jp/cgi-bin/KENSAKU/swk\\_dispdoc.cgi?SESSION=14849&SAVED\\_RID=4&PAGE=0&POS=0&TOTAL=0&SRV\\_ID=4&DOC\\_ID=580&DPAGE=1&DTOTAL=1&DPOS=1&SORT\\_DIR=1&SORT\\_TYPE=0&MODE=1&DMY=16999](http://kokkai.ndl.go.jp/cgi-bin/KENSAKU/swk_dispdoc.cgi?SESSION=14849&SAVED_RID=4&PAGE=0&POS=0&TOTAL=0&SRV_ID=4&DOC_ID=580&DPAGE=1&DTOTAL=1&DPOS=1&SORT_DIR=1&SORT_TYPE=0&MODE=1&DMY=16999); House of Councillors, 9 *Kagakujijutsu shinkōtaisaku tokubetsu iinnkai* [Minutes of Special Committee on the Science and Technology Promotion Measures] 1 (June 13, 1969) available at [http://kokkai.ndl.go.jp/cgi-bin/KENSAKU/swk\\_dispdoc.cgi?SESSION=14849&SAVED\\_RID=1&PAGE=0&POS=0&TOTAL=0&SRV\\_ID=4&DOC\\_ID=495&DPAGE=1&DTOTAL=1&DPOS=1&SORT\\_DIR=1&SORT\\_TYPE=0&MODE=1&DMY=21303](http://kokkai.ndl.go.jp/cgi-bin/KENSAKU/swk_dispdoc.cgi?SESSION=14849&SAVED_RID=1&PAGE=0&POS=0&TOTAL=0&SRV_ID=4&DOC_ID=495&DPAGE=1&DTOTAL=1&DPOS=1&SORT_DIR=1&SORT_TYPE=0&MODE=1&DMY=21303).

<sup>15</sup> Relevant governmental ministries and agencies ordered a series of communications, broadcasting and meteorological satellites to the Mitsubishi Heavy Industry (MHI), Toshiba and NEC respectively to advance satellite manufacturing business of the 3 companies. Nihon kōkūchū kōgyōkai [The Society of Japanese Aerospace Companies], 1990 nen no Nichibei eiseigōi izenno Jinkōeisei no seihuchōtatsu ni tsuite [Governmental Procurement of Satellites in Japan before the 1990 Japan-US Satellite Procurement Agreement], at 4-8 (2006) (unpublished, on file with author).

Then came the escalating trade friction between the U.S. and Japan, which resulted in the U.S.-Japan Satellite Procurement Agreement (Procurement Agreement) in 1990.<sup>16</sup> This is deemed to be the second reason for delaying Japan's space commercialization. The Procurement Agreement requires Japan to open its non-research and development (non-R & D) satellite procurement to foreign satellite manufacturers. That provision was tantamount to a death sentence to the embryonic Japanese satellite industry. Needless to say, European countries, China, and India are not under such obligations with the U.S. The difference in the satellite manufacturing capability of, respectively, the U.S. and Japan resulted in the outcome of Japan's satellite procurement. Since 1990, 12 out of 13 non-R & D satellites procured by the Japanese government and its related corporations such as NHK (Japan Broadcasting Corporation) are U.S. made. Looking at the other spacefaring nations developing their commercial use of outer space in the 1990s, Japan could not participate in that trend, for it was caught in a vicious circle as it had to invest more resources into "R & D satellites" which fell outside the open bidding process. Thus, entering the 21st century, Japan had become a type of a spacefaring state which is strong in space science but weak in space commercialization.

In addition, the official non-military use policy, maintained since 1969, brought about increasing concerns among policymakers facing the growing threat from North Korean ballistic missiles. North Korea had already launched twice towards Japan in the 20th century in 1993 and 1998. By 2005, it was keenly felt by the members of Parliament that Japan's space policy had to be streamlined.

### *C. Recent Developments: The Beginning of Privatization of Space*

The U.S. and ESA have constructed robust commercial launching industries since the 1980s. China joined this category around the beginning of 1990. Additionally, Russia is now a strong competitor in this regard, often having set up joint ven-

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<sup>16</sup> Agreement on Satellite Procurement, U.S.-Japan, 1990, available at <http://www.mac.doc.gov/japan/sector-specific/ta90061b.htm> (last visited Nov. 7, 2009).

tures with European and U.S. companies since the 1990s. India also succeeded in its first commercial launch in April 2007 and another in 2008. It was only Japan among the major spacefaring nations that had not experienced a commercial launch by the end of 2007.

However, the situation finally started to change by the special efforts taken both by the government and private industry including the then already started efforts to legislate a national space law to promote the commercialization of space. For instance, in April 2007, H-IIA rockets were transferred from Japan Aerospace Exploration Agency (JAXA) to the private Mitsubishi Heavy Industries (MHI), and it successfully conducted its first commercial launch of a private communications satellite, *Superbird-7* in August 2008. *Superbird-7*, operated by JSAT Corporation, was also made by a Japanese company, Mitsubishi Electronics. For JSAT, *Superbird-7* is the first Japanese satellite among its approximately 20 satellites to date. Then, in January 2009, MHI announced the conclusion of a contract for the commercial launch of a Korean multi-purpose satellite, *Kompsat-3*. Another private company, Galaxy Express Corporation (GALEX) is developing a GX rocket to launch medium-size satellites in cooperation with the U.S. company, Lockheed Martin, JAXA, and the Ministry of Economy, Trade and Industry (METI).<sup>17</sup> In addition, several other entrepreneurial ventures are developing small rockets for suborbital flight.

The satellite manufacturing industry has also started to show signs of industrialization: Mitsubishi Electronics entered a contract with a multinational satellite operating company based in Singapore to make a communications satellite in December 2008.<sup>18</sup> Finally, it seems that Japan also feels it is imperative to

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<sup>17</sup> After the completion of this article, on Aug. 25, 2009, the governmental participation in the GX rocket program was cancelled, except for the development of its LNG engine by the Strategic Headquarters for Space Development which was created by the Basic Space Law. See GX rocketto no kongo no susumekata ni tsuite [Decision on the Future of the GX Rocket], Aug.25, 2009 <http://www.kantei.go.jp/jp/singi/utyuu/gxrocket.pdf>.

<sup>18</sup> See, e.g., Mitsubishidenki, Singaporu to Taiwan no jiki shōyō tsūshinisei ST-2 wo juchū [Mitsubishi Electronics Gets an Order for the Next Commercial Telecommunication Satellite "ST-2" from Singapore and Taiwan], Dec.3, 2008, <http://www.rbbtoday.com/news/20081203/56187.html>.

have a series of national space laws on a par with the other spacefaring nations.

This article addresses the current status and recent developments in Japan's national space law and how it will influence Pacific Rim Space Law and Activities. First, the organizational structure of Japan's space activities is explained. Second, the newly enacted Basic Space Law and the just-released first Basic Plan for Space Policy are considered in some detail. Third, the current Japanese laws and administrative regulations that relate to the authorization and continuing supervision of nongovernmental entities will be considered. The laws and regulations currently controlling JAXA and MHI launch activities and private sector telecommunications satellite operations will be included in the Space Activities Act, which is, at present, being drafted.<sup>19</sup> This part of the law will not be drastically changed from the current practice. Therefore, studying current Japanese national laws and administrative regulations merits analysis. The article briefly concludes by discussing the implication of Japan's space laws in the broader perspective of Pacific Rim space laws and activities.

## II. ORGANIZATIONAL STRUCTURE OF JAPAN'S SPACE ACTIVITIES

It has been less than a year since the application of the Basic Space Law started on 27 August 2008.<sup>20</sup> The government is in the midst of reviewing the purposes; functions; scope of the mandates; organized structures; and the administrative organs of JAXA and the other agencies that deal with space development and use in accordance with Art. 3 of the Basic Space Law's Supplementary Provisions in order to meet the basic principles provided for in the Law.<sup>21</sup> The government is also reviewing

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<sup>19</sup> The Working Group to Study a Space Activities Act was formed on October 1, 2008 by the decision of the Experts Research Committee on Space Development Strategy under the Strategic Headquarters for Space Development. See *Uchū katsudō ni kansuru hōsei kentō working group no secchi ni tsuite* [Decision on the Establishment of a Working Group to Study a Space Activities Act], Oct. 1, 2008 available at <http://www.kantei.go.jp/jp/singi/utyuu/pdf/7.pdf>.

<sup>20</sup> Basic Space Law, *supra* note 9, at 483.

<sup>21</sup> Item 5 of the resolutions adopted at the Cabinet Standing Committee of both Houses while considering the Basic Space Bill also required the review of the JAXA Law

relevant ministries and organizations which have jurisdiction to authorize and supervise R & D and use of space by JAXA and other agencies in order to promote Japan's space activities in a comprehensive and integrated manner as required by Art. 4 of the Supplementary Provisions. Thus, the supervisory authority for JAXA may be changed as well as the scope of the JAXA's mandates. Discussions are especially heated about under which ministry or ministries JAXA should be placed, which is, as of June 2009, still very much uncertain. Thus, in this section, Japan's present organizational structure, which already experienced substantial change in January 2001 due to the comprehensive governmental reform concerning space activities, is explained.

*A. Agencies to Make Space Policy: Space Activities Commission (SAC) and Council for Science and Technology Policy (CSTP)*

1. Space Activities Commission

Space Activities Commission (SAC), established under the Prime Minister's Office<sup>22</sup> in 1968, used to plan, discuss, and decide Japan's comprehensive space policy and submitted its decision to the prime minister.<sup>23</sup> Once made, SAC's decision had to be respected by the Prime Minister.<sup>24</sup> SAC made Japan's national space policy titled, "Outlines of Space Development Policy" in 1978, 1984, 1989, and 1996. SAC made its last Japanese space policy, "Mid-to-Long Term Strategy for Space Develop-

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for that purpose within about one year from the effective date of the Basic Space Law. See Cabinet Standing Committee, House of Representatives, *Uchū no kaihatsu oyobi riyō no suishin ni kansuru ken* [Issues Concerning the Promotion of Development and Use of Space] (May 9, 2009), [http://www.soranokai.jp/pages/kihonhouA\\_ketsugi.html](http://www.soranokai.jp/pages/kihonhouA_ketsugi.html); Cabinet Standing Committee, House of Councillors, *Uchū kihonhōan ni taisuru hutaietsugi* [Attached Resolution Concerning Basic Space Bill] (May 20, 2009), available at [http://www.soranokai.jp/pages/kihonhouA\\_080523b.html](http://www.soranokai.jp/pages/kihonhouA_080523b.html).

<sup>22</sup> Prime Minister's Office was abolished on January 5, 2001. Sōrihu secchihōtō no haishi [Annulment of the Act for the Establishment of the Prime Minister's Office, etc.] (Dec. 22, 2000) available at <http://www.kantei.go.jp/jp/cyuo-syocho/990427honbu/seibi-2s3sh.htm>.

<sup>23</sup> See *Uchū kaihatsu iinkai secchihō* [Act for the Establishment of the Space Activities Commission], Act No. 40 of May 2, 1968, art. 1, <http://www.houko.com/00/01/S43/040.HTM>.

<sup>24</sup> *Id.* at art. 3.

ment” in December 2000. This was just before the supervisory authority for SAC was moved from the Prime Minister’s Office to the Ministry of Education, Culture, Sports, Science and Technology (MEXT) on 6 January 2001 and in the midst of central government reform.<sup>25</sup>

Under MEXT’s jurisdiction, SAC was only permitted to make policy concerning JAXA’s space development and use; it was not permitted to make policy concerning other agencies or organizations dealing with space affairs. However, when the “Japanese Long-Term Program for Space Activities” (endorsed on 28 June 2001) was drafted by SAC as the first space activities plan under the jurisdiction of MEXT, it was treated as if it had been a guideline for a comprehensive national space policy. The reason is that, first, due to the non-military policy maintained in Japan and the scant participation by the private sector in space utilization, the science and technology policy for space was similar in content to the total space policy in Japan and, second, most of space development and use was carried out by JAXA.

Although to a smaller degree, the Ministry of Internal Affairs and Communications (MIC) has been conducting space development and use with JAXA and, until August 2006, so did the Ministry of Land, Infrastructure, Transport and Tourism (MLIT). Therefore, the 2001 Long-Term Program for Space Activities was endorsed by MEXT, MIC, and MLIT. MLIT ceased to supervise JAXA as its meteorological satellite, *GMS-5 (Himawari-5)*, which was developed by JAXA, stopped all functions in 2006 and *GMS-5*’s successor, *MTSAT-1R (Himawari-6)*, was purchased from the U.S.<sup>26</sup> As of April 2009, JAXA is under the

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<sup>25</sup> Monbukagakushō secchihō [Act for the Establishment of the Ministry of Education, Culture, Sports, Science and Technology], Act No. 96 of July 17, 1999 [hereinafter Act for the Establishment of the Ministry of Education], available at <http://law.e-gov.go.jp/htmldata/H11/H11HO096.html> Establishment of the SAC is based on the Act for the Establishment of the Ministry of Education and National Government Organizational Law. See Kokka gyōsei soshikihō [National Government Organizational Law], Law No. 120 of July 10, 1948, art. 8, available at <http://law.e-gov.go.jp/htmldata/S23/S23HO120.html>.

<sup>26</sup> *GMS-5* was made by JAXA and NEC, a Japanese company, before the Procurement Agreement was adopted, and launched in 1995. *GMS-5* ceased its function as a meteorological satellite in 2003, but it continued working as a data relay satellite while

control of MEXT for all its activities and MIC retains some control on the small portions of those activities.

## 2. Council for Science and Technology Policy

Under the 2001 central governmental reform, the newly established Council for Science and Technology Policy (CSTP) became the authority to make a comprehensive science and technology strategy relating to national goals, and it drafted the “5-year Science and Technology Basic Plan.” CSTP, chaired by the Prime Minister, reports its strategy, plans, and opinions on important issues of science and technology when it deems necessary to the Prime Minister and/or other relevant Ministers.<sup>27</sup> CSTP consists of a maximum of 14 members including the Prime Minister; competent Ministers; relevant high-ranking governmental officials; and people of learned knowledge, who are appointed by Prime Minister. As of April 2009, the Chief Cabinet Secretary, MIC, the Minister of Finance (MOF), MEXT, METI, and the Minister of State for Science and Technology Policy are members, along with people of learned knowledge from academia and industry.

In the field of development and use of space, CSTP submitted a “Basic Strategy of Space” to the Prime Minister in June 2002 and September 2004.<sup>28</sup> Since 2001, therefore, CSTP makes

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Japan leased a U.S. GOES-9 as a substitute of GMS-5 until 28 June 2006. MLIT supervised JAXA with respect to the operation of GMS-5 until August of 2006. MEXT and MIC, Dokuritsughōseihojin uchūkōkūkenkyūkai hatsukikō no gyōmuunei narabini zaimu oyobi kaikei ni kansuru shōrei no ichibu wo kaiseisuru shōrei [Ministerial Ordinance to Amend the Part of the Management, Finance and Account Concerning Independent Administrative Agency Japan Aerospace Exploration Agency] MEXT and MIC Ministerial Ordinance No.1 of August 31, 2006, available at <http://www.lawdata.org/law/htmldata/H17/H17F11002004001.html>.

<sup>27</sup> CSTP was founded under the Act for the Establishment of the Cabinet Office and the Cabinet Order for the Establishment of the Council on Science and Technology Policy. See Naikakuhō Secchihō [Act for the Establishment of the Cabinet Office], Act No. 89 of July 16, 1999, arts. 18 & 26-36, available at <http://law.e-gov.go.jp/htmldata/H11/H11HO089.html>; Sōgō kagakugijutsu kaigirei [Cabinet Order for the Establishment of the Council on Science and Technology Policy], Cabinet Order No.258 of 2000, available at <http://www.kantei.go.jp/jp/singi/index/kagaku/konkyo.html>.

<sup>28</sup> Only 16 months after the first space strategy was adopted, again the CSTP began studying the long-term strategy of Japanese space, taking the special note of the rapid change of international political ramification and space improvement. See Kōgō no uchūkai hatsuriyō ni kansuru torikumi ni tsuite [Basic Measures of Space Development

comprehensive science and technology space policy relating to comprehensive national goals, while MEXT/SAC makes the basic long-term space plans to advance the frontier of scientific knowledge and advance cutting-edge space technology. Unlike the national space policy of other spacefaring nations, which contain necessary measures to promote commercialization and international cooperation including space diplomacy, both CSTP and MEXT/SAC deal with only science and technology issues.

Unfortunately, due regard has not necessarily been paid to the Basic Strategy of Space adopted by CSTP. This is mainly because CSTP is not authorized to request appropriations and partly because CSTP is not a competent authority to supervise JAXA which conducts most of the existing Japanese space activities.

A Strategic Headquarters for Space Development was established in August 2008 (Strategic Headquarters)<sup>29</sup> and it seems to require the demarcation of the mandates between the Strategic Headquarters and CSTP. While it is still premature to determine the precise demarcation, it is expected that CSTP will be in charge of selecting the space technology to be given priority in space programs pursued under the Basic Plan for Space Policy,<sup>30</sup> and it will evaluate the results of science and technological aspects of individual space projects approved by the Strategic Headquarters. In July 2009, CSTP will have completed the mid-term-evaluation of the third 5-year Science and Technology Basic Plan (2006-2010). Two of the space projects, the *Space Transportation System* (H-IIB rocket, H-II Transfer Vehicle (HTV), and successor to the M-5 solid propellant rocket) and the *Ocean and Earth Observation and Monitoring System*, are currently included as the Nation's most important strategic technology.<sup>31</sup>

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and Use in the Near Future] (June 19, 2002), available at [http://www8.cao.go.jp/cstp/output/iken020619\\_5.pdf](http://www8.cao.go.jp/cstp/output/iken020619_5.pdf); Wagakuni ni okeru uchūkai hatsuriyō no kihonsenryaku [Japan's Basic Strategy of Space Development and Use] (September 9, 2004) available at [http://www8.cao.go.jp/cstp/output/iken040909\\_1.pdf](http://www8.cao.go.jp/cstp/output/iken040909_1.pdf).

<sup>29</sup> Basic Space Law, *supra* note 9, at 480-482, ch. IV.

<sup>30</sup> See, *infra* note 51; see, also, Appendix of this article.

<sup>31</sup> See generally, Science and Technology Policy Council for Science and Technology Policy, <http://www8.cao.go.jp/cstp/english/index.html> (last visited Nov. 7, 2009).

*B. JAXA: Primary Organization to Conduct R & D  
in Outer Space*

Facing the challenges of far-reaching administrative reform, three formerly independent organizations were consolidated into one independent administrative agency named JAXA<sup>32</sup> on October 1, 2003. This was done in order to streamline Japan's aeronautical and aerospace research, development, and applications. Prior to the integration, the Institute of Space and Astronautical Science (ISAS),<sup>33</sup> the National Aerospace Laboratory of Japan (NAL),<sup>34</sup> and the National Space Development Agency of Japan (NASDA)<sup>35</sup> had conducted slightly overlapping mandates for air and space research and development. ISAS and NAL had been supervised by the Ministry of Education, while NASDA had been subject to the direction of the Science and Technology Agency (STA).<sup>36</sup>

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<sup>32</sup> Dokuritsughöseihöjin uchükökü kenkyūkaihatsu kiköhö [Law Concerning Japan Aerospace Exploration Agency], Law No.161 of Dec. 12, 2002 [hereinafter JAXA Law], available at <http://law.e-gov.go.jp/htmldata/H14/H14HO161.html>; unofficial English translation available at <http://www.oosa.unvienna.org/oosadb/showDocument.do?documentUid=330&node=docs&country=JPN&cmd=add> (last visited Nov. 7, 2009). See also Dokuritsughöseihöjin tsüsokuhö [General Provisions Law Concerning Independent Administrative Agency], Law No.103 of July 16, 1999 [hereinafter General Provisions Law], available at <http://www.kantei.go.jp/jp/cyuo-syocho/990427honbu/houjin1-h.html>. The General Provisions Law stipulates general rules for all newly founded independent administrative agencies. *Id.*

<sup>33</sup> ISAS was founded in the University of Tokyo in 1964, which successfully launched Japan's first satellite into orbit in 1970 as the 4th nation in the world. In 1981, ISAS was restructured as a joint research organization among Japanese universities. Institute of Space and Aeronautical Science, <http://www.isas.ac.jp/e/index.shtml> (last visited Nov. 7, 2009).

<sup>34</sup> The NAL, originally named as the National Aeronautical Laboratory, was founded in 1955. The space division was added in 1963 and renamed as the National Aerospace Laboratory of Japan. NAL became an independent administrative corporation in 2001 even before integrated into JAXA. Japan Aerospace Exploration Agency, [http://www.jaxa.jp/index\\_e.html](http://www.jaxa.jp/index_e.html) (last visited Nov. 7, 2009).

<sup>35</sup> NASDA, a special public corporation, was established in 1969 to conduct space activities directly related to daily life of the citizenry. NASDA developed liquid propellant rockets and application satellites, while ISAS developed solid propellant rockets for scientific satellites. See Law Concerning the National Space Development Agency of Japan, Law No.50 of June 23, 1969, as amended [hereinafter NASDA Law], unofficial English translation available at <http://www.oosa.unvienna.org/oosadb/showDocument.do?documentUid=301&node=docs&cmd=add> (last visited Nov. 7, 2009).

<sup>36</sup> Ministry of Education and STA were integrated into the present Ministry of Science, Culture, Sports, Science and Technology on 6 January 2001 due to the Japan's

The objectives of JAXA are to facilitate (a) the development of academic research at universities or other institutes;<sup>37</sup> (b) the enhancement of the level of space and aeronautical science and technology;<sup>38</sup> and (c) the promotion of space development and utilization through the development, launch, tracking, and operation of “satellites.” Here “satellite” means satellites; flying objects to be launched beyond Earth orbit; artificial objects to be placed on celestial bodies; the rockets used to launch them;<sup>39</sup> and activities relating thereto.<sup>40</sup>

Under the JAXA Law, conditions for aerospace and aeronautical research, development, and use differ. Aerospace research, development, and use shall be conducted “exclusively for peaceful purposes” and in an integrated and programmatic manner.<sup>41</sup> Aeronautics shall be carried out only “in an integrated manner.”<sup>42</sup> The requirement of “peaceful purposes” is only imposed on aerospace research, development, and use.

### *C. Other Organizations That Conduct Outer Space R & D*

JAXA is overwhelmingly the most important space R & D organization. However, there are several other ministries, independent administrative agencies, and other agencies that also have special ties with the central government and which conduct research, development, and use of space either with JAXA or on their own.

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central government reform. *See, e.g.*, Chüōshōchōtō kaikaku kihonhō [Basic Law for the Reorganization of the Central Government Ministries and Agencies] Law No.103 of June 12, 1998. *available at* <http://www.kantei.go.jp/jp/gyokaku/980303houan.html>.

<sup>37</sup> For that objective, JAXA is to conduct “academic research concerning Space Science in collaboration with universities or otherwise”. *See* JAXA Law, *supra* note 32, at art. 4.

<sup>38</sup> For that objective, JAXA is to conduct (i) basic research on aerospace and aeronautical science and technology, and (ii) “Fundamental Research and Development” concerning space and aeronautics. *Id.* (“Fundamental Research and Development” is defined in art. 2(2)).

<sup>39</sup> *Id.* at art. 2(3) (for definition of “Satellites”).

<sup>40</sup> *Id.* at art. 4.

<sup>41</sup> *Id.*

<sup>42</sup> *Id.*

i. Ministry of Internal Affairs and Communications

MIC deals with the development of space communications mainly through its independent administrative agency, the National Institute of Information and Communications Technology (NICT), which was established in 2004 by the joining the Communications Research Laboratory (CRL), an independent administrative agency, with the Telecommunications Advancement Organization (TAO), a chartered corporation. NICT designs, develops, and operates advanced communications satellites primarily in cooperation with JAXA. One of the recent examples is *WINDS (Kizuna)* launched in 2008 and *Engineering Test Satellite VIII (Kiku No.8)* launched in 2006. As already mentioned, MIC co-supervises JAXA with MEXT regarding the telecommunication affairs of MIC.

ii. Ministry of Economy, Trade and Industry

METI, does not co-supervise JAXA and carries out its space research and development through the New Energy and Industrial Technology Development Organization (NEDO), an independent administrative agency under METI, and the Institute for Unmanned Space Experiment Free Flyer (USEF), a foundation under METI. METI plays an important role in promoting space industrialization. Currently, METI is involved with the development of the next generation advanced sensors for the Earth observation satellites as well as small satellites. By 2008, METI successfully completed the parts of the development of a smaller GX rocket for the LNG engine for which it was responsible, and which was co-developed with MEXT and private companies.<sup>43</sup>

iii. Ministry of Land, Infrastructure, Transport and Tourism

MLIT co-supervised JAXA until August 2006 because the Meteorological Agency, a part of MLIT, used to develop and operate meteorological satellites in cooperation with

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<sup>43</sup> Concerning the GX rocket program, *see, supra* note 17.

NASDA/JAXA. Since 1990, the Meteorological Agency has leased one satellite (*GOES-9*) from the US, procured two satellites (*MTSAT-1*<sup>44</sup> and *MTSAT-1R*) from the U.S., and procured *MTSAT-2* from Mitsubishi Electronics, the first Japanese-made satellite built since the 1990 Procurement Agreement.

iv. MEXT, MIC, METI, MLIT, and the private sector:  
MEXT-JAXA as a Linchpin in an all Japan Quasi-Zenith  
Satellite Systems

All the space-related ministries, MEXT, MIC, METI, and MLIT have been involved with Japan's supplementary navigation system for the U.S. Global Positioning Systems (GPS), called *Quasi-Zenith Satellite Systems (QZSS)* project, to be composed of three geo-synchronous satellites.<sup>45</sup>

While it was expected to proceed as a public-private joint project, almost ten years later, there were still no formal plans for the *QZSS*. Therefore, the Positioning and Geographic Information System Promotion Council announced in March 2006 that MEXT, through JAXA, would be primarily responsible to develop the first *Quasi-Zenith Satellite (QZS)* based on the Basic Policy on the Promotion of *QZSS Project*.<sup>46</sup> The Basic Policy stated that a 2-phased incremental development for *QZSS* was planned. The first phase would demonstrate the technological validation to enhance GPS availability, performance, and application by using the first *QZS* which was to be launched in 2010 by the H-IIA launcher. In the second phase, a public-private partnership (PPP) will be introduced to achieve a three *QZS* constellation to complete the *QZSS*. That policy was confirmed by the Basic Plan for the Advancement of Utilizing Geospatial

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<sup>44</sup> The launching of *MTSAT-1*, in November 1999, by H-II 8 failed. Nihon no kokusan roketto H-II8gōki no uchiage shippai [Launch of Japan's H-IIA8 Failed] (Nov. 15, 1999) <http://www.astroarts.co.jp/news/1999/11/991115H2/index-j.shtml>.

<sup>45</sup> See, e.g., JAXA, Quasi – Zenith Satellite System, [http://qzss.jaxa.jp/index\\_e.html](http://qzss.jaxa.jp/index_e.html) (last visited Nov. 10, 2009).

<sup>46</sup> See, e.g., Cabinet Office, *Juntenchōeisei shisutemu keikaku no suishin ni kakaru kihonhōshin* [Basic Policy on the Promotion of the Quasi-Zenith Satellite Systems Project] (Mar. 31, 2008) available at <http://www.cas.go.jp/jp/seisaku/sokuitiri/180331/kihonhousin.pdf>.

Information adopted by the Cabinet Meeting in April 2008.<sup>47</sup> Section 3 of the Basic Act on the Advancement of the Utilizing Geospatial Information (NSDI Act of Japan),<sup>48</sup> made into law in May 2007, refers to the satellite navigation system. It obligates the State to take necessary measures to coordinate the work with the ministry that operates global satellite navigation systems<sup>49</sup> and to promote R & D as well as experiments on the operation of satellite navigation so as to increase the use of such satellite data.<sup>50</sup> The NSDI Act of Japan is expected to play a pivotal role in developing QZSS as a national project. The Basic Plan for Space Policy, approved by the Strategic Headquarters on 2 June 2009, indicates the possibility that eventually seven QZS may be put into orbit to advance the well-being of the citizenry and public safety.<sup>51</sup> While it is highly ambiguous if the seven QZS constellation is to be truly realized, the Basic Space Law and Basic Plan for Space Policy at least show the determination to make Japan stronger in space applications and to make it a real spacefaring nation.

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<sup>47</sup> Geographical Survey Institute of MLIT, *Chirikūkan jōhō katsuyō suishin keikaku [Basic Plan for the Advancement of Utilizing Geospatial Information]* 18-19 (Apr.15, 2008), available at <http://www.gsi.go.jp/common/000003539.pdf>; (unofficial English translation by the Geographical Survey Institute, Government of Japan, available at <http://www.gsi.go.jp/common/000043664.pdf>).

<sup>48</sup> *Chirikūkan jōhō katsuyō suishin kihonhō [Basic Act on the Advancement of Utilizing Geospatial Information]*, Act No. 63 of May 30, 2007 [hereinafter NSDI Act of Japan], available at <http://www.cas.go.jp/jp/seisaku/sokuitiri/tirikuukan/pdf/houritu.pdf> (unofficial English translation by the Geographical Survey Institute, Government of Japan, available at <http://www.gsi.go.jp/common/000002047.pdf>). See also, unofficial translation of Geospatial Information Utilization Promotion Bill, 33 J. SPACE L. 457 (2007)).

<sup>49</sup> NSDI Act of Japan, *supra* note 48, at art. 20.

<sup>50</sup> *Id.* at art. 21.

<sup>51</sup> Basic Plan for Space Policy, released on 2 June 2009, suggests the possibility of eventually operating 7 QZS. See Strategic Headquarters, *Basic Plan for Space Policy* 19 (June 2, 2009), available at [http://www.kantei.go.jp/jp/singi/utyuu/basic\\_plan.pdf](http://www.kantei.go.jp/jp/singi/utyuu/basic_plan.pdf); See also, Chapter III 1 (1)D (Navigation Satellite System) of the Appendix of this article. The Basic Plan for Space Policy was summarized by the present author in June 2009. See Appendix of this article. Just before the publication of this article, the Strategic Headquarters offered the complete translation of the Basic Plan for Space Policy on October 23, 2009.

## v. CSICE

The introduction of the Information Gathering Satellites (IGS) was decided in December 1998 at a Cabinet Meeting after the North Korean intermediate ballistic missile, *Taepodong-1*, was launched and flew over Japanese territory on 31 August 1998. IGS were developed by JAXA, and are subject to the jurisdiction of Cabinet Satellite Intelligence Center (CSICE) under the Cabinet Intelligence and Research Office (CIRO) of the Cabinet Secretariat. The mandate of CSICE includes IGS operation, analysis of IGS images, and analysis of the images of other satellites with information collected by any other means.<sup>52</sup> IGS is defined as “artificial satellites in order to collect imaging information useful for assuring Japan’s security, addressing large-scale disasters, and other important policy matters of the Cabinet.”<sup>53</sup>

It merits raising here why it was not the Japan Defense Agency (that is, the Ministry of Defense as of 9 January 2007) but rather the civilian CIRO/CSICE that operates IGS. When the NASDA Law was passed in 1969, Diet Resolutions were also adopted by both Houses to assure that Japanese space activities would be kept within the limits of “exclusively for peaceful purposes.”<sup>54</sup> The interpretation of “exclusively for peaceful purposes” is not necessarily restricted to “non-military” uses of outer space. Such interpretation would certainly be contradicted by State practice since the advent of space exploration and use. It is widely understood that “all military uses are permitted and lawful as long as they remain ‘non-aggressive’ as per Article 2(4) of the U.N. Charter, which prohibits ‘the threat or use of force.’”<sup>55</sup> However, it was repeatedly stated in the debate of the resolutions, that, for Japanese purposes, the term “peaceful pur-

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<sup>52</sup> Naikakukanbō soshikirei [Cabinet Order on the Organization of Cabinet Secretariat], Cabinet Order No. of 219 of July 31, 1957 as amended, at art. 4-2(2)2-3, available at <http://www.houko.com/00/02/S32/219.HTM>.

<sup>53</sup> *Id.* at art. 4-2(2)1.

<sup>54</sup> *May 9, 1969 Minutes of House of Representatives*, *supra* note 14.

<sup>55</sup> Ivan A. Vlasic, *The Legal Aspects of Peaceful and Non-Peaceful Uses of Outer Space*, in *PEACEFUL AND NON-PEACEFUL USES OF SPACE* 37, 40 (Bupendra Jasani, ed., 1991).

poses” shall be interpreted as strictly “non-military” irrespective of the international standard of interpretation.<sup>56</sup> Because both resolutions were adopted unanimously, this position was particularly strong.<sup>57</sup>

The non-military principle caused a series of difficulties for the practical use of space by the Self Defense Forces (SDF). First, the question was asked if SDF could use the CS-2 telecommunication satellite that was operated by the International Telegraph and Telephone Corporation (KDD), a public corporation, for civil use.<sup>58</sup> Then, the legality of the SDF asking for a UHF equipment budget to receive radio waves from the U.S. navy *Fleetsat* telecommunication satellites in joint training was raised.<sup>59</sup> These circumstances resulted in the release of the “governmental unified view” in February 1985. That view stated that SDF could be a user of satellites which had already been widely used in the everyday life of Japan’s civil society and satellites with similar functions.<sup>60</sup> Based on that unified view, SDF

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<sup>56</sup> See, e.g., House of Representatives, 11 *Kagakujutsu shinkôtai saku tokubetsu iinkaigiroku* [Minutes of Special Committee on Science and Technology Promotion Measures] 5 (May 8, 1969) available at [http://kokkai.ndl.go.jp/cgi-bin/KENSAKU/swk\\_dispdoc.cgi?SESSION=11764&SAVED\\_RID=1&PAGE=0&POS=0&TOTAL=0&SRV\\_ID=4&DOC\\_ID=726&DPAGE=1&DTOTAL=1&DPOS=1&SORT\\_DIR=1&SORT\\_TYPE=0&MODE=1&DMY=11914](http://kokkai.ndl.go.jp/cgi-bin/KENSAKU/swk_dispdoc.cgi?SESSION=11764&SAVED_RID=1&PAGE=0&POS=0&TOTAL=0&SRV_ID=4&DOC_ID=726&DPAGE=1&DTOTAL=1&DPOS=1&SORT_DIR=1&SORT_TYPE=0&MODE=1&DMY=11914).

<sup>57</sup> Law making in the Japanese Diet starts with the introduction of a bill for topics that are capable of becoming law, either as a matter of politics or because of legal content. Some topics which do not have enough political support to become a law or which do not involve legal matters can be introduced and adopted as Diet resolutions. In other words, usually, a Diet resolution involves more controversial subjects. While Diet resolutions are not legally binding, they can be strong politically, because the executive branch has to act in line with the Diet resolutions. All Diet resolutions, by nature, consist of two resolutions: one from the House of Representatives and one from the House of Councilors.

<sup>58</sup> See, e.g., House of Representatives, 5 *Yosan iinkaigiroku* [Minutes of the Standing Budget Committee] 14 (Feb 5, 1983) available at [http://kokkai.ndl.go.jp/cgi-bin/KENSAKU/swk\\_dispdoc.cgi?SESSION=14599&SAVED\\_RID=2&PAGE=0&POS=0&TOTAL=0&SRV\\_ID=5&DOC\\_ID=6311&DPAGE=1&DTOTAL=1&DPOS=1&SORT\\_DIR=1&SORT\\_TYPE=0&MODE=1&DMY=14932](http://kokkai.ndl.go.jp/cgi-bin/KENSAKU/swk_dispdoc.cgi?SESSION=14599&SAVED_RID=2&PAGE=0&POS=0&TOTAL=0&SRV_ID=5&DOC_ID=6311&DPAGE=1&DTOTAL=1&DPOS=1&SORT_DIR=1&SORT_TYPE=0&MODE=1&DMY=14932).

<sup>59</sup> See, e.g., House of Representatives, 4 *Yosan iinkaigiroku* [Minutes of the Standing Budget Committee] 4 (Feb.5, 1985) available at [http://kokkai.ndl.go.jp/cgi-bin/KENSAKU/swk\\_dispdoc.cgi?SESSION=14599&SAVED\\_RID=3&PAGE=0&POS=0&TOTAL=0&SRV\\_ID=6&DOC\\_ID=1508&DPAGE=1&DTOTAL=1&DPOS=1&SORT\\_DIR=1&SORT\\_TYPE=0&MODE=1&DMY=15949](http://kokkai.ndl.go.jp/cgi-bin/KENSAKU/swk_dispdoc.cgi?SESSION=14599&SAVED_RID=3&PAGE=0&POS=0&TOTAL=0&SRV_ID=6&DOC_ID=1508&DPAGE=1&DTOTAL=1&DPOS=1&SORT_DIR=1&SORT_TYPE=0&MODE=1&DMY=15949).

<sup>60</sup> See, e.g., House of Representatives, 5 *Yosan iinkaigiroku* [Minutes of the Standing Budget Committee] 3 (Feb.6, 1985) available at [http://kokkai.ndl.go.jp/cgi-bin/KENSAKU/swk\\_dispdoc.cgi?SESSION=14599&SAVED\\_RID=4&PAGE=0&POS=0&](http://kokkai.ndl.go.jp/cgi-bin/KENSAKU/swk_dispdoc.cgi?SESSION=14599&SAVED_RID=4&PAGE=0&POS=0&)

has become a user of the IGS that have been operated since March 2003 by the CSICE.

In order to observe the conditions imposed on the SDF by the governmental unified view of 1985, the resolution of IGS images should not be better than the resolution available from other satellites in the market. Likewise, for instance, early warning satellites are beyond the reach of the SDF since that kind of satellite cannot be widely used in civil life. Because the JAXA Law proscribes the military use of space,<sup>61</sup> even after the Basic Space Law lifted the long-standing ban of military-use of space, JAXA cannot engage in the manufacturing or the operation of military reconnaissance satellites unless the JAXA Law is amended.

### III. JAPAN'S FIRST SPACE LAW: THE BASIC SPACE LAW

#### A. Drafting Process

Mr. Takeo Kawamura was Minister of MEXT from April 2003 until November 2004. As soon as he resigned in November 2004, Mr. Kawamura started working to enact a framework law in order to design Japan's comprehensive space policy. His terms as Minister of MEXT were turbulent when it came to the space activities of NASDA/JAXA. During that time, the operation of *ADEOS-II (Midori-II)*, a remote sensing satellite, had to be terminated in October 2003, within a year of its launch; the launch of H-IIA 6 failed, thereby losing two of the IGS satellites in November 2003; and the placing of the science probe *Planet-B (Nozomi)* in an Mars orbit had to be abandoned in December 2003. Concerned about the successive failures and insufficient commercialization in contrast to other spacefaring nations, Mr. Kawamura was quick to act. In February 2005, the Study Group to Design a National Space Strategy was set up in which Vice-Ministers and Parliamentary Secretaries of the relevant ministries participated. After meeting 10 times, the study report was

<sup>61</sup> JAXA Law, *supra* note 32, at art. 4.

submitted to the Chief Cabinet Secretary. At the same time, the LDP Space Development Special Committee was established. That committee made a report in April 2006 to urge the LDP to take appropriate measures to submit a Basic Space Bill to the Diet. For that purpose, the ruling coalition parties, the LDP and the New Komeito formed a project team in November 2006. The two parties consulted more than thirty times and completed a draft Basic Space Bill.<sup>62</sup> The bill was submitted to the House of Representatives on 20 June 2007.<sup>63</sup>

Deliberations on the Basic Space Bill were not undertaken for ten months because other bills were given priority in the “twisted” Diet where the two legislative houses were controlled by different parties. The ruling coalition parties had seats at the more important House of Representatives in contrast to the House of Councillors, which was overwhelmed by the largest opposition party, the Democratic Party of Japan (DPJ). In the mean time, the DPJ expressed the intention to submit its version of a space bill. A breakthrough came in late in April 2008 when the DPJ supported the coalition bill. It was, in a way, natural for the difference of policy between the LDP and DPJ, especially on security use of space, was smaller than that of the LDP and the New Komeito. The New Komeito had been adamant to keep the interpretation of “peaceful” as meaning “non-military.”

On 9 May 2009, the bill submitted the previous June was withdrawn and a new bipartisan Basic Space Bill<sup>64</sup> proposed by the LDP, the New Komeito, and the DPJ was submitted. The new bill, submitted to the House of Representatives, was substantially identical to the older bill; only some words were changed or added in order to highlight the necessity of space commercialization, strongly urged by DPJ.

The new bill was voted for by an overwhelming majority at the Cabinet Standing Committee on 9 May and then at the Ple-

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<sup>62</sup> Unpublished documents on the drafting process of the Basic Space Bill are on file with author.

<sup>63</sup> Bill No. 50 of June 20, 2007, *supra* note 8.

<sup>64</sup> Uchū kihonhōan [Basic Space Bill] Bill No. 17 of May 9, 2008. *available at* [http://www.shugiin.go.jp/index.nsf/html/index\\_gian.htm](http://www.shugiin.go.jp/index.nsf/html/index_gian.htm).

nary on 13 May.<sup>65</sup> Then it was sent to the Cabinet Standing Committee of the House of Councillors and voted for at the Cabinet Standing Committee on 20 May and at the Plenary on 21 May. The bill passed with an overwhelming majority of 221 in favor, 14 against, and no abstentions. On 21 May, the Basic Space Bill was made into a full-fledged law. A week later, on 28 May, it was promulgated, and became effective on 27 August in accordance with Article 1 of the Supplementary Provisions of the Basic Space Law.

The Cabinet Standing Committees of both Houses adopted the Diet Resolutions, the contents of which are identical.<sup>66</sup> The Diet Resolutions provided for the composition of the Secretariat of the Strategic Headquarters. Also, both resolutions set a time-frame on the restructuring of JAXA, SAC, and other agencies as well as the making of the Space Activities Act. Restructuring of space-related agencies was recommended to be completed within one year after the entry into force of the Basic Space Law, and the Space Activities Act, which is currently being made, must pass within two years. The Chief Cabinet Secretary stated that the contents of the both resolutions would be duly respected.<sup>67</sup>

### *B. The Contents of the Basic Space Law*

#### *i. Summary*

The Basic Space Law contains thirty-five articles, four supplementary provisions, and consists of five chapters. Chapter 1, General Provisions, provides for the Purpose of the Law,<sup>68</sup> Basic

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<sup>65</sup> The number concerning in favor and against the bill was not recorded.

<sup>66</sup> See, *supra* note 21.

<sup>67</sup> House of the Representatives, 14 *Naikaku iinkaigiroku* [*Minutes of Cabinet Standing Committee*] 16 (May 9, 2008) available at [http://kokkai.ndl.go.jp/cgi-bin/KENSAKU/swk\\_dispdoc.cgi?SESSION=16987&SAVED\\_RID=1&PAGE=0&POS=0&TOTAL=0&SRV\\_ID=9&DOC\\_ID=8732&DPAGE=1&DTOTAL=1&DPOS=1&SORT\\_DIR=1&SORT\\_TYPE=0&MODE=1&DMY=17093](http://kokkai.ndl.go.jp/cgi-bin/KENSAKU/swk_dispdoc.cgi?SESSION=16987&SAVED_RID=1&PAGE=0&POS=0&TOTAL=0&SRV_ID=9&DOC_ID=8732&DPAGE=1&DTOTAL=1&DPOS=1&SORT_DIR=1&SORT_TYPE=0&MODE=1&DMY=17093); House of Councillors, 14 *Naikaku iinkai kaigiroku* [*Minutes of Cabinet Standing Committee*] 15 (May 20, 2008) available at [http://kokkai.ndl.go.jp/cgi-bin/KENSAKU/swk\\_dispdoc.cgi?SESSION=16987&SAVED\\_RID=2&PAGE=0&POS=0&TOTAL=0&SRV\\_ID=9&DOC\\_ID=13261&DPAGE=1&DTOTAL=1&DPOS=1&SORT\\_DIR=1&SORT\\_TYPE=0&MODE=1&DMY=17595](http://kokkai.ndl.go.jp/cgi-bin/KENSAKU/swk_dispdoc.cgi?SESSION=16987&SAVED_RID=2&PAGE=0&POS=0&TOTAL=0&SRV_ID=9&DOC_ID=13261&DPAGE=1&DTOTAL=1&DPOS=1&SORT_DIR=1&SORT_TYPE=0&MODE=1&DMY=17595).

<sup>68</sup> Basic Space Law, *supra* note 9, at 472, art.1.

Principles,<sup>69</sup> and the concrete obligations of the national Government as well as the local Governments to implement the Basic Principles.<sup>70</sup> Chapter 2, Basic Measures, requires the realization of the Basic Principles.<sup>71</sup> Chapter 3, specifies the necessary contents and the procedures on the Basic Plan for Space Policy to be drawn up by the Strategic Headquarters.<sup>72</sup> Chapter 4, Strategic Headquarters for Space Development, provides for its organizational rules in Art. 25-Art. 34. Finally, Chapter 5, Enactment of Legislation with regard to Space Activities in Article 35, sets out the obligation of the Government to legislate a Space Activities Act. The supplementary provisions cover not only the procedural decisions on the effective date,<sup>73</sup> but also the more substantial requirements on the future management structures which are supposed to be completed within approximately one year after the entry into force of the Basic Space Law. This includes, establishing an office to conduct the day-to-day Strategic Headquarters affairs<sup>74</sup> (Art. 2); review of JAXA modalities and other space institutions;<sup>75</sup> and review of the administrative organizations as a whole in order to enhance Japan's space capability in a comprehensive and integrated manner.<sup>76</sup>

The provisional office of the Strategic Headquarters is responsible for drafting the first Basic Plan for Space Policy with the help of the Experts Research Committee on Space Development Strategy (Experts Research Committee). This Committee has 16 members and was established on 12 September 2008. The Experts Research Committee has two working groups: the Working Group on the Study of the Restructuring for the Organization for Space Development and Use with eight members and the Working Group to Study a Space Activities Act with

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<sup>69</sup> *Id.* at 472-474, arts. 2-7.

<sup>70</sup> *Id.* at 474-475, arts. 8-12.

<sup>71</sup> *Id.* at 475-478, arts. 13-23.

<sup>72</sup> *Id.* at 478-479, art. 24.

<sup>73</sup> *Id.* at 483, art. 1 of the Supplementary Provisions.

<sup>74</sup> *Id.* at 483, art. 2 of the Supplementary Provisions.

<sup>75</sup> *Id.* at 483, art. 3 of the Supplementary Provisions.

<sup>76</sup> *Id.* at 483, art. 4 of the Supplementary Provisions.

eleven members. Both were established on 1 October 2008.<sup>77</sup> The Basic Plan for Space Policy was approved by Strategic Headquarters on 2 June 2009.<sup>78</sup>

## ii. Basic Principles

The purpose of the Basic Space Law is to comprehensively and systematically promote Japan's space development and use in order to improve the lives of its citizens and to promote national economic development, international peace, and the welfare of humankind as a whole.<sup>79</sup>

The Basic Principles of the Law include: peaceful use of outer space;<sup>80</sup> improvement of the lives of the citizenry;<sup>81</sup> improvement of human security and construction of a safe and secure society;<sup>82</sup> improvement of national security;<sup>83</sup> advancement of industries;<sup>84</sup> development of human society by the improvement of space science and technology;<sup>85</sup> promotion of international cooperation;<sup>86</sup> enhancement of space diplomacy to advance Japan's national interests in the international society;<sup>87</sup> and sustainable development and use of outer space by the protection of the outer space environment.<sup>88</sup>

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<sup>77</sup> The author is a member of the Experts Research Committee and both working groups. Strategic Headquarters, Uchūkaihatsusenryaku senmon chōsakai ni tsuite [Decision on the Experts Research Committee on the Space Development Strategy], Sept. 12, 2008, available at <http://www.kantei.go.jp/jp/singi/utyuu/pdf/1.pdf>; Uchūkai-hatsuriyō taiseikentō working group no secchi ni tsuite [Decision on the Establishment of the Working Group on the Study of the Restructuring for the Organization for Space Development and Use] Oct. 1, 2008, available at <http://www.kantei.go.jp/jp/singi/utyuu/pdf/4.pdf>; Decision on the Establishment of a Working Group to Study a Space Activities Act, Oct. 1, 2008, *supra* note 19.

<sup>78</sup> *Basic Plan for Space Policy*, *supra* note 51.

<sup>79</sup> Basic Space Law, *supra* note 9, at 472, art. 1.

<sup>80</sup> *Id.* at art. 2.

<sup>81</sup> *Id.* at 473, art. 3.

<sup>82</sup> *Id.*

<sup>83</sup> *Id.*

<sup>84</sup> *Id.* at art. 4.

<sup>85</sup> *Id.* at art. 5.

<sup>86</sup> *Id.* at art. 6.

<sup>87</sup> *Id.* at art. 6.

<sup>88</sup> *Id.* at 474, art. 7.

## iii. Interpretation of "Peaceful Purposes"

Among the Basic Principles, more attention may be paid to Article 2 regarding peaceful use of outer space, for it shows the change of Japan's long-standing space policy. It provides that, "[S]pace Development and Use shall be carried out in accordance with treaties and other international agreements with regard to Space Development and Use including the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and other Celestial Bodies, in accordance with the pacifism of the Constitution of Japan."<sup>89</sup> It implies that Japan has adopted the interpretation of "non-aggressive" use as being the peaceful use of outer space in accordance with the Outer Space Treaty, but within the limits of the pacifism reflected in Article 9 of the 1946 Japanese Constitution.<sup>90</sup> Thus, the permissible scope of defensive use of outer space in Japan is narrower in concept than in other space-faring nations. For instance, Provision 2 of Article 9 of the Constitution prohibits the maintenance of the "land, sea, and air forces, as well as other war potential,"<sup>91</sup> which is interpreted by the Japanese Government that the resort to collective self-defense, permissible under Article 51 of the UN Charter, shall be forbidden.<sup>92</sup> Thus, based on Art. 2 of the Basic Space Law, SDF can develop, manufacture, own, and operate defense-related satellites to support its terrestrial operations including ballistic missile defense (BMD) within the scope of individual self-defense.

The Committee on the Promotion of the Development and Use of Space, Ministry of Defense (MOD) released a Basic Policy Relating to the Development and Use of Space on 15 January

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<sup>89</sup> *Id.* at 473, art. 2.

<sup>90</sup> Nihonkoku kenpō [Constitution of Japan] Nov. 3, 1946. *available at* [http://www.kantei.go.jp/foreign/constitution\\_and\\_government\\_of\\_japan/constitution\\_e.html](http://www.kantei.go.jp/foreign/constitution_and_government_of_japan/constitution_e.html).

<sup>91</sup> *Id.* at art. 9 (2).

<sup>92</sup> *See, e.g.*, Shūgiingiin Inaba Seiichi kun teishutsu 'Kenpō kokusaihō to shūdanteki jieiken' ni kansuru shitsumon ni taisuru tōbensho [Governmental Answer to the Member of the House of Representatives Mr. Seiichi Inaba on the question of the 'Constitution of Japan, International Law and Collective Self-Defense'] May 29, 1981, *available at* [http://www.clearing.mod.go.jp/hakusho\\_data/2007/2007/html/js210800.html](http://www.clearing.mod.go.jp/hakusho_data/2007/2007/html/js210800.html).

2009.<sup>93</sup> It states that the MOD would act in accordance with the Basic Space Law and is ready to cooperate and participate in the comprehensive and systematic space development and use of Japan in an appropriate manner under the Basic Plan for Space Policy. The Basic Policy then, expresses that the test of the governmental unified view made in 1985 would not be applied anymore.<sup>94</sup> The Basic Policy regards it more important to construct an effective Command, Control, Communication, Computer, Intelligence, Surveillance, and Reconnaissance (C4ISR) in consideration of the passive nature of Japan's defense posture reflecting the pacifism of the Constitution of Japan. Thus, imaging surveillance satellites, SIGINT, early warning satellites, and military communications satellites are theoretically possible options, while the use of civil space technology and the procurement of civilian space capability have to be first taken into consideration due to the strict budget.<sup>95</sup> To attain responsive and affordable space, an air-launched system is included as a future candidate for the MOD.<sup>96</sup>

#### iv. Basic Measures

Chapter 2 of Basic Space Law specifies the Basic Measures for the implementation of the Basic Principles. The Government shall maintain and improve the space infrastructure including satellite networks<sup>97</sup> as well as autonomous launching capability.<sup>98</sup> The State shall promote space development and use to contribute to ensuring peace and security of the international society and the security of Japan.<sup>99</sup> The Government shall also take necessary steps to promote private space business by purchasing goods and services from private operators; to develop

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<sup>93</sup> Committee on the Promotion of the Development and Use of Space, MOD, *Uchū kaihatsuriyō ni kansuru kihonhōshin ni tsuite [Basic Policy Relating to the Development and Use of Space]* (Jan. 15, 2009), available at <http://www.mod.go.jp/j/info/uchuukaihatsu/pdf/kihonhoushin.pdf>.

<sup>94</sup> *Id.* at 9.

<sup>95</sup> *Id.* at 10-12.

<sup>96</sup> *Id.* at 12-13.

<sup>97</sup> Basic Space Law, *supra* note 9, at 475, art. 13.

<sup>98</sup> *Id.* at 476, art. 15.

<sup>99</sup> *Id.* at 475, art. 14.

launching sites and other facilities; to promote rapid transfer of technology to private space sectors; to encourage space business operators to use the results of the governmental research and development for commercialization; and to establish taxational and financial measures to facilitate investments by private operators.<sup>100</sup>

Basic Measures further include appropriate steps to ensure international cooperation for preservation of the space environment<sup>101</sup> as well as measures to be taken to control information concerning the development and use of outer space.<sup>102</sup> Detailed rules for the promotion of private space business with a licensing system, third-party liability, and obligatory insurance, etc.; environmental protection provisions; and information control provisions will be provided for in the Space Activities Act now in the process of being drafted.<sup>103</sup>

#### v. Strategic Headquarters for Space Development and Basic Plan for Space Policy

In order to reorganize Japan's space management structure, the Strategic Headquarters shall be established under the Cabinet. The Prime Minister serves as the Director-General and the Chief Cabinet Secretary and the Minister of State for Space Policy as the Vice Directors-Generals. Comprising all the Ministers as members of the Strategic Headquarters, the comprehensive space plan could be formulated and implemented from scientific research; civil application to attain safe and secure society; commercialization; and security use.<sup>104</sup>

Upon the adoption of the draft Basic Plan for Space Policy at the Experts Research Committee on 27 April 2009, it was publicized immediately for public comment until 18 May. One thousand five hundred ten comments were sent to the Secre-

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<sup>100</sup> *Id.* at 476, art. 16.

<sup>101</sup> *Id.* at 477, art. 20.

<sup>102</sup> *Id.* at 478, art. 23.

<sup>103</sup> *Supra* note 19.

<sup>104</sup> Basic Space Law, *supra* note 9, at 480-482, arts. 25-34.

tariat between 28 April and 18 May.<sup>105</sup> Then, the Experts Research Committee was summoned on 26 May to finalize the draft. The draft was formally approved by the Strategic Headquarters and became the first Basic Plan for Space Policy of Japan on 2 June 2009.

The Basic Plan for Space Policy consists of six basic targets, corresponding to the Basic Principles of the Basic Space Law.<sup>106</sup> In order to fulfill the six basic targets, five satellite systems and four R & D programs are selected for the next five years. The selected five satellite systems are: land and ocean observation satellite system to contribute to Asia and other regions; Earth environment observation and meteorological satellite system; advanced information and telecommunications satellite system; navigation satellite system; and satellite system for security purposes. The four R & D programs in various fields are: space science program; human space activities program; solar power system R & D program; and the small demonstration satellite program. Additionally, the Basic Plan for Space Policy explains in detail seven concretized action plans to implement six targets. In doing so, it explains which of the nine programs and systems will help to achieve each of the action plan. The summary of Basic Plan for Space Policy is appended in Appendix.<sup>107</sup>

#### vi. Space Activities Act

Chapter 5, Art. 35, deserves to be highlighted because it obligates the State to draft national space legislation. Provision 1 of Art. 35 stipulates that the Government shall legislate necessary laws and regulations to deal with space activities and the implementation of international space treaties and agreements as comprehensively, systematically, and promptly as possible. Provision 2 provides that national laws and regulations shall be drawn up so as to increase national interests of Japan within

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<sup>105</sup> Strategic Headquarters, *Uhu kihonkeikakuan ni taisuru iken no boshu (paburikku komento) no kekka ni tsuite* [Results of the Public Comments for the Draft Basic Plan for Space Policy] (May 26, 2009), available at <http://www.kantei.go.jp/jp/singi/utyuu/pc/090526/090526pc.html>.

<sup>106</sup> Basic Space Law, *supra* note 9, at 472-474, arts. 2-7.

<sup>107</sup> *Basic Plan for Space Policy*, *supra* note 51.

the international society and to improve private space business. The resolutions adopted at the Cabinet Standing Committee in the House of Representatives and the House of Chancellors on 9 May and 20 May respectively request that the Space Activities Act of Japan be completed no later than 2 years from the entering into force of the Basic Space Law. Based on such resolutions, the Working Group to Study a Space Activities Act mentioned above has been conducting an intensive study so that the Strategic Headquarters will be able to submit the bill to the Diet within that time frame. The forthcoming Space Activities Act will demonstrate the future course of Japan's privatization and commercialization of space business as well as how Japan adopts the recent developments of international space law including the concept of "launching states;" the relationship between the transfer of the ownership and registration of space objects; and the standard for registering space objects.

#### IV. CURRENT SITUATION OF JAPAN'S NATIONAL LAWS ON SPACE ACTIVITIES: CONCERNING THE ACTIVITIES OF NASDA/JAXA

##### A. JAXA's Future Status

The Working Group to Study a Space Activities Act is now in the process of drafting a Space Activities Bill to be submitted to the Diet in January 2010.<sup>108</sup> Similar to the way that the French space legislation reflected long-time practices taken by related actors to enhance transparency to the potential clients rather than stipulating newly-invented rules, it is expected that Japanese law would not change the structure of authorization and supervision drastically, except the accompanying rules pursuant to the possible change of the controlling Minister of JAXA. That was, originally, planned to be specified in the Basic Plan for Space Policy formally approved on 2 June 2009, but differing views remain to be addressed. As of June 2009, it is

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<sup>108</sup> The Experts Research Committee, *Uchūkatsudō ni kansuru hōseikentō working group hōkokushoan: chūkan torimatome [Interim Report on the Prospective Space Activities Act by the Working Group to Study a Space Activities Act]* (Aug. 24, 2009) [hereinafter *Interim Report on the Prospective Space Activities Act*], available at <http://www.kantei.go.jp/jp/singi/utyuu/housei/dai6/siryou1.pdf>.

still uncertain if JAXA continues to be under the jurisdiction of MEXT and other related Ministries such as METI, or if some parts or all functions of JAXA will be transferred to the Cabinet Office. MEXT is responsible for science and technology aspects of space activities; therefore, some parliament members strongly claim that JAXA must be under the Cabinet Office to better fulfill the far-reaching goal of the Basic Space Law. In contrast, the research divisions in JAXA and academics in general, claim that the freedom of research may be threatened unless JAXA is placed under the MEXT. It is, thus, sometimes maintained, that JAXA should be split into science and technology divisions (former ISAS) and application divisions (former NASDA), the former being under the MEXT and the latter, the Cabinet Office. However, concerns are voiced on such views due to the possibility of duplicated mandates that might bring about non-efficiency. Considering the history that led the consolidation of the three space agencies into one in 2003, which was to avoid duplication of the mandates, some say to split JAXA again into parts cannot be a choice.

In this section, the present legal and administrative arrangements concerning authorization and supervision of non-governmental activities; the third-party liability system; and residual relevant legal matters will be explained in some detail below since there is not, as yet, a Space Activities Act.

*B. Background to Japan's Accession to Three of the  
U.N. Treaties on Outer Space*

Although Japan is an original member of the Outer Space Treaty,<sup>109</sup> it was not until 1983 when it acceded to the 1968 Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space (Rescue and Return Agreement),<sup>110</sup> the 1972 Convention on International Liability for Damage Caused by Space Objects (Li-

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<sup>109</sup> Outer Space Treaty, *supra* note 11.

<sup>110</sup> Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space, *opened for signature* Apr. 22, 1968, 672 U.N.T.S.119; 19 U.S.T.

ability Convention),<sup>111</sup> and the 1975 Convention on Registration of Objects Launched into Outer Space (Registration Convention).<sup>112</sup> In 1975, before acceding to these three treaties, SAC set up a special Working Group on the U.N. Space Treaties to study whether Japan needed to adopt domestic space laws in order to implement the treaties. The next year, the Working Group answered that as long as the following three conditions remained, it was not necessary to enact new national laws on space activities. The three conditions were: (1) that launch vehicles were owned and operated only by NASDA and ISAS and that both were legal persons either with specific ties to the government (NASDA) or itself being a governmental agency (ISAS); (2) telemetry, tracking, and control (TT &C) of space objects were conducted solely by NASDA; and (3) human space activities were not included in the national space plan.<sup>113</sup> Finally, based on various assessments including the one mentioned above, the Cabinet Meeting held on 7 June 1983, orally agreed that Japan would accede to three of the U.N. treaties without any additional domestic laws to be enacted. It was further agreed that a national law would be swiftly adopted through close cooperation among the relevant ministries and agencies in case such a necessity was recognized in the future.<sup>114</sup>

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<sup>111</sup> Convention on International Liability for Damage Caused by Space Objects, *opened for signature* Mar. 29, 1972, 961 U.N.T.S. 187; 24 U.S.T. 2389 [hereinafter Liability Convention].

<sup>112</sup> Convention on Registration of Objects Launched into Outer Space, *opened for signature* Jan. 14, 1975, 1023 U.N.T.S. 15; 28 U.S.T. 695; [hereinafter Registration Convention].

<sup>113</sup> Special Working Group on the U.N. Treaties on Outer Space of the SAC, *Uchikankeijōyaku no teiketsu ni atatte hitsuyōna kokunaihōrei ni kansuru kihonjikkō ni tsuite* [Report on the Basic Issues on the Necessary National Laws for the Accession to the UN Treaties on Outer Space] 2-3 (June 22, 1976) [hereinafter SAC Report] (on file with author).

<sup>114</sup> Kakugi kōtō ryōkai [Oral Agreement of the Cabinet Meeting], *Uchikankeisanjōyaku eno kanyū oyobi rikō* [Accession to and Implementation of the Three of the UN Treaties on Outer Space] (Mar. 29, 1983) (on file with author).

*C. Authorization and Supervision of Non-Governmental Entities:  
JAXA's Case*

i. Authorization and Supervision by the "Mid-Term Goal"

JAXA is under the jurisdiction of the competent Ministers which authorize and supervise its activities in accordance with the JAXA Law and the General Provisions Law. Since most of space activities have been conducted by JAXA either directly or indirectly, it is a common understanding that the obligations under Article VI of the Outer Space Treaty, can be appropriately assumed through the existing laws and administrative regulations.

As of June 2009, two Ministers hold jurisdiction over JAXA. MEXT supervises all the mandates of JAXA, and MIC supervises, authorizes, or approves some parts of JAXA's mandates including the development and operation of telecommunications satellites and facilities not within the sphere of academic research.<sup>115</sup>

Authorization and supervision of JAXA space activities has been conducted through the "Long-Term Program." It is a program for approximately the next ten years taking note of prospective development of space activities in twenty to thirty years. It is decided by competent Ministers in accordance with the resolution made by SAC.<sup>116</sup> The "Medium-Term Goal," for the next Five years, shall be set and/or changed by competent Ministers pursuant to the "Long-Term Program."<sup>117</sup> In order to implement the "Medium-Term Goal," JAXA shall submit its "Medium-Term Program" containing concrete plans for the next five years for approval by the competent Ministers.<sup>118</sup> In order to

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<sup>115</sup> MEXT and MIC, Dokuritsughōseihojin uchūkōkūkenkyūkai hatsukikō ni kansuru shōrei [Ministerial Ordinance Concerning Independent Administrative Agency Japan Aerospace Exploration Agency] MEXT and MIC Ministerial Ordinance No.1 of July 22, 2005, available at <http://law.e-gov.go.jp/htmldata/H17/H17F11002004001.html>. The definition of "satellites" is specified in JAXA Law.

<sup>116</sup> JAXA Law, *supra* note 32, at art. 19.

<sup>117</sup> JAXA Law, *supra* note 32, at art. 19; General Provisions Law, *supra* note 32, at art. 29 (1). The latter article provides that competent Ministers shall set the Medium-Term Goal between 3 and 5 years. In JAXA's case, it is decided every 5 years.

<sup>118</sup> General Provisions Law, *supra* note 32, at art. 30.

assure the effective implementation of its “Medium-Term Program,” JAXA shall submit reports annually to competent Ministers for evaluation.<sup>119</sup> Its annual report on the “Medium-Term Program” is assessed by the Evaluation Commission for Independent Administrative Agencies of each competent Minister.<sup>120</sup> A final report shall be submitted by JAXA to competent Ministers within the three months from the completion of the Medium-Term Program.<sup>121</sup>

ii. Authorization and Supervision of JAXA Launches and Consigned Launches through Existing National Laws

Launches and consigned launches by JAXA shall be subject to various laws such as the Radio Law,<sup>122</sup> Gun-Powder Control Law;<sup>123</sup> the Hi-Pressured Gas Safety Law;<sup>124</sup> and the Electricity Utility Law,<sup>125</sup> which function as the authorization requirements usually provided for in the space activities law.<sup>126</sup> JAXA shall

<sup>119</sup> *Id.* at arts. 31 & 32.

<sup>120</sup> That Commission is established based on Art.27 of JAXA Law and Arts. 29 - 35 of General Provisions Law. See JAXA Law, *supra* note 32, at art. 27; General Provisions Law, *supra* note 32, at arts. 29 - 35.

<sup>121</sup> General Provision Law, *supra* note 32, at art. 33. Members of the Evaluation Commission are selected among people of learned knowledge and appointed by a competent Minister. See Monbukagakushō Dokuritsu gyōseihojin hyōkaiinkairei [Cabinet Order Concerning the Evaluation Commission for the Independent Administrative Agency of the Ministry of Education, Sports, Culture, Science and Technology], Cabinet Order No. 320 of June 7, 2000, at art. 2. available at <http://hourei.hounavi.jp/hourei/H12/H12SE320.php>. Competent Ministers shall obtain the opinions of the Evaluation Commission on the specific matters specified in Art. 27 (2) of the JAXA Law. *Id.*

<sup>122</sup> Radio Law, Law No. 131 of May 2, 1960, as amended by Law No. 22 of Apr. 24, 2009, available at [http://www.soumu.go.jp/main\\_sosiki/joho\\_tsusin/eng/Resources/laws/2003RL.pdf](http://www.soumu.go.jp/main_sosiki/joho_tsusin/eng/Resources/laws/2003RL.pdf).

<sup>123</sup> Kayakurui torishimarihō [Gun-Powder Control Law], No. 149 of May 4, 1950, as amended by Law No. 50 of June 2, 2006, available at <http://law.e-gov.go.jp/htmldata/S25/S25HO149.html>.

<sup>124</sup> Köatsu gasu hoanhō [Hi-Pressured Gas Safety Law], Law No. 204 of June 7, 1951, as amended by Law No.50 of June 2, 2006, available at <http://law.e-gov.go.jp/htmldata/S26/S26HO204.html>.

<sup>125</sup> Denki jigyōhō [Electricity Utility Law], Law No. 170 of July 11, 1964, as amended by Law No.50 of June 2, 2006, available at <http://law.e-gov.go.jp/htmldata/S39/S39HO170.html>.

<sup>126</sup> See, e.g., Dokuritsugyōseihojin uchūkōkūkenkyūkai hatsukikōhō shikōrei [Cabinet Order on the Implementation Rules of the Law Concerning Japan Aerospace Explora-

launch space objects pursuant to “Launch of Artificial Satellites Standards” approved by the MEXT under Article 18 (2) of the JAXA Law<sup>127</sup> and Article 7 of the JAXA Business Procedures under Article 28 of the General Provisions Law,<sup>128</sup> JAXA’s individual launches and consigned launches are conducted under the “Safety Assessment Standards for the Launching of Satellites by Launch Vehicles”<sup>129</sup> issued by the SAC.<sup>130</sup> Since 1998, NASDA/JAXA has had to enter into insurance contracts in order to prepare for third-party liability in case of launching “satellites.”<sup>131</sup>

#### *D. Necessity of the Comprehensive Launch Licensing System*

##### i. Appearance of the Launch Service Provider: Rocket Systems Corporation (RSC)

Among the three conditions referred to in the 1976 SAC Report<sup>132</sup> that dampened the necessity for specific space activities laws, the second condition was the first to disappear with the emergence of private satellite operators that came to hold their own TT&C systems independently. Likewise, the first condition had been slowly encroached upon since the last decade of the 20th century. The first such symptom was the establishment in July 1990 of the Rocket Systems Corporation (RSC), private company, to be responsible for launch vehicle production

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tion Agency], Order No. 368 of Aug. 8, 2003, amended by Order No. 214 of July 2, 2008, at art. 10, *available at* <http://law.e-gov.go.jp/htmldata/H15/H15SE368.html>.

<sup>127</sup> Jinkōisei uchiagekijun [Launch of Artificial Satellites Standards], JAXA Statute No. 15-37 of Oct. 1, 2003, *available at* [http://www.jaxa.jp/about/disclosure/data/k\\_37.pdf](http://www.jaxa.jp/about/disclosure/data/k_37.pdf); JAXA Law, *supra* note 32, at art.18 (2).

<sup>128</sup> JAXA gyōmu hōhōsho [JAXA Business Procedures], Oct. 1, 2003, at art. 7. *available at* <http://www.jaxa.jp/about/disclosure/data/gyomuhoho19.pdf>; General Provisions Law, *supra* note 32, at art. 28.

<sup>129</sup> SAC, Roketto niyoru jinkōiseitō no uchiage ni kakaru anzen hyōkakijun [Safety Assessment Standards for the Launching of Satellites by Launch Vehicles], Dec. 13, 2004 [hereinafter Safety Assessment Standards], *available at* [http://www.mext.go.jp/b\\_menu/shingi/uchuu/reports/05010701/all.pdf](http://www.mext.go.jp/b_menu/shingi/uchuu/reports/05010701/all.pdf).

<sup>130</sup> Launch of Artificial Satellites Standards, *supra* note 127, at art. 4.

<sup>131</sup> JAXA Business Procedures, *supra* note 128, at art. 7(3); “Satellites” in this instrument has the same meaning as that of Article 2(3) of the JAXA Law. *See* JAXA Law, *supra* note 32, at art. 2(3).

<sup>132</sup> SAC Report, *supra* note 113.

and commercial launch services for the TR-1A, H-II, and H-IIA. These were jointly manufactured by a number of private companies to supply NASDA (later JAXA).<sup>133</sup> With the participation of RSC in launch activities, the responsibilities were allocated between the two entities. NASDA was responsible for the design and the development of its launch vehicles, while RSC was responsible for the production; management and control; and quality assurance for NASDA (later JAXA) launch vehicles. In other words, the hierarchy of responsibility was newly introduced. NASDA/JAXA controls RSC, and RSC controls various launch vehicles manufacturers.<sup>134</sup>

An example of the allocation of responsibility is provided in the February 2005 launch plan of *MTSAT-1R (Himawari-6)* by the H-IIA 7.<sup>135</sup> MLIT consigned a launch of its *MTSAT-1R* (made by Space Systems/Loral (SS/L))<sup>136</sup> into GTO to RSC, and then, RSC consigned a launch of H-IIA 7 to JAXA. RSC is responsible for integration of the rocket; interface of the satellite and faring; and obtaining ignition and re-ignition data. JAXA is responsible for countdown safety assurance; technical assistance with the integration of the rocket until 5 days before launch; launch range maintenance 4 days prior to launch; and obtaining flight data.<sup>137</sup>

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<sup>133</sup> NASDA/JAXA continued, and JAXA continues to hold, final responsibility for the quality control and safety assessment of such rockets. See, e.g. SAC, *Daisankai tokubetsu kaigō gijōroku [Minutes of the Third Special Committee]* (Apr.12, 2004) available at [http://www.mext.go.jp/b\\_menu/shingi/uchuu/gijōroku/tokubetsu3.htm](http://www.mext.go.jp/b_menu/shingi/uchuu/gijōroku/tokubetsu3.htm).

<sup>134</sup> MHI manufactured first and second stages and engaged in the integration of H-IIA, while, e.g., Kawasaki Heavy Industries, Ltd. made faring parts and IHI Aerospace, solid rocket boosters. See generally *Rocket Systems Corporation*, [http://h2a.mhi.co.jp/en/RSC/index\\_e.html](http://h2a.mhi.co.jp/en/RSC/index_e.html) (last visited Nov.22, 2009).

<sup>135</sup> JAXA, *Heisei jūrokunendo tōki roketto uchiage keikakusho [Rocket Launch Plan in the Winter Season of 2005]*, (February, 2005) available at [http://www.jaxa.jp/press/2005/02/20050202\\_sac\\_h2af7plan\\_j.pdf](http://www.jaxa.jp/press/2005/02/20050202_sac_h2af7plan_j.pdf).

<sup>136</sup> CC & T was to be conducted by SS/L. *Id.* at 9.

<sup>137</sup> *Id.* at 4; Launch of Artificial Satellites Standards, *supra* note 127, at 2.

## ii. Amendment of NASDA Law

After RSC obtained the first commercial launch service contracts from two U.S. satellite manufacturers in 1996,<sup>138</sup> it was necessary to allocate liability between NASDA and RSC to fulfill accountability to the taxpayers. Needless to say, Japan is absolutely liable to pay compensation for damage caused to foreign States and its nationals under the Outer Space Treaty and the Liability Convention. What had to be defined through domestic regulations included: who should pay compensation for damage caused by a space object to the Japanese government or its national; allocation of liability among governmental agencies and non-governmental entities such as RSC; and conditions for obtaining a launch license, including financial requirements.

Instead of enacting a new law, it was addressed in 1998 by adding two new Articles to the NASDA Law concerning third-party liability and insurance requirement.<sup>139</sup> These two Articles were later incorporated in the JAXA Law.<sup>140</sup> Without these provisions, Art.1 of the Governmental Tort Liability Law<sup>141</sup> and the Civil Code of Japan<sup>142</sup> would apply to an accident involving a Japanese victim. However, the newly-introduced obligations for NASDA/JAXA to purchase insurance assures appropriate compensation will be promptly paid to victims without a court trial. Additionally, the amended NASDA Law provides that the victim does not have to prove the fault by NASDA or RSC. This is different from the case where a victim employs Art. 709 *et seq.* of the Civil Code of Japan or Art. 1 of the Governmental Tort Li-

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<sup>138</sup> Commercial Launch contracts with Hughes Space & Communications Inc. (HSCI) and Space Systems/Loral were adopted in November 1996. Because of the delay of the H-IIA development, the launch contract with HSCI was subsequently cancelled in May 2000. See Rocket System Corporation, *Shögyöeisei uchiage no genjö to kadai* [Current Status and Challenges for the Commercial Satellite Launching], (Dec.10, 2001), available at <http://www8.cao.go.jp/cstp/tyousakai/cosmo/haihu02/siryou2-1.pdf>.

<sup>139</sup> NASDA Law, *supra* note 35, at arts. 24-2 & 24-3.

<sup>140</sup> JAXA Law, *supra* note 32, at arts. 21 & 22.

<sup>141</sup> Kokka baishöhö [Governmental Tort Liability Law], Law No. 125 of Oct. 22, 1957, at arts. 1 & 2, available at <http://www.houko.com/00/01/S22/125.HTM>.

<sup>142</sup> Minpö [Civil Code], Law No. 89 of Apr. 27, 1896 *as amended*, at Book 3, Ch. 5 (art.709 *et seq.*), available at <http://www.japaneselawtranslation.go.jp/law/detail/?ft=1&re=01&dn=1&x=0&y=0&co=01&ky=civil+code&page=43>.

ability Law.<sup>143</sup> Because the victim-oriented liability system is one of the most important factors in the current Space Activities Acts worldwide, the NASDA Law (later JAXA Law) is sometimes cited as Japan's national space legislation.<sup>144</sup>

iii. Birth of a Private Launching Company that Terminated the Legitimacy of the Current Launch Authorization System

In May 2002, CSTP decided to privatize Japan's primary large-scale launch vehicle, the H-IIA rocket. The public recruitment invited by NASDA resulted in the selection of MHI as the sole contractor for H-IIA launch services. It also resulted in MHI being the prime contractor for H-IIA Launch Vehicle manufacturing and launch operations in November 2002. Accordingly, MHI was planned to replace RSC.

In February 2003, a basic agreement for the H-IIA launch services was adopted by NASDA and MHI. Following the final working group report on the privatization of H-IIA issued by MEXT in April 2003, H-IIA transfer of technology contract between NASDA and MHI was finalized in September 2003. In that contract, NASDA (currently JAXA) retains the property rights of the H-IIA technology, and MHI has the exclusive right to manufacture the H-IIA and to launch it. With the completion of the transfer of H-IIA to MHI, all RSC business was absorbed by MHI and RSC was dissolved on March 31, 2007.<sup>145</sup> MHI has had full responsibility since April 1, 2007.

H-IIA launch services would be conducted under the following agreements and contracts. First, the launch service contract would be adopted by MHI and the user of the launch service. The users could be various entities including JAXA, governmental ministries (e.g., MLIT, METI, Ministry of Environment), international organizations, and Japanese and foreign private

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<sup>143</sup> If Article 2 of the Governmental Tort Liability Law is invoked relating to the governmental responsibility of the appropriate management/control of public establishment, non-fault liability is applied.

<sup>144</sup> One example is the U.N. Office for Outer Space Affairs (OOSA) site. See U.N. Office for Outer Space Affairs, *Japan*, [http://www.unoosa.org/oosadb/browse\\_country.jsp?country=JPN](http://www.unoosa.org/oosadb/browse_country.jsp?country=JPN) (last visited Nov. 11, 2009).

<sup>145</sup> See, *supra* note 134.

companies. Further, MHI shall make its best efforts to furnish launch services for the purpose of delivering a satellite into orbit. Second, a launch consignment contract is to be adopted by MHI and JAXA. Third, manufacturing contracts would be made between MHI and a number of aerospace companies.

Since an H-IIA rocket must pass JAXA's final examination to launch a payload and JAXA also performs a last-minute operation at the Tanegashima Space Center (TNSC) launch facilities, which are owned by JAXA, it is considered that MHI's authorization and continuous supervision by MEXT is appropriately assured by JAXA's supervision of MHI.<sup>146</sup> M-5 rockets launched from Uchinoura Space Center also located on Tanegashima island, had not been privatized by its final launch in September 2006. In a newly introduced project of an advanced H-IIB launcher, JAXA will focus on the development of the rocket, while MHI, fully private company, will be responsible for its manufacture.<sup>147</sup>

#### iv. Third-Party Liability and Obligatory Insurance

The JAXA Law requires obligatory insurance for launching satellites and addresses conditions of third-party liability.<sup>148</sup> These provisions were originally added by a 1998 amendment to the NASDA Law.<sup>149</sup>

Art. 21 and Art. 22 of the JAXA Law provide:

Article 21 (Conclusion of Insurance Contracts relating to Launch of Satellites)

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<sup>146</sup> As already explained in Section IV.C. 2. of this article, the launching of HII-A of MHI is subject to JAXA's examination based on the Safety Assessment Standards issued by the SAC in accordance with the Launch of Satellites Standards approved by the MEXT under the JAXA Law and the General Provisions Law. See Launch of Artificial Satellites Standards, *supra* note 127; JAXA Business Procedures, *supra* note 128; SAC, Safety Assessment Standards, *supra* note 129; JAXA Law, *supra* note 32, at art.18 (2); General Provisions Law, *supra* note 32, at art. 28 (1).

<sup>147</sup> MHI would also be heavily involved with the H-IIB project from the design and development phase. Koki Nimura et al., H-IIB Roketto no kaihatsujökyö [The Development Status of H-IIB Launch Vehicle], 45:4 MITSUBISHIHO 17, 17-20 (2008) available at <http://www.mhi.co.jp/technology/review/pdf/454/454017.pdf>.

<sup>148</sup> JAXA Law, *supra* note 32, at arts. 21 & 22.

<sup>149</sup> NASDA Law, *supra* note 35, at arts. 24-2 & 24-3. The NASDA Law was repealed when the JAXA Law was promulgated.

1 The Agency shall not launch any satellites without entering into an insurance contract by which it can secure the amounts necessary to compensate for damage caused to others as a result of the launch of the Satellites.

2 The amounts to be secured by the insurance contracts set forth in the preceding Paragraph shall be defined by the competent Ministers, taking into account the amount that the insurers are able to underwrite and other relevant matters, so that those amount may be appropriate from the viewpoint of protection of the victims.

3 In the event that the launch of Satellites is to be performed by the Agency as a result of the consignment (hereinafter in the immediately following Article referred to as the "Consigned Launch"), the insurance contract set forth in Paragraph 1 hereof may, notwithstanding the provision of said Paragraph, be entered into by a person or entity which has consigned the launch of such Satellites (hereinafter in the immediately following Article referred to as the "Consignor") for and on behalf of the Agency.

Article 22 (Special Arrangements Relating to Consigned Launch)

1 In the event that the Agency enters into an agreement with a Consignor with respect to a Consigned Launch, the Agency may, upon obtaining authorizations of the competent Ministers, enter into the following special arrangements with respect to its liability for compensation for damage caused by the Consigned Launch to any persons or entities other than those related to the Consigned Launch:

(1) If the Agency is held liable for compensation for damage caused by the Consigned Launch to any persons or entities other than those related to the Consigned Launch, and the parties related to the Consigned Launch are also liable for compensation for such damage, the Agency shall assume the entire liabilities of those parties related to the Consigned Launch for compensation for the damage; and

(2) In the case of the preceding Item, if such damage is caused by a willful misconduct of any of the parties related to the Consigned Launch, the Agency shall have the right of claiming compensation from such parties for the expense already paid by the Agency for such damage.

2 For the purpose of the preceding Paragraph, the “parties related to the Consigned Launch” mean the Consignor and any person or entity designated by the Agency and the Consignor in the said special arrangements as the persons of entities which are related to the Consigned Launch.

3 When the Agency enters into the special arrangements set forth in Paragraph 1 hereof, notwithstanding the provisions of Paragraphs 1 and 3 of the immediately preceding Article, the insurance contracts set forth Paragraph 1 of that Article shall be entered into by the Consignor for and on behalf of the Agency.<sup>150</sup>

Under Arts. 21 and 22 of JAXA Law, no launch by JAXA or consigned for JAXA is allowed without the appropriate amounts of insurance.<sup>151</sup> This defined by the competent ministers defined ¥20 billion<sup>152</sup> for H-IIA and ¥5 billion<sup>153</sup> for the M-5.<sup>154</sup> The consignor, or MHI, may purchase insurance on behalf of JAXA.<sup>155</sup> JAXA may assume the entire third-party liabilities of the parties related to the consigned launch if JAXA is held liable for compensation and if the competent ministers, or MEXT and MIC, grant authorization.<sup>156</sup> When such special arrangements relating to consigned launch is approved, a consignor, MHI,

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<sup>150</sup> JAXA Law, *supra* note 32, at arts. 21 & 22.

<sup>151</sup> *Id.* at art. 21(1); Notification by the MEXT and MIC. Cabinet Office, Roketto wo uchiagerusaino kokusaihōjō no seihi no sekinin oyobi taiōsochinitsuite [Governmental Responsibility under the International Law and Measures to be Taken by the Government Concerning the Launch of a Space Vehicle] (Apr. 18, 2002), *available at* <http://www8.cao.go.jp/cstp/tyousakai/cosmo/haihu23/siryō23-2-4.pdf>.

<sup>152</sup> About 200 million U.S. dollars calculated at \$1 approximately ¥100. That amount was decided when Japan acceded to three of the UN Treaties on Outer Space in 1983 and has been maintained to date based on the Memorandum jointly issued by the Director of the R & D Bureau of the STA and the President of NASDA. Although it was not obligatory based on NASDA Law to enter into an insurance contract for third-party liability until 1988, NASDA, in principle, purchased insurance up to ¥20 billion based on that decision. Uchūbuttai niyori hikiokosareru songai nitsuiteno kokusaitekisekinin ni kansuru jōyaku eno kanyū nitomonau sochi nitsuiteno oboegaki [Memorandum on the Measures for the Accession to the Convention on International Liability for Damage Caused by Space Objects], Notification No.324 of Aug. 5, 1983 (on file with author).

<sup>153</sup> About 50 million U.S. dollars calculated as \$1 approximately ¥100.

<sup>154</sup> JAXA Law, *supra* note 32, at art. 21(2).

<sup>155</sup> *Id.* at art. 21 (3).

<sup>156</sup> *Id.* at art. 22 (1) and (2).

would have to enter into insurance contracts on behalf of JAXA.<sup>157</sup>

The significance of the special arrangements is that JAXA can cover the difference between the amount of the damage incurred and the amount of the insurance purchased. As long as H-IIA launches experimental or application satellites owned by the Government, such assistance can be rationalized. However, in August 2008, the HII-A launched a commercial satellite owned by a private company, and a contract to launch a Korean multi-purpose satellite was made in January 2009. Therefore, under the current scheme, these problems exist: first, buying insurance for non-JAXA related rockets is not legally required; second, in case of an accident financial assistance is to be given only to MHI; and third, various benefits are provided to MHI concerning launch operations. For example, the recovery of the post-launching facility costs using JAXA's cost.

The GALEX may be given similar assistance as long as the launch is conducted at TNSC because JAXA is involved with the GX rocket development.<sup>158</sup> Other rockets being privately developed will be outside the application of the JAXA Law and a variety of JAXA administrative guidance. One example is a Cascaded Multistage Impinging-jet (CAMUI) rocket developed by the Hokkaido Aerospace Science and Technology Incubation Center (HASTIC) established in 2002 and obtained a non-profit organization status in January 2003. HASTIC announced an ambitious plan to construct a small satellite and a CAMUI hybrid rocket to be air-launched from its own spaceport in Hokkaido. It also plans to begin a commercial suborbital flight.<sup>159</sup> If this happens, then a comprehensive licensing system for commercial space launch will be indispensable.

This is not only fair situation to the private launching companies other than MHI. Nor can it be explained to the taxpayers why MEXT/JAXA assist the cost of the launching of only MHI.

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<sup>157</sup> *Id.* at art.22 (3).

<sup>158</sup> After the completion of this article, on Aug. 25, the GX rocket program was substantially cancelled. *See, supra* note 17.

<sup>159</sup> *See generally*, Hokkaido Aerospace Science and Technology Incubation Center, [http://www.hastic.jp/index\\_e.htm](http://www.hastic.jp/index_e.htm) (last visited Nov. 20, 2009).

Therefore, domestic space activities law is now needed in Japan that is applicable to all launch providers, including obligatory insurance or a guarantee of financial responsibility, and government indemnification conditions. The Space Activities Act is currently being drafted.<sup>160</sup>

V. CURRENT STATUS OF JAPAN'S NATIONAL SPACE LAWS:  
SATELLITE OPERATION AND RESIDUAL ISSUES

A. *Authorization and Licensing Systems of Private  
Satellite Telecommunications Operators*

In Japan, the Radio Law<sup>161</sup> is said to be the single most important domestic law to authorize and continuously supervise the space activities by the non-governmental entities. This is because MIC can control the activities of a private entity who wants to operate a telecommunications or broadcasting satellite through the Radio Law licensing processes.

Any person who wishes to establish "a radio station as an artificial satellite station" for telecommunications shall submit an application to MIC together with a document describing the satellite's purpose; the reason for establishing the radio station; the person(s) with whom the radio communication will be conducted; the subject(s) of the communication; the location of radio equipment, orbit, or position; the desired frequency range and antenna power; and expected commencement date of operation.<sup>162</sup> Likewise, such person shall provide the scheduled launch time; term of normal operation; and the position that enables its station to fulfill its mission.<sup>163</sup>

In addition to the particulars to be filed in telecommunications services license application, any person who wishes to obtain a license for a radio station as an artificial satellite station for broadcast purposes shall also submit an application to MIC containing information about broadcast subjects, service area,

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<sup>160</sup> See, Decision by the Experts Committee on Oct. 1, 2008, *supra* note 19; and *Interim Reports on the Prospective Space Activities Act*, *supra* note 108.

<sup>161</sup> Radio Law, *supra* note 122.

<sup>162</sup> *Id.* at arts.4 & 6(1).

<sup>163</sup> *Id.* at art. 6(6).

business plan, etc.<sup>164</sup> Detailed particulars to be filled out in the form are found in the tables annexed to the Licensing Procedural Rules Relating to Radio Stations.<sup>165</sup>

Prior to the introduction of freedom of service trade in telecommunications, no radio station license had ever been granted to a person not holding Japanese nationality; a foreign government or its representative; or a foreign juridical person or organization. Additionally, a license had never been granted to a juridical person or organization represented by any person referred to in the preceding three cases; which had one third or more officers consisting of such persons; or in which one third or more of the entity's aggregate voting rights were held by such persons.<sup>166</sup> The only exception for a foreign government to obtain a license was when the radio communication service was used exclusively between specific fixed points through a foreign satellite.<sup>167</sup>

The Fourth Protocol to the General Agreement on Trade in Services, or Basic Telecommunications Freedom Agreement<sup>168</sup> was made at the World Trade Organization (WTO) and entered into force on 1 January 1998. It changed the situation and enabled foreign nationals to establish a radio station based on reciprocity. To accept the Fourth Protocol, Japan amended the Radio Law in 1997, and it became effective on 5 February 1998, which was the day the Basic Telecommunications Freedom Agreement was entered into force for Japan.<sup>169</sup> Disqualification clauses for a person not holding Japanese nationality shall not

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<sup>164</sup> *Id.* at art. 6(2).

<sup>165</sup> Musenkyoku menkyotetsuzuki kisoku (denpakanri iinkai kisoku) [Licensing Procedural Rules Relating to Radio Stations by the Rule of the Radio Administrative Committee], Rule No.15 of Nov. 30, 1960, *as amended* by MIC Ordinance No.21 of Mar. 9, 2007, at art. 2(9) ("license unit"), and art. 4(2) ("attached documents, Table 2-5 & Table 2-6"), available at <http://law.e-gov.go.jp/htmldata/S25/S25F30901000015.html>.

<sup>166</sup> Radio Law, *supra* note 122, at art. 5(1).

<sup>167</sup> YOSHIKI IMAIZUMI, *DEMPAHÖ YÖSETSU* [RADIO LAW: A COMMENTARY] 48 (Telecommunication Promotion Organization, 5th ed., 2006).

<sup>168</sup> Fourth Protocol to the General Agreement on Trade in Services, Apr. 30, 1996, WTO/S/L/20 (96-1750), available at [http://www.wto.org/english/tratop\\_e/serv\\_e/4prote\\_e.htm](http://www.wto.org/english/tratop_e/serv_e/4prote_e.htm)

<sup>169</sup> Heisei kyūnenno Kaisei denpahō [Radio Law as amended in 1997], Law No. 100 of June 20, 1997, available at [http://hourei.hounavi.jp/seitei/hou\\_suuji/H09/H09HO100.php](http://hourei.hounavi.jp/seitei/hou_suuji/H09/H09HO100.php).

apply to the radio stations established for the purpose of conducting telecommunications service.<sup>170</sup> Neither will they apply to radio stations established on land for the purpose of controlling the position and attitude of an artificial satellite equipped with radio station equipment for the purpose of conducting telecommunications service.<sup>171</sup>

The disqualifications for foreign nationals and foreign governments have been maintained for broadcasting stations, except when such artificial satellite stations would broadcast their programming directly in accordance with entrustment by other persons.<sup>172</sup> “Entrusted domestic and overseas broadcasting” started in June, 1994.<sup>173</sup>

### *B. Security Trade Control*

#### i. The Foreign Exchange and Foreign Trade Act (FEFTA) as a Comprehensive Tool

National security concerns in launch services have been addressed through security export control and inward direct investment regulation. The unique policy of “Three Principles on Arms Export,”<sup>174</sup> which was first stated by Prime Minister Sato at the House of Representatives in 1967 and later declared as a governmental unified view in 1976, is also relevant. The Japanese export control system is comprehensively managed by METI through, mainly, the Foreign Exchange and Foreign

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<sup>170</sup> *Id.* at art. 5 (2)(vii).

<sup>171</sup> *Id.* at art. 5(2)(viii).

<sup>172</sup> *Id.* at art. 5(4).

<sup>173</sup> Hösöhö [Broadcast Law], Law No.132 of May 2, 1950, *as amended* 1994, at art. 2 (ii)-2-3 (last amended by Law No.22 of Apr. 24, 2009), *available at* <http://law.e-gov.go.jp/htmldata/S25/S25HO132.html>. Art. 2(ii)-2-3 provides that “[e]ntrusted domestic and overseas broadcasting” means broadcasting entrusted by others and intended to be received domestically and overseas. Such entrusted programs are broadcast by an artificial satellite stations without any editing.” *Id.*

<sup>174</sup> Prime Minister Eisaku Sato, Statement at the Audit Committee of the House of Representatives, Bukiyushutsu sangensoku [Three Principles on Arms Export] (Apr. 21, 1967)[hereinafter Prime Minister Sato, Statement], *available at* <http://www.mofa.go.jp/mofaj/gaiko/arms/mine/sanngen.html>. Concerning the contents and the development of the “Three Principles on Arms Export”, *See also infra* note 188.

Trade Act (FEFTA),<sup>175</sup> which is, in general, positively evaluated in terms of the simple licensing procedures and easier information sharing it provides in making administrative rules, licensing, inspection, and law enforcement.<sup>176</sup> Exchange of information is closely conducted between METI and MOF relating to custom matters as well as METI and Ministry of Foreign Affairs (MOFA) with respect to matters on international export control regimes. Since Japan is a member of all the export control regimes,<sup>177</sup> FEFTA as well as related rules and regulations are provided for in accordance with the export control lists. List control systems in the FEFTA were strengthened through the 1990s and starting on 1 April 2002, Japan adopted the complete "Catch-All" system<sup>178</sup> which is basically in line with the North American and European practices.

FEFTA provides that any person who intends to export specific kinds of goods to specified regions<sup>179</sup> or a resident who intends to conduct a technology transaction pertaining to the design, manufacture, or use of specific kinds of goods with a non-

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<sup>175</sup> Gaikokukawase oyobi gaikokubōekihō [Foreign Exchange and Foreign Trade Act], Act No. of 228 of Dec. 1, 1949 *as amended* [hereinafter FEFTA] *available at* <http://www.meti.go.jp/policy/ampo/kanri/top-page/top/Taro13-foreign-exchange-and-for.pdf> (originally, in 1949, FEFTA was named as Gaikokukawase oyobi gaikokubōeki ka'nrihō [Foreign Exchange and Foreign Trade Control Act]).

<sup>176</sup> The Trade and Economic Cooperation Bureau in METI is responsible for all the export control matters. Under that Bureau, Security Export Control Policy Division is involved with research, rule-making and review of detailed licensing rules, while the Security Export Licensing Division issues the license and approval. Security Export Inspection Office would engage in law enforcement and capacity building.

<sup>177</sup> Export Control Regimes mean Zanggar Committee, Nuclear Suppliers Group, Missile Technology Control Regime, Australia Group, and Wassenaar Arrangement. For all 5 regimes, Japan became an original member. Japan was also a member of COCOM (1949-1994) since 1952.

<sup>178</sup> Even if a certain item is not included in the control lists which requires filing for an export license, an exporter shall, nevertheless need a license when METI requires it (informed condition) or an exporter has reasonable grounds to have doubts about the trade in terms of the proliferation of the weapons of mass destruction (objective condition, that is similar in nature to "know requirements" in the U.S. system.). States belonging to all the export control regimes are not the subjects for "Catch-All" systems. Those 26 states are cited in the Export Trade Control Order. *See*, Yushutsubōeki ka'nrirei [Export Trade Control Order], Cabinet Order No. 378 of Dec. 1, 1949 *as amended*, at Attachment 4-2 (relating to art. 4), *available at* <http://www.cas.go.jp/jp/seisaku/hourei/data/ETCO.pdf>.

<sup>179</sup> FEFTA, *supra* note 175, at art. 48.

resident<sup>180</sup> shall obtain permission from the METI, when such goods or technology is specified by the Export Trade Control Order<sup>181</sup> as being considered to obstruct the maintenance of international peace and security. The METI may impose on a person who intends to export specific kinds of goods and technology to a region other than the specified regions the obligation to obtain permission for the strengthened enforcement of the FEFTA.<sup>182</sup> Specific kinds of goods are specified in the Appended Table 1 of the Export Trade Control Order, among which goods pertaining to launch services are enumerated<sup>183</sup> in Category 4 and which is updated regularly pursuant to Missile Technology Control Regime (MTCR) control list. There are twenty-seven subcategorized items specified in Category 4 of the Appended Table 1 of the Export Trade Control Order which appropriately contain MTCR category I list (Item 1 - Item 2) and category II list (Item 3 - Item 20).<sup>184</sup> Examples would be rockets; equipment or tools for the production thereof; test equipment or components thereof; individual rocket stages; rocket propulsion equipment; navigation equipment; jet mills; special powders; and launch pads.<sup>185</sup>

## ii. Three Principles on Arms Export

In addition to FEFTA and related rules, the governmental unified view of “Three Principles on Arms Export” constitutes the restriction for arms export. Under FEFTA, permission-based arms export is possible, and such “arms” are specified in category 1 and category 15 (relating to the “sensitive” lists of Wassenaar Arrangement<sup>186</sup>) of the Export Trade Control Order.<sup>187</sup>

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<sup>180</sup> *Id.* at art. 25.

<sup>181</sup> Export Trade Control Order, *supra* note 178.

<sup>182</sup> FEFTA, *supra* note 175, at arts. 48 (2) & 28(2).

<sup>183</sup> Export Trade Control Order, *supra* note 178, at arts. 1 & 4.

<sup>184</sup> Missile Technology Control Regime (M.T.C.R.) Equipment, Software and Technology Annex, MTCR/TEM/2008/Annex/001 (Nov. 5, 2008), available at <http://www.mtcrr.info/english/MTCRTechnicalAnnexNov2008.pdf>.

<sup>185</sup> Export Trade Control Order, *supra* note 178, at Category 4 of Appended Table 1.

<sup>186</sup> Wassenaar Arrangement on Export Controls for Conventional Arms and Dual Use Goods and Technologies, <http://www.wassenaar.org/> <http://www.wassenaar.org/controllists/index.html> (last visited Nov. 11, 2009).

<sup>187</sup> Export Trade Control Order, *supra* note 178.

However, the “Three Principles on Arms Export” policy virtually prohibited Japan from exporting any arms to any region in the world.

Originally declared by the then Prime Minister in 1967, the “Three Principles on Arms Export” was strengthened in 1976 to extend the region of the export ban of arms to any place in the world and to extend the object of the ban from arms only to arms plus facilities and equipments related to arms production.<sup>188</sup> The complete arms ban, however, has been eased, first as the exceptional measures to the U.S. relating to the export of arms technology in 1983. With the change of security ramifications, several minor exceptions have been approved by the government.<sup>189</sup> In December 2003, Japan decided to jointly develop a Ballistic Missile Defense (BMD) with the U.S. A year later, in December 2004, the Chief Cabinet Secretary released a statement in relation to the “Three Principles on Arms Export.” He stated that, “if Japan decides that it will engage in joint development and production of ballistic missile defense systems with the U.S., the Three Principles will not be applied, under the condition that strict control is maintained, because such systems and related activities will contribute to the effective operation of the Japan-U.S. Security Arrangements and are conducive to the security of Japan.”<sup>190</sup> In December 2005, Japan de-

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<sup>188</sup> Prime Minister Sato declared that arms export should be refrained in case (i) when the designated destination is the communist countries, (ii) when the designated destination is a country which is the object of arms embargo by the U.N. resolution, and (iii) when the designated destination is under the armed conflicts or seems imminent to engage in armed conflicts. See Prime Minister Sato, Statement, April 21, 1967 available at [http://kokkai.ndl.go.jp/cgi-bin/KENSAKU/swk\\_dispdoc.cgi?SESSION=8410&SAVED\\_RID=6&PAGE=0&POS=0&TOTAL=0&SRV\\_ID=3&DOC\\_ID=8350&DPAGE=1&DTOTAL=1&DPOS=1&SORT\\_DIR=1&SORT\\_TYPE=0&MODE=1&DMY=10308](http://kokkai.ndl.go.jp/cgi-bin/KENSAKU/swk_dispdoc.cgi?SESSION=8410&SAVED_RID=6&PAGE=0&POS=0&TOTAL=0&SRV_ID=3&DOC_ID=8350&DPAGE=1&DTOTAL=1&DPOS=1&SORT_DIR=1&SORT_TYPE=0&MODE=1&DMY=10308). Prime Minister Takeo Miki released the strengthened version of the principles in the form of a governmental unified view. House of Representatives, 18 Yosan iinnkaigiroku [Minutes of the Standing Budget Committee] 17 (Feb.27, 1976) available at [http://kokkai.ndl.go.jp/cgi-bin/KENSAKU/swk\\_dispdoc.cgi?SESSION=20374&SAVED\\_RID=1&PAGE=0&POS=0&TOTAL=0&SRV\\_ID=4&DOC\\_ID=10290&DPAGE=1&DTOTAL=1&DPOS=1&SORT\\_DIR=1&SORT\\_TYPE=0&MODE=1&DMY=20468](http://kokkai.ndl.go.jp/cgi-bin/KENSAKU/swk_dispdoc.cgi?SESSION=20374&SAVED_RID=1&PAGE=0&POS=0&TOTAL=0&SRV_ID=4&DOC_ID=10290&DPAGE=1&DTOTAL=1&DPOS=1&SORT_DIR=1&SORT_TYPE=0&MODE=1&DMY=20468); See also, *supra* note 174.

<sup>189</sup> Such alleviation was approved of to strengthen the ties with the U.S., Japan's only ally (1996), to participate in the U.N. peace-keeping activities, to implement the international convention (2000) and U.N. Security Council (SC) Resolutions (including SC Res. 1368 (2001) and SC Res.1483 (2003)).

<sup>190</sup> See, e.g., MOFA, DIPLOMATIC BLUEBOOK 2006 133 (2006).

cided to begin the Japan-U.S. cooperative development of advanced SM-3 missile for BMD, which would be used for mid-course interception, and may be regarded as one type of military use of outer space, which could be problematic in Japan at that time. That concern was addressed by the Basic Space Law.

### *C. Investment Control*

#### i. Investment Control on National Security Concerns

Cabinet Order Concerning Inward Direct Investments, etc., promulgated in 1980 pursuant to Art. 27 of the FEFTA,<sup>191</sup> prescribes that if such an investment is regarded as having the possibility of impairing national security, a foreign investor shall notify the MOF and the Minister having jurisdiction over the business in advance regarding the business purpose, amount, time of making the investment, etc., and other matters specified by the Cabinet Order.<sup>192</sup> Concrete objects which might compromise national security if invested in without examination by the Ministers concerned are specified in the appended table 2 (Re: Art. 5) of Ministerial Ordinance Concerning Inward Direct Investments, etc.<sup>193</sup> With respect to space-related business, space technology pertaining to parts, equipment, and any goods related to rockets (other than sounding rockets), space flying objects, propulsion, etc. fall under the category for prior notification.<sup>194</sup>

Inward direct investment could be restricted when the type of business to be invested are specified in the Cabinet Order pursuant to Art. 27 of the FEFTA. Adding to national security, maintenance of public order, and protection of public safety are the reasons for the governmental examination and a possible

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<sup>191</sup> Tainai chokusetsutōshitō ni kansuru seirei [Cabinet Order Concerning Inward Direct Investments] Cabinet Order No. 261 of Oct. 11, 1980, amended as Cabinet Order No. 42 of Mar. 17, 2006 available at <http://law.e-gov.go.jp/htmldata/S55/S55SE261.html>.

<sup>192</sup> *Id.* at art. 3(2)-(5).

<sup>193</sup> Tainai chokusetsutōshitō ni kansuru meirei [Ministerial Ordinance Concerning Inward Direct Investments], Ministerial Ordinance No.1 of Nov. 20, 1980, amended as Ministerial Ordinance No. 2 of Apr. 28, 2006, available at [http://www.japaneselawtranslation.go.jp/law/detail\\_main?re=01&vm=04&id=1860](http://www.japaneselawtranslation.go.jp/law/detail_main?re=01&vm=04&id=1860).

<sup>194</sup> *Id.* at item 5 of the appended table 2.

rejection based on prior notification.<sup>195</sup> The category of restrictions based on public order include telecommunications and broadcasting, electricity, gas, energy provision, railroad, and passenger transportation. On each category, individual laws specify the limit of foreign direct investment. Limitations in the telecommunication and broadcasting are imposed by the different national laws. That is explained in the next section.

## ii. Liberalization of Telecommunications and National Law

The Telecommunications Business Law (TBL),<sup>196</sup> Radio Law, and other related laws and regulations were amended in order to abide by the Basic Telecommunications Freedom Agreement in 1997, and any restriction on foreign investment was lifted in regard to telecommunication business except Nippon Telegraph and Telephone Corporation (NTT) and KDD in February 1998.<sup>197</sup> For the NTT and KDD, the ceiling for foreign investment was one-fifth of the aggregate voting rights. In June 1998, the restriction of foreign investment on KDD was lifted.<sup>198</sup>

Following the amendment of the TBL and NTT Act in June 2001 (entered into force in November 2001), restriction of the foreign investment with respect to the NTT was loosened from one-fifth to one-third. The NTT Act provides that the government shall always hold one-third or more of the total number of the issued shares of the NTT.<sup>199</sup> The aggregate of the ratios of

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<sup>195</sup> FEFTA, *supra* note 175, at art. 27(3)(i); Export Trade Control Order, *supra* note 178, at art. 3(2)(i).

<sup>196</sup> Denkitsūshin jigyōhō [Telecommunications Business Law] Law No. 86 of Dec. 25, 1984 *as amended* [hereinafter TBL], *available at* [http://www.soumu.go.jp/main\\_sosiki/joho\\_tsusin/eng/Resources/laws/2001TBL.pdf](http://www.soumu.go.jp/main_sosiki/joho_tsusin/eng/Resources/laws/2001TBL.pdf).

<sup>197</sup> Amendment of both laws were promulgated in June 1997, but entered into force in February, 1998.

<sup>198</sup> Such lift was accompanied by the annulment of the KDD Law. Kokusai densen-denwa kabushikigaishahō (KDDhō) haishi [Annulment of the KDD Law ](May 20, 1998), *available at* <http://hourei.hounavi.jp/seitei/hou/H10/H10HO058.php>.

<sup>199</sup> Act on Nippon Telegraph and Telephone Corporation, etc., Act No. 85 of Dec. 25, 1984, at art. 4(1), *as amended* by Act No.87 of July 26, 2005 [hereinafter NTT Act], *available at* <http://www.japaneselawtranslation.go.jp/law/detail/?re=02&ky=%E8%87%AA%E5%B7%B1%E6%96%B0%E6%A0%AA%E4%BA%88%E7%B4%84%E6%A8%A9%E4%BB%98%E7%A4%BE%E5%82%B5&page=2&la=01>.

the voting rights directly or indirectly held by non-Japanese nationals shall not exceed one-third.<sup>200</sup>

In 1985, the monopoly by NTT and KDD was terminated and competition was introduced for both the domestic and international telecommunications business. Since then, the principle of fair competition has steadily advanced through a series of the TBL amendments. Then, in 2003, the TBL and NTT Act were dramatically amended to the extent that almost half of the all provisions of the TBL, or about 100 articles, were changed.<sup>201</sup> The distinction between service providers and the difference of their treatment was abolished. Before the amendment, a category I provider had been one with the facility and equipments of telecommunication services and category II was a provider without hardware parts of telecommunications services. Participation conditions for all telecommunications providers were considerably eased, thereby completing the principle of competition. It was no longer necessary to divide providers into categories because of the decreasing cost of telecommunications service hardware. This was caused by the rapid advancement of internet technologies including IP networks, and active foreign participation in international telecommunications services in Japan.

The 2003 amendment,<sup>202</sup> in general, abolished the prior licensing methods, and introduced a prior notification and registration system. Rate regulation was, in principle, abolished except for the basic telecommunications services nationwide which are indispensable for people's daily lives.<sup>203</sup> Further, the prior notification requirement was abolished in respect of interconnections except for category I providers who have constructed designated telecommunications facilities and category II providers who provide designated telecommunications facilities.<sup>204</sup> Instead, stronger settlement of disputes procedures have been

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<sup>200</sup> *Id.* at art. 6 (1)-(4).

<sup>201</sup> TBL, *supra* note 196. The TBL was amended as Law No. 50 of June 2, 2006. NTT Act, *supra* note 199.

<sup>202</sup> TBL, *supra* note 196, as amended in 2003, available at <http://hourei.hounavi.jp/seitei/enkaku/H15/H15HO125.php>.

<sup>203</sup> *Id.* at art. 7.

<sup>204</sup> *Id.* at arts. 33 & 34.

newly introduced<sup>205</sup> and MIC is granted the right of issuing an order to improve operations methods of business activities that fall under the satisfactory conditions.<sup>206</sup>

#### *D. Information Control*

The Constitution of Japan provides that “. . . speech, press and all other forms of expression are guaranteed. No censorship shall be maintained, nor shall the secrecy of any means of communication be violated.”<sup>207</sup> The TBL prohibits censorship<sup>208</sup> and protects secrecy of communications from any person engaged in telecommunications business, even after this person's retirement from office.<sup>209</sup>

The purpose of the Broadcast Law is to regulate broadcasting for the public welfare, and to strive for the sound development thereof in accordance with the principles including the assurance of the freedom of expression through broadcasting to the people.<sup>210</sup> Thus, broadcast programs shall never be interfered with or regulated by any person, except in the case where it is done through invested powers provided by law.<sup>211</sup> However, because broadcasting business inevitably involves occupation by specific persons of valuable limited resources, that is radio frequencies, and because broadcasting is influential to the life of the people by being widely disseminated, a certain restriction on the freedom of the programs has to be imposed in terms of public security, good morals, and manners. Likewise, political impartiality and the prohibition of the distorting facts in broadcast news shall be observed.<sup>212</sup> Clear, evident, and repeated violation of the abovementioned requirements could, lead to cease to the operation of the radio station for a specific period in accordance with Art. 76 of the Radio Law, while it has been applied in such

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<sup>205</sup> *Id.* at art. 160, *et seq.*

<sup>206</sup> *Id.* at art. 29.

<sup>207</sup> Constitution of Japan, *supra* note 90, at art. 21.

<sup>208</sup> TBL, *supra* note 196, at art. 3.

<sup>209</sup> *Id.* at art. 4 (1) (2).

<sup>210</sup> Broadcast Law, *supra* note 173, at art. 1.

<sup>211</sup> *Id.* at art. 3.

<sup>212</sup> *Id.* at art. 3-2 (1).

manner as the most restricted way to respect the freedom of speech and expression.<sup>213</sup>

#### CONCLUSION

The next few years will be a milestone for Japan's national space legislation. JAXA's supervising ministry will be decided and the Space Activities Act of Japan will be made into a full-fledged law by September 2010. The law's content will involve the above-mentioned licensing and liability regime as well as other important issues for the privatization and commercialization of Japan's space activities which, until now, have emphasized research and development. With respect to the Basic Plan for Space Policy, it is yet to be seen how six targets of the Plan will be implemented by way of nine systems and programs. How that plan will benefit human security inside and outside of Japan and promote Japan's space commercialization will also be seen in the future.

Finally, the change of Japan's long-standing interpretation of "peaceful uses" will draw attention. While the restriction in security use of space is still greater than any other spacefaring nation, and as far as the Basic Plan for Space Policy is concerned, the program for the security use of space is considerably modest.<sup>214</sup> However, to dispel concerns from Pacific Rim countries, the application of Article 2 of the Basic Space Law will have to be reported for the sake of transparency and confidence building in the region.

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<sup>213</sup> KAORU KANAZAWA, HÖSÖHÖ CHIKUJÖOKAISETSU[COMMENTARY ON PROVISIONS OF THE BROADCAST LAW ] 57 (Denkitsüshin Shinkökai, April 1, 2006).

<sup>214</sup> See, Basic Plan for Space Policy, *supra* note 51, at Ch. III 1 (1) E. & Ch.III 2 (2).

## Appendix

### Basic Plan for Space Policy: Wisdom of Japan Moves Space (summary)<sup>215</sup>

Released: June 2, 2009

Approved by Strategic Headquarters for  
Space Development

#### INTRODUCTION

Japan's space development started in 1955 when a sounding rocket was first launched. While Japan has succeeded in becoming one of the space-faring nations today, the challenges Japan faces also become clear when the three points specified below are considered: 1) Japan has never had a comprehensive national space strategy; 2) The scope of its space application activities has been limited in comparison with other spacefaring nations; and 3) Japan's space industry is lacking in international competitiveness.

Three of the more distinguished characteristics of Japan's space development and use led to the legislation of the Basic Space Law, which aims at shifting Japan's space from "primarily R & D to user-oriented space applications." In other words, Basic Space Law will enable a secure use of space in line with the pacifism of the Constitution of Japan, promote "space diplomacy," advance R & D as well as the competitiveness of the space industry, and make a firm commitment to preserving space and the Earth's environment comprehensively and systematically.

#### CHAPTER I: STATUS OF THE BASIC PLAN FOR SPACE POLICY

The Basic Plan for Space Policy (Basic Space Plan) was formulated based on Art. 24 of the Basic Space Law in order to

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<sup>215</sup> This is a summary of the Basic Plan for Space Policy released in June 2009 written by the present author. See *Basic Plan for Space Policy*, *supra* note 51.

achieve 6 basic principles and 11 basic measures specified in the Law. For that purpose, this Plan consists of three parts: 1) basic policy to promote space development and use; 2) comprehensive and systematic measures to be implemented by the Government; and 3) concrete measures to be conducted under the Basic Space Plan. The Basic Space Plan is formulated for use during the next five years, taking note of the possible development of space activities for the next decade. Under normal circumstances, the time frame of this plan would be five years, and it will be reviewed every five years. However, necessary changes to the plan will be made in between if the necessity arises based on the results of follow-up reviews.

#### CHAPTER II: BASIC POLICY TO PROMOTE SPACE DEVELOPMENT AND USE

(Section 1 and Section 2(1) and (2) of Chapter II is rather briefly summarized compared with the other chapters of the Basic Space Plan in consideration of the fact that the overlapping contents are already explained in Section III of this article.)

##### 1. Promotion of Space Development and Use with Suitable Character for Japan

The Basic Space Plan will intensively pursue the effective use of space to achieve basic principles of the Basic Space Law. Strategic Headquarters plays a pivotal role in making and implementing the “Basic Space Plan as a national strategy,” a medium-to-long term plan for space development and use.

##### 2. Six Basic Targets in Japan’s Space Development and Use Six Basic Targets are as follows:

(1). Realization of a Safe, Secure, and Affluent Society through Space

For this target to construct a safe, secure, and affluent society using space, emphasis is placed upon, e.g., R & D and the provision of data from the application satellites which can re-

spond to societal needs in a continuous and effective manner, as well as the production of more user-friendly satellite-based data;

(2). Strengthened Security through Space

Secure use of space for the purposes of information gathering and early warning will be strengthened, in consideration of the Northeast Asian security environment;

(3). Promotion of Space Diplomacy

For the purposes of this Plan, the word "space diplomacy" has two meanings: "space-for-diplomacy" and "diplomacy-for-space." Space-for-diplomacy means the utilization of the results of space activities to help fulfill the goals of Japan's foreign policy as a source of "soft power." "Diplomacy-for-space" includes the efforts to be intensified in order to advance Japan's space capability.

1) Space-for-Diplomacy

"Space-for-Diplomacy" includes the Sentinel Asia project launched in 2006 under the Asia-Pacific Regional Space Agency Forum (APRSAF) led by Japan and GEO/GEOSS in which Japan plays a leading role. Considering that "human security" constitutes one of the important pillars of Japan's foreign policy, space-based projects for mitigating national disasters and surveying climate change have to be strengthened.

2) Diplomacy-for-Space

Measures for "diplomacy-for-space" include the use of special diplomatic ties and the public funds such as Official Development Assistance (ODA) to launch joint space projects with developing countries; to broaden international cooperation with advanced spacefaring nations; and to actively engage in rule-making for international space law at the various fora such as the UN Committee on the Peaceful Uses of Outer Space (COPUOS) and the Conference on Disarmament (CD). An Example of a short-term target in such rule-making is space debris mitigation rules, and medium-to-long term targets include property rights for natural resources on the Moon and space traffic management.

(4) Creating a Bright Future by Promoting State-of-the-Art R & D

Recognizing that state-of-the-art R & D will bring about breakthroughs in technology, improve the quality of life of the

citizenry, and to promote the aspirations of younger generations, Japan will actively involve itself in space science, especially in space astronomy and interplanetary research. *Kibo*, the Japanese module of the *International Space Station (ISS)* will be intensively used for advancing its manned space technologies and scientific experiments. The potential use of *Kibo* as an Earth Observation and Examination Station (EOES) will be taken into serious consideration. EOES is a future project in which the crew in the *Kibo* module will transmit synthesized information to the Earth about the environment, meteorology, disasters, agriculture and fisheries, and other concerns.

For the energy provision, which is one of the most serious challenges in the 21st century, special emphasis will be placed on the space-based Solar Power Satellite System (SPSS) project. The physical principles for the necessary technology are currently in the process of being verified, and a phased study will be carried out on safety standards and economic viability.

#### (5) Nurturing a Strategic Industry for the 21st Century

The space industry shall be encouraged to develop as it provides an important basis from which Japanese space activities can advance. However, the space industry in Japan is not only seriously lacking in international competitiveness, but has also been in some ways declining. A private survey indicates that, from 1998 to 2006, the proceeds of the space industry decreased by about 40 percent and the number of the employees in the space industry by about 30 percent. Thus, the Government must provide an effective scheme to advance the space industry as other spacefaring nations did in the past. Among such schemes, experiences show that Public-Private Partnerships (PPP) and product purchase guarantee systems seem to function well in the nurturing of the space industry.

The Japanese Government believes it is important that the space industry shall be developed into a strategic industry as the electronics and automobile industries were in the past, and effective measures will be taken to best develop it. In that regard, strengthening the technical capacity, promoting the effective development and production systems by the private sector, appropriate marketing, as well as the further development of

space transportation vehicles, are to be promoted among other necessary measures.

(6) Consideration of the Environment

Preserving and protecting the environment is a national policy of Japan. Therefore, space development and use should be carried out without compromising the Earth's environment. Likewise, further contributions by Japan are required by the international society on the issue of space debris mitigation.

CHAPTER III: GOVERNMENTAL MEASURES TO BE CONDUCTED  
COMPREHENSIVELY AND SYSTEMATICALLY WITH RESPECT TO  
SPACE DEVELOPMENT AND USE

This Chapter consists of two sections. The first section of this Chapter describes five satellite utilization systems (A to E) and four R & D programs (F to I) which have been selected to fulfill the six targets of the Basic Space Plan. Next, the second section of the Chapter III describes seven concrete plans of action responding to the six targets of the Plan. In this section, it is explained which of the five satellite systems and four R & D systems are corresponding to the individual action plans for the implementation of the six targets.

1. Development and Use Plan for the Nine Systems and Programs

This section prescribes five-year goal on the 9 selected systems and programs in accordance with societal needs, taking note of the 10-year goal

(1) Construction of the Utilization Systems

*A. Land and Ocean Observation Satellite System to Contribute to Asia and Other Regions*

Such satellite system is used for the public safety, land protection & management, the improvement of food provision (advancement of agricultural and fishery technology) and the improvement of resources and energy provision. The Land and Ocean Observation Satellite System is expected to contribute to the Asian region especially for the purposes of the public safety. The goal is to collect images of the area within 3 hours from the

occurrence of a disaster and to provide such data to the affected area and to Japanese relief personnel. Global Positioning System (GPS) will also be intensively used to detect the imminent crustal movements of the Earth.

For the next five years, the following satellites will be developed or launched. JAXA's *ALOS-2 (Daichi-2)* (on board L-band radar) and public-private *ASNARO* experimental small remote sensing satellite will be launched. In addition to the *Data Relay Technology Satellite (DRTS) (Kodama)* currently used for relaying *ALOS-1 (Daichi-1)* data, measures shall be taken to procure the next such satellite for the distribution of *ALOS-2* data. R & D shall be conducted for finding effective ocean observation modalities, especially to ensure the safety of shipping navigation, by combining various kinds of satellite data and Earth-bound collected data.

#### *B. Earth Environment Observation & Meteorological Satellite System*

The ten-year goal for this system includes public safety, the improvement of food provision, and contributions towards a low-carbon society. Clouds and water vapor in the air will be observed every ten minutes (down from the interval of every thirty minutes currently), and the resolution of the next meteorological satellite is expected to be twice as good as the current level. The improvement of spatial resolution and the data access system shall be undertaken in order to achieve a more efficient ocean fishery. To address global warming, the *Greenhouse Gases Observing Satellite (GOSAT) (Ibuki)*, which was successfully launched in January 2009, will be extensively used along with *ALOS-1*. A sensor that is twice as sensitive as the current one will be developed for the next *GOSAT*. Precipitation shall be measured twice as precisely through the international cooperative frameworks to better understand the water circulation mechanism of the Earth.

For the 5-year plan, the sensors for the *Global Change Observation Mission (GCOM)* will be improved, *GCOM-W* will be launched, and the R & D for *GCOM-C* will be conducted. The spatial resolution of the future *MTSAT-8 (Himawari-8)* and

*MTSAT-9 (Himawari-9)* will be twice as high as the current *MTSAT-6 (Himawari-6)* and *MTSAT-7 (Himawari-7)*.

*C. Advanced Information and Telecommunications  
Satellite System*

Public safety is the primary purpose of operating such satellite systems. For the ten-year goal, the technology for an experimental mobile telecommunications satellite will be developed to provide continuous communications in case of disaster, on the basis that approximately 100 million mobile phones are currently in use in Japan. For the 5-year plan, demonstration experiments will be conducted in the Asia-Pacific regions and isolated islands in Japan for the operation of the *Wideband InterNetworking engineering test and Demonstration Satellite (WINDS) (Kizuna)* and on the continuous use of mobile communications through the *Engineering Test Satellite VIII (ETS-VIII) (Kiku No.8)*.

*D. Navigation Satellite System*

Car navigation is one of the most successful examples of the GPS applications. Concerning the next 10-year goal, new applications shall be invented for the improvement of the life of the citizenry and the public safety. The planned three *Quasi-Zenith Satellite (QZS)* constellation will supplement the U.S.'s GPS. Although it remains to be decided, if seven such satellites are going to become operational, a self-contained navigation system will be made possible covering the whole of East Asia and Oceania. For the next 5 years, technical and application experiments on a *QZS* will be conducted to put the first *QZS* into the operational phase. Close coordination will be made between the Basic Space Plan, "Basic Plan for the Advancement of Utilizing Geospatial Information" and "Action Plan for the Advancement of Utilizing Geospatial Information" to implement *QZS* program.

*E. Satellite System for Security Purposes*

Strengthening the image information gathering abilities in terms of the frequencies, resolution and near real-time data distribution shall be pursued. Also, the warning function for the areas surrounding Japan has to be strengthened as a 10-year goal. For such purposes, the promotion of R & D will be carried out including research on early warning sensors. For the 5-year plan, four Information Gathering Satellites (IGS) constellations, two optical satellites, and two radar satellites shall be put into operation so that IGS will revisit a certain point on the Earth within twenty-four hours.

## (2) Promotion of R &amp; D Programs

*F. Space Science Program*

Recalling that the achievements of space science are the basis for the comprehensive development and use of space, research in space science shall be accelerated. Space astronomy and planetary exploration have already produced world-class top level research results. For the next ten years, as a goal, interdisciplinary research with the participation of distinguished researchers from universities and other institutions in areas other than space science has to be promoted so that the first-rate research outcomes in these fields will be produced on a continuous basis.

In the next five years, the radio astronomical satellite *ASTRO-G* will be launched and R & D for *ASTRO-H* will be carried out. Planetary exploration continues to be conducted by magnetospheric observation satellites such as *EXOS-D (Akebono)* and *GEOTAIL* and the asteroid explorer *Muses-C (Hayabusa)*. R & D on the Mercury explorer *BepiColombo* (a cooperative project with the ESA) and *Hayabusa-2* will be conducted. Further, the Venus explorer *Planet-C* will be launched.

Less expensive, more responsive missions can be attained by using small science satellites. Three such satellites will be launched within about five years to respond to scientific needs.

Data obtained by scientific satellites are to be systematically archived and made available to serve a wide range of researchers. R & D as well as experiments on rockets and other

flying objects such as large balloons and sounding rockets will be also promoted. Space medicine and research utilizing the space environment will be conducted using sounding rockets and the *Kibo* module of the *ISS*.

#### *G. Human Space Activity Program*

As a 10-year goal, efforts will be made for the improvement of quality of life (purpose: for instance, the realization of a long-lived society) through medical experiments in the space environment. The goal of the first rate accomplishments in space science (purpose: accumulation of intellectual assets and progress towards a new frontier of human activity) will be intensified by expanding the sphere or activity for humankind both by manned and robotic activities. Lunar exploration by robotics will have started by about 2020, taking into account the possibility of robotics and human activities on the Moon after 2020.

For the next five years, as the only Asian nation that participates in the *ISS* project, Japan's cooperation with Asia will be advanced by way of offering experimental opportunities in the *Kibo* module for Asian nations. The basic experiments for the SPSS will be also made, making best use of Japan's platform attached to the outside of *Kibo*. As already mentioned in Chapter II, *Kibo* will be made available as an EOES to collect and distribute information that contributes to environmental observation, and it will be conducted as an international cooperation project led by Japan. Every year, one H-II Transfer Vehicle (HTV) will be transported to the *ISS* under the international commitment, in order to provide experimental devices, water, food, and other items.

R & D on the robotics for lunar exploration will be initiated.

#### *H. Solar Power Satellite System R & D Program*

For the shift to the low carbon society, more efforts shall be made to establish a system of photovoltaic power generation in outer space. For a 10-year goal, R & D on the solar power satellite system will be conducted in the manner that the time schedule of its realization will be measured, taking note of the development of renewable energy on the Earth such as solar

power and wind power generation. For the 5-year plan, relevant agencies will investigate the appropriate system for the SPS along with the technological experiments of energy transmission on the Earth. On-orbit experiments will have started in about 3 years, using *Kibo* or small satellites in order to investigate the effects on the atmosphere.

#### I. SMALL DEMONSTRATION SATELLITE PROGRAM

The aims of Program I are the realization of the sustainable development of the space industry, and employment creation. For a 10-year goal, considering that the space industry is a strategic industry for Japan to advance the A to H systems and programs mentioned above, the risk for the new technology development has to be minimized by way of some assistance mechanisms. Thus, the promotion of state-of-the-art technological experiments using small satellites, and assistance in the manufacturing of micro satellites carried out by venture businesses and universities, shall be strengthened by the Government in order to facilitate their participation in space industry, to develop the space industry and the creation of the employment.

For the next five years, small satellites (weighing from about 100 kilograms to about 1000 kilograms) and micro satellites (no heavier than 100 kilograms) will be launched, and the on-orbit experiments on satellites systems, parts, and components thereof, will be conducted. The Government will provide support for manufacturing and launching of such satellites by the small and venture businesses as well as by universities.

##### 2. Promotion of the Concrete Measures for Each System and Program

Nine systems and programs, specified in A to I in the preceding section of this Chapter, are selected to accomplish the six Basic Targets of this Plan. This section, then, describes how seven concretized action plans will be conducted using each of the nine satellite systems and space programs in order to attain the six Basic Targets.

(1). Action Plan I: The Promotion of Space Development and Use to Contribute to Realization of a Safe, Secure, and Affluent Society (Responding to Target 1)

Systems A to D will be made use of for this purpose: A. Land and Ocean Observation Satellite System to Contribute to Asia and Other Regions; B. Earth Environment Observation & Meteorological Satellite System; C. Advanced Information and Telecommunications Satellite System; and D. Navigation Satellite System.

The establishment of a satellite data use system is essential for contributing to making a safe, secure, and affluent society, and for that, the following points in (a) to (c) are of vital importance:

(a). Collection of the Opinions of Users

To advance the convenience and wider use of satellite data, a satellite data use system shall be established. Thus, a “coordination committee between the users and suppliers” will be set up, and the opinions of users will be duly reflected in the future satellite design, manufacturing, and use;

(b). The More User-Friendly Satellite Data Use System

A user-friendly archiving and distribution system of satellite imaging data will be explored, making the most of the current assets and know-how accumulated by the private sector; and

(c). Making of a Standardized Data Policy

A standardized data policy on limitations of the distributable resolution, pricing, and other areas of concern shall be made in a manner that strikes a good balance between data collected through use of the public funds that aims at distributing them as widely as possible for the public interest, and data produced by commercial entities to obtain proceeds. A data policy for “analyzed information” that is made by adding other information to raw data or processed data has to be created, in line with the “Basic Plan for the Advancement of Utilizing Geospatial Information” and other relevant guidelines. A standardized data policy as a guideline for satellite data distribution shall be made and publicized in a manner that will build up a user-oriented environment. Relevant authorities and private entities will have finished a standardized data policy within one year to two years.

(2). Action Plan 2: Promotion of Space Development and Use to Strengthen Japan's Security (responding to Target 2)

For that purpose, system E, or the satellite system for security purposes, will be utilized, and measures 1) and 2) specified below will be promoted:

1). New Development and Use of Space in the Security Areas

Since experiences in this field is lacking in Japan, outcomes from civil space technology will be used, and cooperation among related agencies is needed. For the more efficient use of limited resources, dual use of space technology shall be encouraged by all the Governmental Authorities. One example of dual use would be the that early-warning sensors useful to detect missile launches can also be useful in detecting forest fires.

2). Data Management for Security Considerations

In spacefaring nations, so called "shutter control" or restrictions on sensing and distributing data in a certain area during a certain period of time is usually maintained. Commercial operators may also be subject, in a general manner, to the limitations on the level of resolution for the sales of their products due to security considerations. Given that R & D on the high resolution images will be developed in Japan in the future, necessary rules on the satellite data distribution shall be considered in cooperation with the Committee on the Advancement of Utilizing Geospatial Information.

(3). Action Plan 3: Promotion of Space Development and Use to Contribute to Diplomacy as well as Diplomatic Efforts for Space (responding to Target 3)

All the systems and programs in the preceding section, or from system A to Program I, will help to realize these purposes. The following purposes in 1) to 3) are to be especially pursued:

1) Contribution to the Asia-Pacific Region

Given that the APRSAF already has accumulated a considerable exchange of views and concrete projects such as *Sentinel Asia*, the forum of APRSAF will be extensively used while Japan embarks on cooperative projects. In doing so, Japan will be able to make best use of ODA and other financial assistance to further bilateral space cooperation. One example would be the financial cooperation to build ground data receiving stations in Asian countries in addition to provide satellite data through the *Sentinel Asia* project. Such cooperation has to be conducted in

such a manner that the contributions of Japanese space activities will be openly recognized by the partners and their nationals.

Considering the limitations of APRSAF as an agency-to-agency forum in the Asia-Pacific region, a governmental level space network shall be put in place. One idea is to hold a ministerial meeting on space affairs on an occasion when the Asian regional science and technology ministerial meeting is also held.

*QZS*, shall be used taking special note that such positioning data will be made available to some of the Asian-Pacific region. Advanced meteorological data from *MTSAT (Himawari)* will be made available for disaster management and environmental observation in the Asian region.

Finally, Asian-Pacific cooperation should be extended to the Middle East, Africa, and Latin America.

#### 2). Contribution to the Earth Environmental Issues

The combination of *GOSAT*, the *GCOM* constellation, and advanced *MTSAT (Himawari)-8* and *9* will be able to further contribute to earth observation. In addition to data, the analyzed information thereof will be widely distributed so that Japan will play a leading role in the global frameworks for environmental observation and monitoring. As for the environmental problems in space, Japan will further actively engage in new challenges such as space debris mitigation. Also, efforts will be made to nurture and enhance the capabilities of Japan's human resources so that they may take up important positions such as chairmanships in space fora such as COPUOS.

#### 3). Deepening Bilateral Relationships

The Japan-US relationship in space affairs has long been strong in many respects. A Japan-US space dialogue, if established, would strengthen the relationship even further. Japan and Europe have also constructed a cooperative relationship through a variety of joint space programs. The setting up of space dialogues concerning space science and applications as well as space governance should be discussed in order to deepen such bilateral relationships. Cooperation will be pursued on individual bases with other spacefaring nations such as Russia, China, and India.

As for the bilateral space cooperation with developing countries, first, relevant information should be collected from the overseas agencies of the Ministry of Foreign Affairs, and other Governmental agencies as well as private companies, concerning the necessity of space activities to such countries. Next, strengthened coordination among the internal agencies of Japan will be pursued. A future bilateral space project arrangement with developing countries will be started with the help of various public funds such as ODA and financing from the Japanese Bank for International Cooperation (JBIC), as well as technology transfer and capacity building in human resources. In addition to the networks of the overseas agencies of the MOFA, the Prime Ministerial level “top sales” initiative will be actively utilized.

The government will, however, embark on bilateral cooperation with developing countries provided that a certain cooperative project will help to realize “human security” in the country concerned. In other words, a bilateral project will have to be effective in making a safe and secure society as well as in mitigating disasters, environmental pollution, and climate changes.

(4). Action Plan 4: Promotion of State-of-the Art R & D to Play a Leading Role in the International Society (responding to Target 4)

In order to promote state-of-the art R & D in space science, programs F to H (F: Space Science Program; G: Human Space Activities Program; H: Solar Power Satellite System R & D Program) will be employed. In order to promote such programs, issues 1) to 3) specified below will be undertaken:

1). Promotion of Space Science to Advance its Frontiers

Cooperation in studies in the areas of science and technology is especially required along with the other areas of science such as geophysics and astronomy. The principle of “independence, democracy, openness and international cooperation” shall be respected in space science research.

2). Promotion of the Human Space Program

(a). *ISS* Program

While no concrete plans have been decided upon among the participants about the future of the *ISS* after 2016, Japan should decide on its own stance, based on the factors such as

research results up to date and Japan's plans on the future human space program.

(b) Lunar Exploration by Robotics for Future Human Space Activities

Lunar exploration is an important goal among the solar planetary exploration. Japan will advance lunar exploration, with the future possibility of human space activities in mind. Over the period of about a year, the significance, goal, targeted results, technological steps, medium-to-long term schedule, and costs of the robots-human exploration program will be thoroughly studied.

In the first phase (starting about 2020), exploration by advanced robotics will be targeted. Such robotics may include two-legged robots. In the second phase, exploration by humans and robotics using the lunar post will be pursued.

Human exploration of the Moon satisfies multiple goals of Japan's space activities, ranging from contributions to the intellectual assets of humankind, to obtaining the cutting-edge technology to generate new industries, to space diplomacy, to enhancement of the international presence of Japan, and to national pride and aspirations. However, it has to be remembered that a human space program is exorbitantly costly for any one country, and serious consequences of the loss of life may have an effect on the whole space program.

3). Promotion of Advanced R & D to Contribute to Addressing the Environment and Energy Problems

A solar power system in space is said to be potentially ten times as effective as solar power on the Earth. Thus, system H will be pursued, by endeavoring to develop the necessary technology.

(5). Action Plan 5: Promotion of the Nurturing of the Space Industry as a Strategic Industry (responding to Target 5)

All systems, in other words System A to Program I, will be used for Action Plan 5.

Emphasis is placed on 1) and 3) below for this purpose and measures 1) (a)-(d) and 2) (a) - (b) and 3) (a)-(b) will be taken:

1). Fostering of International Competitiveness

(a). Promotion of Strengthening of International Competitiveness of Space Devices (Satellites, Rockets, Parts and Components Thereof)

To double the sales of space devices, the following measures shall be taken: continuous R & D, on-orbit experiments; strengthening the ability to make strategic parts and components for rockets and satellites in order to assure their stable supply; sharing the basic technological data among industry, universities, and the Government; enlarging the opportunity to make available public facilities and installations for experiments in the private sector; Governmental efforts to acquire necessary radio frequencies and orbital slots for the private sector from International Telecommunication Union (ITU); in order to increase the predictability of the private sector's investment, mid-to-long term R & D plans shall be publicized by the Government; and efforts for the size-downing, standardization, and collective purchasing of the parts by many companies for the cost-cutting in each company shall be undertaken.

(b). Enlargement of the Base of the Space Utilization Industry and the Promotion of International Competitiveness

Anchor tenancy of private services by the Government will be undertaken to assure the initial demand, and effective PPP schemes are to be designed. New businesses using satellite data will be encouraged by assisting to build a user-friendly data access system and assuring data continuity. The preferential environment will be provided for venture businesses to embark on space business. Also, international trends such as space tourism will be observed.

(c). Promotion of R & D for Strengthening International Competitiveness

R & D goals, both short-term and mid-to-long-term goals, will be formulated by the cooperation between the public and the private sectors, considering international trends. R & D plans will consist of a series of technological experiments, up to the final operations. For instance, in cases of highly risky R & D plans, technological experiments will be made using a small satellite before putting them on board real, operational satellites. Also, the close coordination between the most advanced

scientific research circles and the space industry shall be established to advance the industry's competitiveness.

(d). Promotion of the International Marketing including the Use of "Top-Level Sales"

It is necessary to cultivate an international space market where a Japan's companies can sell a set of space assets. In other words, a satellite, ground systems, utilization, and service applications, and personnel training should be included in one effective space trade arrangement. For the purpose, potential demands of foreign governments have to be determined by research of the overseas agencies of MOFA and other related agencies as well as private companies. "Top-Level Sales" will be effectively used for opening up an international market.

2). Promotion of the Construction of the Space Transportation System to Support Independent Space Activities

Independent space transportation system is indispensable for Japan to have the ability to place a satellite into the orbit when it deems it necessary. The H-IIA and H-IIB rockets are the national mainstay launch vehicles. Governmental measures should be taken for the private H-IIA rockets to acquire a certain market share by means of the assistance to enhance their technological reliability, etc. A next generation solid propellant rocket, currently being developed, will launch scientific research probes.

(a). Promotion of the Development and Use of Rockets Responding to the R & D Plan for Satellites and other State-of-the-Art R & D as well as Global Satellite Demands

(i). Basic Measures

National rockets have priority in acquiring launch contracts with Japanese Governmental missions as seen in the practices of other nations. Japanese companies are also encouraged to use a Japanese rocket for launching their satellites. A table on the mid-to-long term (five years) satellite development and use plans is attached to this Basic Space Plan, thus enabling private launching providers to make systematic plans for procurement and investment by referring to the table. Necessary measures will be taken by the Government to ensure safe commercial launches.

(ii). Construction of the Transportation System Responding to the Development and Use Plans of the Satellites

H-IIA and H-IIB rockets are Japan's mainstay rockets and as such, launching capability and reliability shall be enhanced along with the efforts to decrease their operational costs. A GX rocket is being developed to provide launching services for the mid-sized satellites, to become a backup for the mainstay rocket, to increase Japan-US space cooperation, to advance private industry, and to acquire Liquid Natural Gas (LNG) propellant technology. Considering the residual challenges in the GX rocket project, including the technological problems of the LNG propellant technology and the overall uncertainty of the development plans, the final decision as to whether it is to be put into the development phase will be made by the summer of 2010. The solid propellant rocket, on which Japan has a great deal of experience, is important for prompt launching when it is urgently needed. Solid propellant rockets will be used for the scientific research probes, and for smaller satellites for the earth observation.

(iii). Maintenance and the Development of the Basic Technology

Basic Technology will be maintained and developed in order to keep an independent launch capability through the measures in Section 2(5)1) of Chapter 3.

(iv). R & D concerning the Future Transportation System

Initial study as well as the basic R & D shall be conducted in order to construct the basic technology for the future transportation systems, including a reusable transportation system, an orbit transfer vehicle, and an air-launch system. In doing so, the advancement of the H-IIA and both unmanned (by robots) and manned space activities will be undertaken.

(b). Promotion of the Maintenance and Establishment of Launching Sites

Launching sites are maintained and operated by JAXA in Japan as the important infrastructure in order to assure the access to outer space. Many of the facilities and installations at the launching sites are now growing older and need to be appropriately renovated. The renovation and the development of the

capability of the launching sites have to be systematically carried out along with the establishment of better launching environments, such as the termination of the 190-day limitation on the possible launching days.

3). Promotion of the Industrial Activities

(a). Capacity Building for Small Business, Venture Businesses, and Universities

Capacity building for small businesses equipped with advanced technology and for venture businesses shall start. Coordination among the industries, universities and Governmental agencies will be reinforced as well. Technology transfer from the civil non-space sector into the space industry, and vice versa, and access to the satellite data will be facilitated to broaden the development and use of space. Appropriate assistance will be given to such entities in terms of using Governmental facilities and installations as well as the manufacturing and the launching of micro satellites.

(b). Taxation, Financial, and other Measures

In consideration of the great financial risks in doing business on and in space, and in order to provide internationally fair and equitable competitive terms, active measures shall be taken to increase the number of private companies entering into space business and to promote the more favorable treatment of private investment. Because space industry deals with sensitive technology and information, appropriate security trade controls, inward direct investment, and the management of sensitive information shall be undertaken.

(i). Taxation System

Special tax reduction programs such as an R & D tax program, investment promotion tax program for smaller businesses, small business capital investment tax program (Angel Tax Credit Program) and immunity to customs are applied. The consumption tax for the export of launching services is exempted.

(ii). Finance

For instance, the following financial measures can be used: export finance from the JBIC and trade insurance of Japan Trade Insurance; for the R & D of space objects and provision of

services, public funds from the Development Bank of Japan (DBJ), the Japan Finance Corporation (JFC), etc.

(6). Action Plan 6: Environmental Protection (responding to Target 6)

Systems A to I, or all the systems related to the goal of environmental protection. Measures 1) and 2) (a) to (c) will be taken.

1). Consideration of the Earth Environment

Due regard has to be paid to the influence on the Earth from the space development and use. Space development and use shall be conducted under the ISO 14000 series standards in order not to adversely affect the Earth environment. Also, to preserve and protect the Earth environment, the spin-off technology made possible by the space activities such as insulation materials and energy-generating devices in outer space will be widely utilized.

2). Preservation of the Outer Space Environment

To address space debris issues, space situational awareness, efforts to minimize the generation of debris and R & D for the disposal of the generated debris are needed. Space weather forecasting will be studied in depth since natural phenomena such as solar winds affect the space activities.

(a). Debris Situational Awareness

JAXA's capability to catalogue orbital space debris is limited to meters-level debris recognition in low Earth orbits. Therefore, coordination and cooperation with the Ministry of Defense (MOD) of Japan and the use of observation data from other spacefaring nations must be initiated in order to gain a sub-meter level of precision data on space debris.

(b). Minimizing Generation of Space Debris

As one type of measures for space debris mitigation, devices that minimize the generated debris as much as possible in the operational phase have to be designed and manufactured. Space activities in Japan are conducted in accordance with JAXA Space Debris Mitigation Guidelines. Japanese space activities also have to pay due attention to the COPUOS Space Debris Mitigation Guidelines (2007) and the Inter-Agency Space Debris Coordination Committee (IADC) Space Debris Mitigation Guidelines (2002). Japan is determined to be make permanent

contributions to promotion of space debris mitigation measures, including the rule-making thereof, in close cooperation with international society.

(c). Disposal of Space Debris

In addition to the passive mitigation of debris, measures for the active disposal of already generated space debris have to be studied. The technology for capturing space debris and disposing of it from the Earth's orbits shall be studied, aiming at on-orbit technological experiments using devices such as small satellites, through international cooperation.

(7). Action Plan 7: Investment in Next-Generation Human Resources and the Promotion of Nation-Wide Participation (responding to Target 4)

Systems and Programs A to I, or all the systems and programs correspond to the capacity building for the human resources for the next generation and the promotion of nation-wide participation in such capacity building. Measures 1), 2) (a) and (b) and 3) will be taken.

1) Nurturing of Researchers and Engineers for the Next Generation

Increasing difficulties have been pointed out in regard to maintaining a body of able and experienced engineers under the present circumstances of continuous downsizing of the Japan's space industry. In order to transfer experience and knowledge to the next generation, the following strengthened efforts have to be made within research institutions, the space industry and the space agencies: the strengthening of space education and research at universities and other research institutions; the training of engineers and scientists through the coordination between space agencies and universities; long-term plans to develop human resources; and strengthening of the capacity building in the Asian region by various measures such as accepting foreign students and young professionals from Asian countries and carrying out joint development programs such as the development of small satellites within the framework of APRSAF.

2). Promotion of the Education for Children and Outreach Activities on the Lure of Space

So as to secure the continuous advancement of space development and use, appropriate knowledge and information have

to be shared among the younger generation nation-wide. For that purpose, space programs fostering the aspirations of Japanese nationals, especially the younger generations, have to be conducted. The Space Education Centre of JAXA will, in cooperation with local educational institutions, promote the following measures:

(a) Enlargement of the Opportunities for Experience and Simulated-Experience

Tanegashima Space Center can be included in a stop at a school educational excursion and other field trips in the coordination with travel agencies; astronauts and space scientists should deliver lectures at educational institutions to inspire children, and a remote-communication system between the *ISS* and elementary school classes will be a possibility; lectures on space from the *ISS*, increasing space-related events and mid-career education for teachers at the scientific museums, and the internet transmission of a rocket lift-off will be promoted.

(b). Advancement of Space Education

Issues on space should be effectively included into the elementary level of education in cooperation with scientific museums, domestic and overseas space agencies, and other international organizations. Space Agencies will actively cultivate public relations by way of, e.g., participating in movies or TV programs, and distributing attractive images that Japan's space probes have collected.

3). Promotion of the Public Participation Measures

The taxpayers' understanding is essential for sustainable space exploration and use because of the gigantic expenditures needed. Also to enlarge the circle of those interested in the utilization of space, the Government will host such space-related events as satellite-manufacturing and space robot contests in which Japanese nationals are encouraged to participate. Ideas from the citizens are to be widely collected to make space use more accessible to and familiar to Japanese nationals. Mechanisms are to be considered for the citizens to support space development and use by way of e.g., donations.

CHAPTER IV: PROMOTION OF MEASURES BASED ON THE BASIC  
PLAN FOR SPACE POLICY

(1). Organizational Structure to Promote Measures Based  
on the Basic Space Plan

Measures under the Basic Space Plan will be conducted by the Strategic Headquarters through close cooperation with related Governmental ministries. The Secretariat of the Strategic Headquarters will be transferred to the Cabinet Office based on the supplementary provision of the Basic Space Law. Preparation is to be made for amending the relevant laws as the supervisory authorities of JAXA and the organizational structure and functions of JAXA are currently being reviewed for the possible change.

(2). Securing the Necessary Budget and Personnel to Conduct the Measures

The Government shall endeavor to take necessary measures for the smooth implementation of the Basic Space Plan by, for example, appropriating its budget each fiscal year to the extent permitted by the State's finances, in order to secure funds necessary to ensure payment of the expenses required for the implementation of the Plan. The government shall promote private activities and endeavors to secure the necessary funds and personnel, taking special note of the cost-effectiveness and the compatibility with other national policies.

(3). Public Announcement of the Follow-up Results of the Measures Taken

The Annual Outcome of the measures taken, or a Follow-up Report will be publicized through the internet and by other appropriate means. Based on the Follow-up Report and opinions of the coordination committee between suppliers and users, the necessary changes shall be made both to the Plan and the concrete contents of a certain measures.

(4). Strengthening of the Investigation and Analysis Functions for International Trends

International needs in disaster management and Earth environment, among others, have to be properly recognized for effective international coordination. The latest scientific achievements, the latest space industry trends in the spacefar-

ing nations, and the potential demand for space applications in developing countries are among the important kinds of information that should be well understood. Thus, the functions of doing research and analyzing the present situation and future prospects for space development and space use by international society have to be strengthened.

(5). Enactment of Legislation with respect to Space Activities

In accordance with the Basic Space Law, the Space Activities Bill will be drafted.

(6). Securing of Coordination and Consistency with Other Policies Not Relating to Space Activities

In advancing the Basic Space Plan, efforts should be made to ensure its consistency with the other policies relating to space activities including the Science and Technology Basic Plan, the Economic Growth Initiative, the Basic Plan on Ocean Policy, the Basic Plan for the Advancement of Utilizing Geospatial Information, and other policies of relevant ministries and agencies.

**PROGRESSING TOWARDS NEW NATIONAL  
SPACE LAW: CURRENT LEGAL STATUS  
AND RECENT DEVELOPMENTS  
IN CHINESE SPACE LAW AND ITS  
RELEVANCE TO PACIFIC RIM  
SPACE LAW AND ACTIVITIES**

*Li Juqian*\*

INTRODUCTION

On the basis of briefing the development of space technology and activity in China, the author analyzes the characteristics and main rules of the space regulations in China; discusses their relevance to international space law, especially Pacific Rim space law; and proposes how to further advance and perfect space law in China.

The beginning of space technology in China can be traced back to 1956. After more than fifty years development, the achievement of space technology and activity in China is noticeable in the world. However, space legislation in China, which is mainly composed as ministerial rules, orders, and regulatory documents, has lagged far behind space activity, and cannot adapt to the quick and comprehensive space activity development. Therefore, national space law must be passed in time. The United Nations space treaties play an important role in China and provide a useful legal framework. The Pacific Rim international treaties<sup>1</sup> also simulate the development of space

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\* Associate Professor of China University of Political Science and Law (Zhengfa University), Director of Public International Law Research Institute, Council-Member of China Institute of Space Law, Deputy Director of International Law Center of Zhengfa University, Deputy Director of Air and Space Law Center of Zhengfa University. The author thanks Ms. Zhu Xinying for assistance on part of the English version.

<sup>1</sup> China is a party to the many Pacific Rim treaties. See Memorandum of Agreement on Liability for Satellite Launches, U.S.-P.R.C., Dec. 17, 1988, 28 I.L.M. 596; Agreement on the Cooperation on the Peaceful Use of Outer Space Science and Technology, P.R.C.-Braz., Nov. 8, 1994, [http://untreaty.un.org/unts/144078\\_158780/14/8/6178.pdf](http://untreaty.un.org/unts/144078_158780/14/8/6178.pdf); Agreement on the Technology Safety on the Joint Research and Manufacture of the

law and space activity in China, and needs to be taken into account for new legislation in the future. Furthermore, foreign countries' national laws, especially those of Pacific Rim countries, need to be studied and utilized for reference in new Chinese space legislation.

## I. THE STATUS QUO AND CHARACTERISTICS OF SPACE LAW IN CHINA

### *A. Space Technology Development and Space Law in China*

The development of space technology and space law has always been high on the Chinese Government's agenda. China established the Fifth Research Institute<sup>2</sup> under the Ministry of National Defense on Oct. 8, 1956, a year earlier than the launch of the first human made satellite.<sup>3</sup> It became the first institute responsible for the research and manufacture of missiles and rockets and built the first Launching Vehicles Site in April 1958. These events marked the beginning of space technology and activities in China. During past decades, China achieved accelerated development in fields such as human made satellites; launch vehicles; launch sites; telemetry, tracking and command (TT&C); and human spaceflight.

Along with rapid developments in space technology, China also participated actively in international activities concerning space issues and space law. In June 1980, China dispatched an observer delegation to the 23rd Meeting of the United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS) for the first time, which was the beginning of China's contact

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Earth Resources Satellite, P.R.C.-Braz., Dec. 13, 1995, <http://vip.chinalawinfo.com/>; Protocol on Space Technology Cooperation, P.R.C.-Braz., Sept. 21, 2000, [http://www.mfa.gov.cn/chn/gxh/cgb/zcgmzysx/nmz/1206\\_1/1206x1/](http://www.mfa.gov.cn/chn/gxh/cgb/zcgmzysx/nmz/1206_1/1206x1/); The Asia Pacific Space Cooperation Organization Treaty, Oct. 28, 2005, <http://rescommunis.wordpress.com/2008/12/page/2/>.

<sup>2</sup> The first president of the Fifth Academy of the Chinese Ministry of Defense was Qian Xuesen. See NTI, Missile Chronology, 1935-1939, [http://www.nti.org/e\\_research/profiles/China/Missile/chronology\\_1935-1969.html](http://www.nti.org/e_research/profiles/China/Missile/chronology_1935-1969.html) (last visited Nov. 10, 2009).

<sup>3</sup> The first manmade satellite, "Sputnik", was launched into space on Oct. 4, 1957 by the former Soviet Union.

with U.N. space organs.<sup>4</sup> In the same year China became one of the 53 member countries of the committee. Since then, China has participated in all the meetings of UNCOPUOS and the annual meetings held by its subcommittees. Among the space law treaties prepared by the U.N., China acceded<sup>5</sup> to the Treaty on Principles Governing the Activities of States in the Exploration and Use of Moon and Other Celestial Bodies,<sup>6</sup> Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space,<sup>7</sup> Convention on International Liability for Damage Caused by Space Objects,<sup>8</sup> and the Convention on Registration of Objects Launched into Outer Space.<sup>9</sup> Apart from concerning the institution and development of international space law, various departments and agencies have enacted a series of regulations including administrative regulations, decrees, and measures. Inconsistent with the rapid development of Chinese space technology, China still lacks a space law at the national level, which has become the “bottle-neck” for continued development of the system structure, space technology, and related activities.

### *B. Characteristics of Space Law in China*

The present governmental department in charge of the space activities now is the China National Space Administration. One of the main organizations engaged in the space activities is the China Space Science and Technology Group. As men-

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<sup>4</sup> The State Council Info. Office (P.R.C), China's Space Activities, <http://www.cnsa.gov.cn/n615709/n620681/n771967/69198.html> (last visited Nov. 18, 2009).

<sup>5</sup> The State Council Info. Office (P.R.C.) China's Space Activities, § IV, <http://www.cnsa.gov.cn/n615709/n620681/n771967/69198.html> (last visited Nov. 11, 2009).

<sup>6</sup> Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, opened for signature Jan. 27, 1967, 18 U.S.T. 2410, 610 U.N.T.S. 205 [hereinafter Outer Space Treaty].

<sup>7</sup> Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space, opened for signature Apr. 22, 1968, 19 U.S.T. 7570, 672 U.N.T.S. 119 [hereinafter Rescue and Return Agreement].

<sup>8</sup> Convention on International Liability for Damage Caused by Space Objects, opened for signature Mar. 29 1972, 24 U.S.T. 2389, 961 U.N.T.S. 187 [hereinafter Liability Convention].

<sup>9</sup> Convention on Registration of Objects Launched into Outer Space, opened for signature Nov. 12, 1974, 28 U.S.T. 695, 1023 U.N.T.S. 15 [hereinafter Registration Convention].

tioned above, space activities was originally under the Ministry of National Defense; later under the leadership of the Ministry of the Seventh Machinery Industry; Ministry of Space Industry; Ministry of Aviation and Space Industry; the China Space Industry Corporation; and finally, the China Space Science and Technology Group founded on July 1, 1999 after the approval of the State Council. Space activities in China have been long governed by the administrative decree system. As a result, space law legislation did not appear as urgent as the ministerial rules and documents that are the main forms of regulation. The status of these regulations in China's legislative system shall be decided according to the provisions of the Legislation Law.<sup>10</sup>

In accordance with the provisions of the Legislation Law of the People's Republic of China 2000,<sup>11</sup> the Chinese legal system is made up of administrative regulations, local decrees, autonomous decrees, special decrees, and rules, as well as rules formulated by the State Council's ministries or the people's governments of provinces which are implemented within the limits of their competence.

Based on the hierarchy of laws, regulations, and legislative authority, the following prescriptions can be found:

Firstly, apart from the Constitution, the law accounts for the dominant norm, the force of which is superior to that of administrative regulations, local decrees, and rules. The National People's Congress and the Standing Committee of the National People's Congress exercise the state authority of legislation.<sup>12</sup> Meanwhile, the power to interpret laws is vested in the Standing Committee of the National People's Congress.<sup>13</sup>

Secondly, the force of administrative regulations is inferior to that of laws. The authority to enact administrative regulations, the main form of which is "regulation," is vested in the State Council.

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<sup>10</sup> Li fa fa [Law on Legislation], art. 2 (promulgated by the Standing Comm. Nat'l People's Cong., Mar. 15, 2000, effective July 1, 2000) 2000 STANDING COMM. NAT'L PEOPLE'S CONG. GAZ. 112, available at <http://www.china.org.cn/english/government/207420.htm>.

<sup>11</sup> *Id.*

<sup>12</sup> *Id.* at art. 7.

<sup>13</sup> *Id.* at art. 42.

Thirdly, the local decrees, autonomous decrees, special decrees and rules shall operate within their respective limits of competence. Under the condition of not contradicting the Constitution, laws, and administrative regulations, the people's congresses and their standing committees of provinces, autonomous regions and municipalities directly under the Central Government may formulate local decrees in accordance with the specific conditions and actual needs of their respective administrative areas. The people's congresses of autonomous regions are entitled to formulate autonomy decrees and special decrees according to the local national political, economic, and cultural characteristics.<sup>14</sup>

Fourthly, within its limit of competence, the force of ministerial rules formulated by the State Council's ministries is inferior to that of the administrative regulations. In accordance with laws and the State Council's administrative regulations, decisions and decrees, the State Council's ministries, commissions, the People's Bank of China, the National Audit Office, and the organs directly under the State Council with administrative functions may formulate the rules within the limits of competence of their own ministries. Matters on which ministerial rules are formulated shall be the matters for implementing laws or the State Council's administrative regulations, decisions, and orders.<sup>15</sup>

Fifthly, military regulations and rules belong to a special series of regulations. The Central Military Commission formulates military regulations in accordance with the Constitution and laws. The headquarters under the Central Military Commission, different arms of services and military regions may formulate military rules within their limits of competence in accordance with laws and the Central Military Commission's military regulations, decrees, and orders.<sup>16</sup>

The provisions of the Legislation Law of the People's Republic of China apply to all legislative matters, of course, includ-

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<sup>14</sup> *Id.* at art. 66.

<sup>15</sup> *Id.* at art. 71.

<sup>16</sup> *Id.* at art. 93.

ing space activities.<sup>17</sup> The characteristics of space regulations in China are as follows:

i. The binding force of legal norms is at a low level.

The provisions on space activities fall into neither the realm of laws nor that of administrative regulations, but belong to the rules formulated by the State Council's ministries, which are at the lowest level of the legislative hierarchy.

At present there are only two systematic prescriptions on space activities, namely the Measures for the Administration of Registration of Objects Launched into Outer Space<sup>18</sup> and Interim Measures on the Administration of Licensing the Project of Launching Civil Space Objects.<sup>19</sup> They all belong to the rules formulated by the State Council's ministries.<sup>20</sup> Thus it is clear that the field of space activities has always been high on the Chinese government's agenda, but it is still short of the highest level of laws in the *national* legal system for regulating and governing. By sharp contrast, in some countries with less developed space technology, legislation on space activities does not lag behind. For instance, Bengal promulgated the Bengal Law on the Space Research and Remote Sensing Research Institute in as early as 1991.<sup>21</sup>

In China, there are a few prescriptions at the level of administrative regulations, such as the Administering Regulation on the Ground Receiving Facilities of the Satellite Telecasting.<sup>22</sup> However, these regulations are more directly related to mass media activities rather than space activities.

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<sup>17</sup> *Id.* at arts. 2, 4.

<sup>18</sup> *Chinese Law: Registration, Launching and Licensing Space Objects, Order No. 6 of the Commission of Science, Technology, and Industry for National Defense and the Ministry of Foreign Affairs of the People's Republic of China*, 33 *J. SPACE L.* 437-441 (2007).

<sup>19</sup> *Id.* at 442-456.

<sup>20</sup> Law on Legislation, *supra* note 11, at art. 71.

<sup>21</sup> See YIN YUHAI, GUO JI KONG JIAN LI FA GAI LAN [OVERVIEW OF INTERNATIONAL LEGISLATION ON OUTER SPACE] 556-61 (Zhong Guo Min Zhu Fa Zhi Chu Ban She, 2005).

<sup>22</sup> See Administering Regulation on the Ground Receiving Facilities of the Satellite Telecasting, <http://www.miit.gov.cn/n11293472/n11295210/n11298463/11652263.html> (last visited Nov. 18, 2009).

- ii. It lacks a fundamental law concerning space activities with rules formulated by the State Council's ministries and regulatory documents as the main components.

Space law regulations in China are made up of rules formulated by the State Council's ministries and regulatory documents without a uniform space law or administrative regulation. Therefore, the systemic and unitary basic principles cannot find their embodiment in law.

- iii. The rules are of multiple forms with complicated contents.

Space activities are connected with different ministries and organs, therefore, each of them sets up rules according to its own conditions and needs in execution. This has resulted in an abundant collection of rules consisting of a considerable amount of documents that interact with each other, yet they lack unity. These include administration of satellite signal and TV channel reception; techniques and standards of aerospace products; setup and administration of organizations and enterprises; education and taxation, among others.<sup>23</sup> However, the advantage of such arrangement is that it is ready for realistic, expedient new conditions.

- iv. Rules are of different origins and need to be unified.

As different ministries all have the authority to formulate certain rules, the cumbersome collection of rules is difficult for staff from different organizations to comprehend and execute as

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<sup>23</sup> See Administrative Provisions on the Establishment of Satellite Communication Networks as Well as the Setup and Use of Earth Stations (promulgated by the Ministry of Industry and Information Technology, 2009), available at <http://www.miit.gov.cn/n11293472/n11294912/n11296542/12131672.html>; Measures for the Administration of Landing of Foreign Satellite Television Channels (promulgated by the State Administration of Radio, Film and Television, Dec. 4, 2003), available at <http://www.asianlii.org/cn/legis/cen/laws/mftaotloostc811/>; The Announcement of Adding and Changing the Taxation Preference Namelist of Enterprises Launching Foreign Satellites (promulgated by the Ministry of Finance and State Administration of Taxation, 2003), available at <http://www.csip.org.cn/zhengce/11.html>; and The Reply of Compulsory Certification of GPS Products (announced by the Certification and Accreditation Administration, 2007), available at <http://vip.chinalawinfo.com/NewLaw2002/SLC/SLC.asp?Db=chl&Gid=116183>.

a whole. This blocks coordination and blurs rights, obligations, and liabilities of different ministries and organizations, which, in turn, is adverse to future development. In December 2007 the Commission of Science, Technology, and Industry for National Defense (COSTIND) carried out a revision regarding the laws, administrative regulations, rules formulated by the State Council's ministries, and regulatory documents within its competence including rules on space activities during which process fifty-five administrative regulations, twenty-two rules formulated by the State Council's ministries and 181 regulatory documents have been examined (twenty-six of them contain confidential items).<sup>24</sup>

To solve the abovementioned problems and to move the development of space activity forward, it is urgent to lay down fundamental rules for space activities. The good news is government-oriented and scholar-proposed space law currently being drafted is expected to resolve these problems, though it is not an official draft according to the Legislation Law.<sup>25</sup>

## II. THE MAIN REGULATIONS AND ITS RELATIONSHIP WITH INTERNATIONAL SPACE LAW

Among the major provisions of space law, two ministerial rules are directly related to space activities. They are *the Measures for the Administration of Registration of Objects Launched into Outer Space*<sup>26</sup> and *Interim Measures on the Administration*

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<sup>24</sup> See COSTIND, *Notice on Clearing-up Administrative Regulations and Rules* (2007) (on file with author); COSTIND, *Notice on the Work of Clearing-up Regulatory Documents* (2007) (on file with author); and COSTIND, *Summarization on the Clearing-up of the Administrative Regulations, Administrative Rules and Regulatory Documents* (2007) (on file with author). After the author's review, COSTIND suggested to revoke one administrative regulation, modify twelve administrative regulations, uphold twenty-one rules, revoke one rule, and modify three rules. After a thorough check, it was revealed that there are 181 regulatory documents during 1998 to 2006, and sixteen of which were revoked, six of which are to be revoked according to the suggestion of COSTIND, four of which were invalidated, and three of which are to be invalidated. These documents were announced on the official website of COSTIND in 2007, and were cleared away after the COSTIND expired in 2008.

<sup>25</sup> For example, the China Institute of Space Law held conference in 2007 and 2008 to discuss the key terms and the main provisions of the national space law.

<sup>26</sup> *Chinese Law: Registration, Launching and Licensing Space Objects*, *supra* note 18, at 437-41.

of *Licensing the Project of Launching Civil Space Objects*.<sup>27</sup> Both of these regulations were promulgated by the COSTIND, which caused special problems due to the cancellation of COSTIND in March 2008.<sup>28</sup> Though the legal binding force of the regulations themselves are unchallengeable, all of the provisions relating to the COSTIND must to be modified in time, or an entity responsible for undertaking legal obligations and enforcing them will not exist according to the regulations.<sup>29</sup>

The main contents of the regulations are as follows:

*A. Measures for the Administration of Registration of Objects Launched into Outer Space*

Administrative measures to register space objects were formulated by the COSTIND, and were promulgated on Feb. 8, 2001 in the No. 6 Decree and entered into force thereafter.<sup>30</sup> The decree is made up of 16 articles and prescribed the definition for space objects and launching state, the obligor of registration, and the procedures, time limits and contents in national and international registrations. The main provisions are as follows:

i. Firstly, it provides a definition for space objects.

According to the measures, “space object” refers to an “artificial satellite, crewed spacecraft, space probe, space station,

<sup>27</sup> *Id.* at 442-56.

<sup>28</sup> The administration and management of facilities, payroll, and other similar functions fall to a ministerial-level department which is the State Commission of Science, Technology and Industry for National Defense (the COSTIND) established in 1998. The China National Space Administration (CNSA) was reformed to be an organ of the newly established COSTIND. In March 2008 China restructured the ministries and the COSTIND was canceled as a ministerial-level department and renamed as the State Bureau of Science, Technology and Industry for National Defense (BUSTIND), becoming an independent institution of the newly established Ministry of Industry and Information Technology, BUSTIND is now responsible for the administration and management of the industry for national defense. The CNSA become an independent organ of the Ministry of Industry and Information Technology. See [http://www.gov.cn/gjjg/2008-04/25/content\\_2399.htm](http://www.gov.cn/gjjg/2008-04/25/content_2399.htm), <http://www.chinanews.com.cn/gn/news/2008/03-11/1188455.shtml>, <http://npc.people.com.cn/GB/28320/116286/116574/6984987.html>, & <http://www.cnsa.gov.cn/n1081/98435.html>.

<sup>29</sup> See *Chinese Law: Registration, Launching and Licensing Space Objects*, *supra* note 18, at 438-40, 442-48.

<sup>30</sup> *Id.* at 438.

launch vehicle and parts of thereof, and other human-made objects launched into outer space.”<sup>31</sup>

This definition is not all-inclusive. There are two conditions for an object to be a “space object:” first, it has to enter outer space and, second, the object itself belongs to the category of human-made objects. Plenty of objects meet these two conditions. However, the measures exclude two types of objects: a “[s]ounding [r]ocket and [b]allistic [m]issile that temporarily crosses outer space.”<sup>32</sup>

This definition does not contravene relevant provisions in the U.N. treaties. For instance, the term “space object” in the Registration Convention includes the components of the space object, the launching vehicle and its parts.<sup>33</sup> The “space object” itself and its launching vehicle are all included in the definition of “space object.” Yet the difference between the Registration Convention and the Chinese measures is that the Chinese rules define a “space object” as human made objects more clearly and distinguish them from objects that temporarily pass through outer space.

ii. Secondly, it provides a definition of “launching state”

The definition in the measures is in line with the Registration Convention that refers to the countries who launch or procure launching a space object, or from whose territory or facility a space object is launched. All the space objects launched in China or launched abroad with China being a joint launching State shall be registered according the measures.<sup>34</sup>

iii. Thirdly, it sets down the obligations of registration

Overall speaking, all governmental departments, corporations, other organizations and individuals who launch or pro-

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<sup>31</sup> *Id.* at 438.

<sup>32</sup> *Id.* at 438.

<sup>33</sup> *Id.* at 438; compare, Registration Convention, *supra* note 9.

<sup>34</sup> *Chinese Law: Registration, Launching and Licensing Space Objects*, *supra* note 18, at 438, art. 4.

cure a launch shall perform their registration obligations.<sup>35</sup> To be specific, the obligor in China is the owner of the space object. When there is more than one owner, the principal owner should register on behalf of all.<sup>36</sup> When China allows international commercial launch services from its territory for the governments of other countries, corporations, organizations, or individuals who own the space object, the international launch service provider shall perform the registration obligation.<sup>37</sup>

iv. Fourthly, it formulates the competent authority, the content and the time limit of the space objects registered within China

The COSTIND is in charge of the administration of registration affairs within China. When other joint launching states are involved, the COSTIND and the Foreign Affairs Ministry shall identify the obligor jointly, if it is necessary.<sup>38</sup>

The State establishes and keeps the national register for space objects, and it is kept by the COSTIND.<sup>39</sup> The contents of registration include the registration number; the registrant; the owner; name, basic characteristics, and the launcher of the space object; name of the launching vehicle; date of launch; name of the launching site; basic orbital parameters of the space object; and the launch of the space object in orbit, etc.<sup>40</sup>

Within the time limit of 60 days from the time when the space object enters the outer space orbit, the obligor shall register.<sup>41</sup> The time limit for the change registration is also 60 days after changes such as changes in orbit, disintegration, stop working, return from and re-entry into the atmosphere.<sup>42</sup>

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<sup>35</sup> *Id.*

<sup>36</sup> *Id.* at art. 7.

<sup>37</sup> *Id.* at 439, art. 8.

<sup>38</sup> *Id.* at 438-9, art. 5.

<sup>39</sup> *Id.* at 440, art. 11.

<sup>40</sup> *Id.* at 439, art. 6.

<sup>41</sup> Yun Zhao, Commentary, *National Space Legislation in Mainland China*, 33 J. SPACE L. 427, 431 (2007).

<sup>42</sup> *Id.* at 431, art. 9.

- v. Fifthly, it stipulates the procedures of international registration for space objects.

In 60 days of domestic registration, the COSTIND shall register at the United Nations Secretariat through the Foreign Affairs Ministry to fulfill its obligations under the Convention,<sup>43</sup> the content of which is in accordance with the Convention. In the case that China is a joint launching state, the Foreign Affairs Ministry shall identify the registrant together with concerning countries in accordance with the provisions of the Convention.

From the above provisions, the rules of the measures are in line with that of the Registration Convention, but also contain more specific and concrete information in matters such as the registrant, content, and time limit of registration. Meanwhile, the measures also deal with the Convention and the competence of the COSTIND and the Foreign Affairs Ministry in registration.

The deficiency of the measures is that there are no provisions concerning the liability and consequence of the non-registration or incomplete registration. When more and more space objects are launched in the future, especially when some Chinese corporations or other organizations choose to launch space objects abroad, such provisions will be even more necessary.

*B. Interim Administering Measures on the Licensing of Civil Space Launch Projects*

The interim measures are also formulated by the COSTIND, which were promulgated on November 21, 2002 by the No. 12 Decree and entered into force a month later. It is made up of 28 articles in five chapters with its contents touching on procedures of application, examination and approval, supervision and administration and legal liabilities.<sup>44</sup> The main provisions are as follows:

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<sup>43</sup> See <http://www.cnsa.gov.cn/n1081/n7559/32950.html>.

<sup>44</sup> See <http://www.cnsa.gov.cn/n1081/n7559/32939.html>.

i. Firstly, it clarifies some significant terms.

Civil space launch projects mentioned in the measures refer to the launch of such spacecraft as satellites from inside the territory of China into outer space for nonmilitary purpose, and the launch of such spacecraft as satellites, etc. over which natural persons, legal persons, or other organizations of the People's Republic of China have had property or have property launched into the outer space from outside of the territory of China.<sup>45</sup>

ii. Secondly, it lays down the basic administering system<sup>46</sup>

The administering license system shall apply to civil space launch projects. Any natural person, legal person, or other organization undertaking civil space launch projects shall, in accordance with the present measures, apply for examination and approval, and shall not carry out the civil space launch project until he/it is found to be qualified upon examination and has obtained a license for the civil space launch project. Further, COSTIND shall be responsible for examining, approving, and supervising civil space launch projects.

iii. Thirdly, it prescribes the license conditions for the applicant<sup>47</sup>

The general project contractor shall be the applicant for the license. Where there is no domestic general project contractor, the final owner of the satellite or other spacecraft shall be the applicant.

In addition to abiding by the laws and regulations of the State; maintaining State secrets; not endangering State security or damaging the benefits of the State; the license applicant shall also meet the following conditions:

- (1) He/it shall have the relevant permission documents for carrying out the project under application, and which are issued by the relevant departments of the State;<sup>48</sup>

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<sup>45</sup> *Id.* at 442, art. 2.

<sup>46</sup> *Id.* at 443-444, arts. 3-4.

<sup>47</sup> *Id.* at 443, art. 5.

<sup>48</sup> *Id.* at art. 5, para. 2, sentence 4.

- (2) Corresponding strength. He/it shall have the technical strength, economic strength and complete technical documents for carrying out the project under application;<sup>49</sup>
- (3) Due diligence. The project under application shall not cause irrecoverable injury or damage to the public health, security and property out of gross negligence or intentional act; and shall be conform to conditions provided for in laws and regulations.<sup>50</sup>

iv. Fourthly, it stipulates the procedures, time limits and relief measures of the application and approval.<sup>51</sup>

The applicant shall, nine months before the prearranged month for the launch of the project, submit the relating documents to the COSTIND to apply.<sup>52</sup> COSTIND shall, within thirty days as of receipt of the application documents, organize the examination of the project under application. There are two kinds of results: (1) license issuance for the qualification of examination or (2) no license issuance for fail of examination, notifying the applicant and the relevant departments in writing.<sup>53</sup> Two kinds of remedies can be applied when the applicant has any objection to the examination conclusion: (1) applying to COSTIND for re-examination and (2) applying the administrative review in accordance with the law.<sup>54</sup>

v. Fifthly, it stipulates a supervision and administration system<sup>55</sup>

a. License system.

A legally obtained license shall not be altered or transferred; the license shall only be limited to the purpose for an approved project, and shall, after the project ends, be automatically terminated. Where any content in a license needs to be modified, the license holder shall, 90 days before the expiry of

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<sup>49</sup> *Id.* at art. 5, para. 2, sentence 2, sentence 5.

<sup>50</sup> *Id.* at art. 5, para. 2, sentence 2, sentences 3, 6.

<sup>51</sup> *Id.* at 443-445.

<sup>52</sup> *Id.* at 443, art. 6.

<sup>53</sup> *Id.* at 445, art. 7.

<sup>54</sup> *Id.* at 445, art. 8.

<sup>55</sup> *Id.* at 445-47, ch. III.

the validity period of the license, file an application for modification to the COSTIND. If the project is to be cancelled according to plan, the license holder shall apply for the cancellation of the license. If the license holder cannot complete the project due to mismanagement, the COSTIND nullifies the project license.<sup>56</sup>

If the license holder violates relevant national laws, regulations, international agreements, confidential interstate agreements; endangers State security; or acts beyond the scope of the license, COSTIND shall have the power to order it to get right within a time limit or to revoke the license in case of severity.<sup>57</sup>

b. Insurance obligation.

The license holder must comply with the relevant provisions of the State to purchase third party liability insurance and other relevant insurances for launching a space object.<sup>58</sup>

c. Reporting and filing application.

For a project conducted at a domestic launching site, the license holder shall, six months before the prearranged month for launch, report the launching plan of the project to the COSTIND. For a project in at a foreign launching site, the license holder shall, sixty days before the prearranged day for launch, file an application to COSTIND for approval of the project to leave the factory.<sup>59</sup>

vi. Sixthly, it provides legal responsibilities.<sup>60</sup>

Acts violating the regulations may cause an order to cease the illegal activity, the imposition of administrative sanctions and/or administrative penalty, or where applicable, impose criminal responsibility.

a. Administrative Sanctions

An approving institution or any of its functionaries who neglects its/his duties or abuses its/his powers during the exami-

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<sup>56</sup> *Id.* at 445-6, arts. 11-15.

<sup>57</sup> *Id.* at 446, art 16.

<sup>58</sup> *Id.* at art. 19.

<sup>59</sup> *Id.* at 246-47, art. 20-21.

<sup>60</sup> *Id.* at 447-48.

nation and approval of the licenses, thus causing losses to the State, shall have administrative or criminal sanctions imposed.<sup>61</sup>

b. Ceasing the illegal Activities and Administrative Penalties.<sup>62</sup>

A license holder who conceals the truth, practices fraud or damages the benefits of the State during application or carryout shall have administrative penalties imposed in accordance with the law.

Any natural person, legal person or other organization without a license that undertakes unauthorized projects shall be ordered by COSTIND to cease the illegal activities. The parties involved shall have administrative or criminal penalties imposed in accordance with the law.

c. Criminal Liabilities<sup>63</sup>

In the event that any of the abovementioned actions constitutes a crime, the subject of the action shall bear criminal responsibility in accordance with the law.

### III. FUTURE DEVELOPMENT: FACTORS THAT OUGHT TO BE TAKEN INTO CONSIDERATION FOR LEGISLATION

The above-mentioned regulations are not only very simple but also imperfect in their contents. They are incapable of covering all the fields of space activities, especially in the field of space commercialization. Therefore, they lag behind the current situation, and are unable to address future challenges of space activities development. A new Chinese national law is urgently needed.

A series of problems have come into being because of the absence of space law at the national level. Existing ministerial rules directly relating to space activities are rare and the fields involved are quite limited. Additionally, the following questions need to be resolved without delay. First, how to should the increasing number of companies and other organizations that have shown great interest in space activities, but are not quite

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<sup>61</sup> *Id.* at 448, art. 26.

<sup>62</sup> *Id.* at 447-48, arts. 24-5.

<sup>63</sup> *Id.* at ch. IV, Legal Responsibility.

clear about how to participate in, and carry out, relevant activities to make a profit be addressed? Second, there are no express legal provisions about the administration of astronauts and the activity realm of retired astronauts. As a result, it is high time for the National People's Congress to enact a space law to improve the national space law system. The author believes China should follow these principles:

*A. Compliance with International Law, Especially  
International Space Law*

International law is the law for the international community. As a member of the international community, China has been upholding and advocating that international law should be observed in space activities. Therefore, the following regulations should be considered as integrated into Chinese national space legislation:

i. International treaties

Provisions of international treaties impose binding international obligations on contracting States. Among treaties, the United Nations Charter is the most important. Therefore, U.N. Charter obligations are the most significant and must be complied with. According to relevant provisions of the U.N. Charter, its obligations shall prevail if there is a conflict between its provisions and obligations under other treaties.<sup>64</sup> The next group of international agreements to be observed are the space law treaties prepared by the United Nations. As a contracting State, four of these five international treaties are binding on China.<sup>65</sup> Finally, the last group of relevant treaties concluded by China are those with other countries or international organizations.

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<sup>64</sup> See U.N. Charter art. 103. "In the event of a conflict between the obligations of the members of the United Nations under the present Charter and their obligations under any other international agreement, their obligations under the present Charter shall prevail." *Id.*

<sup>65</sup> The four treaties are: Outer Space Treaty, *supra* note 6; Rescue and Return Convention, *supra* note 7; Liability Convention, *supra* note 8; and Registration Convention, *supra* note 9.

Integration of international treaties into national law is not required to be uniform from State to State. Instead, treaty integration into Chinese national law can be conducted according to China's actual situation. It is even allowed that some provisions are not the same with international law as long as the international obligation is not breached.<sup>66</sup> In this regard, precedents exist in China. For example, regarding diplomatic privileges and immunities and consular privileges and immunities, two regulations enacted in China are inconsistent with some of the provisions in the Vienna Convention on Diplomatic Relations and the Vienna Convention on Consular Relations to which China has acceded.<sup>67</sup>

## ii. International Custom

International custom in the field of space law is not the major component, considering the establishment of the international space law treaty system is based on the rapid development of space technology. Even so, international custom is not meaningless in the international community, especially to the countries who are not the parties to U.N. space treaties. As a matter of fact, main principles and rules embodied in current international space law treaties have been generally accepted as custom by the international community, for example the principle of non-appropriation of outer space. Some principles and rules embodied in United Nations General Assembly Resolutions, although not binding, to a certain extent do reflect a consensus view of the international community on relevant issues and can be used as a kind of evidence to demonstrate the existence of international custom. The provisions of current interna-

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<sup>66</sup> Vienna Convention of the Law of Treaties, art. 27, May 23, 1969, 8 I.L.M. 679, available at <http://www.un.org/law/ilc/texts/treaties.htm>.

<sup>67</sup> See Regulations of the Peoples Republic of China Concerning Diplomatic Privileges and Immunities (promulgated by Order No.35 of the President of the People's Republic of China, Oct. 30, 1990), available at <http://www.asianlii.org/cn/legis/cen/laws/rotproccpai824/>; The State Council Info. Office (P.R.C.). The privileges and immunities conferred on the foreign embassies and consulates in China are more than that of the 1961 Vienna Convention on Diplomatic Privileges and Immunities and of the 1963 Vienna Convention On Consular Relations, to both of which China is signatory.

tional customary law should be explored and integrated into China's national space law.

*B. Refer to the Legislative Experience of other Countries*

By other's fault, wise men correct their own. China's development of a legal system in the past decades has absorbed the civil law system and common law system experience. Undoubtedly, it is quite necessary to investigate the existing space law legislative experience in other countries and draw on certain means and contents from them that are also suitable for China.

The model of legislation in the U.S. and Russia each has its own merits. As early as 1958, the U.S. enacted domestic law in area of space law and is a leader in this area. That experience is worth drawing upon in order to quickly formulate laws and regulations in response to rapid development at the forefront of the field.<sup>68</sup> The former Soviet Union, Russia's predecessor, was the first to launch satellites and implement human spaceflight successfully. Its legislative system is quite unique. Since China has long been affected by the former Soviet Union's legal system, it can be much easier to draw on Russia's experience. In particular, close attention should be paid to the fact that Russia's law has undergone substantial changes since the 1990s. For example, the establishment of the Russian Space Fund and the model of multi-channel access to capital sources are quite positive.<sup>69</sup>

Of course, experiences in other developed countries, such as the U.K.,<sup>70</sup> France,<sup>71</sup> and developing countries such as Brazil,<sup>72</sup> should also be adopted.

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<sup>68</sup> See National Aeronautics and Space Act of 1958, Pub. L. No. 85-868, 72 Stat. 429 (codified as amended at 42 U.S.C. §§ 2451-84 (2000)).

<sup>69</sup> See Russian Federation Act on Space Activity 1993, Decree No. 5663-1 of the Russian House of Soviets, at art. 13, *translated at* [http://www.jaxa.jp/library/space\\_law/chapter\\_4/4-1-2-7/index\\_e.html](http://www.jaxa.jp/library/space_law/chapter_4/4-1-2-7/index_e.html).

<sup>70</sup> Outer Space Act, 1986, c. 38 (Eng.), *available at* <http://www.bnsc.gov.uk/assets/channels/about/outer%20space%20act%201986.pdf>.

<sup>71</sup> Law no. 2008-518 of 3 June 2008 Relative to Space Operations, JO (Official Journal), 4 June 2008, *translated in* 34 J. SPACE L. 453, 453-70 (2008).

<sup>72</sup> Decree Approves the Revision of The National Policy for the Development of Space Activities – PNDAE, Decree No. 1,332, Dec. 8, 1994; Decree Creates the National System for the Development of Space Activities - SINDAE and Other matters, Decree

*C. Integration and Codification of Existing Regulations and other Regulatory Documents*

Although there is no unified space law in China, thanks to the accumulation of longtime practical experience, a wide range of ministerial rules and other regulatory documents with rich contents exist. For example, the Ministry of Finance promulgated in 1997 the Announcement of Administering Measure of the Satellite Launching Insurance Fund, which encourages the development of space activity. These documents should be integrated into the new law according to future development trends and needs. As a result, the new law, quite scientific and logical, can take the factual situation into consideration, and better promote the development of space enterprise.

*D. Note Development Trends*

Because of the rapid development of space technology, new legal issues have emerged and the demand of States, and even the general public, for space activities shows diverse views of what should be done. Due consideration to, and in-depth study of, these issues and trends should be paid in order to formulate legislation. By doing so, China's space legislation can be forward-looking and avoid the instability caused by frequent modification. Some of these issues and trends include space station issues, commercialization of space activities, and so on.

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No. 1,953, July 10, 1996; Ministry of Science and Technology, Brazilian Space Agency Administrative, Edict No. 27, June 20, 2001; Law Creates the Brazilian Space Agency (AEB) as a Civilian Organization, and Addresses Related Matters, Law No. 8,854, Feb. 10, 1994; Regulation on Procedures and on Definition of Necessary Requirements for the Request, Evaluation, Issuance, Follow-Up and Supervision of Licenses for Carrying Out Launching Space Activities on Brazilian Territory, Administrative Edict, No. 27 (2001).

IV. INTERNATIONAL TREATIES AND NATIONAL LAW:  
PACIFIC RIM SPACE LAW AND ACTIVITIES

*A. The Application and Affect of International Space Treaties*

As an important space country in the Pacific Rim, and because China has no space law at the national law level, international treaties, especially the Asia-Pacific space treaties, for example the Asian Pacific Cooperation Organization Treaty, can be applied directly in China.

Based on the analysis of non-space law Chinese domestic legislation it can be inferred that an international treaty can be applied directly in China. China does not divide international treaties into “self-executing” treaties and “non-self-executing” treaties. International treaties have been executed directly according to the provisions of many important laws such as the Chinese Criminal Law, the Criminal Procedure Law, the Notary Law, the Agriculture Law and the Trademark Law, etc.<sup>73</sup> According to important legislation relating to international treaties, such as the Constitution,<sup>74</sup> the Legislations Law,<sup>75</sup> and the Law on the Procedure on the Conclusion of Treaties,<sup>76</sup> there are no provisions with the requirement to transform international treaties into national law for application or that limit direct application. Furthermore, there are many important laws that

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<sup>73</sup> See Criminal Law of the People's Republic of China (promulgated by Order No. 83 of the President of the P.R.C., Mar. 14, 1997), at art. 9, available at [http://www.npc.gov.cn/wxzl/wxzl/2000-12/17/content\\_4680.htm](http://www.npc.gov.cn/wxzl/wxzl/2000-12/17/content_4680.htm); Criminal Procedure Law of the People's Republic of China (promulgated by Order No. 6 of the Standing Comm. Nat'l People's Cong., July 7, 1979, effective Jan. 1, 1980), at art. 17, available at <http://www.nbc.gov.cn/article/English/LawsRegulations/200904/20090400002314.shtml>; Notary Law of the People's Republic of China (promulgated by the Standing Comm. Nat'l People's Cong., Aug. 28, 2005), at art. 45, available at <http://fec2.mofcom.gov.cn/aarticle/laws/200605/20060502125930.html>; Agriculture Law of the People's Republic of China (promulgated by the Standing Comm. Nat'l People's Cong., Dec. 28, 2002, effective Mar. 1, 2003), at art. 37, available at [http://www.gov.cn/english/laws/2005-10/09/content\\_75375.htm](http://www.gov.cn/english/laws/2005-10/09/content_75375.htm); Trademark Law of the People's Republic of China (promulgated by the Standing Comm. Nat'l People's Congress, Aug. 23, 1982), at art. 37, available at <http://www.chinaiprlaw.com/english/laws/laws11.htm>.

<sup>74</sup> See XIAN FA art. 67, 89 (1982) (P.R.C.).

<sup>75</sup> See Law on Legislation, *supra* note 10.

<sup>76</sup> Law on the Procedure on the Conclusion of Treaties (promulgated by Order No. 37 of the President of the P.R.C., Dec. 28, 1990), available at <http://www.asianlii.org/cn/legis/cen/laws/potcot368/>.

provide that an international treaty shall be applied first in the case of a conflict between it and a domestic law, except for provisions that apply if China has made a reservation to a treaty.<sup>77</sup> Therefore, no legal barriers exist regarding the direct application of an international treaty if China is a contracting party.

China has acceded to the Outer Space Treaty,<sup>78</sup> the Liability Convention,<sup>79</sup> the Registration Convention,<sup>80</sup> and the Return and Rescue Agreement.<sup>81</sup> All four accessions were ratified by the

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<sup>77</sup> See e.g. General Principles of the Civil Law of the People's Republic of China (promulgated by Standing Comm. Nat'l People's Cong., Apr. 12, 1986, effective Jan. 1, 1987), available at <http://en.chinacourt.org/public/detail.php?id=2696>; Administrative Procedure Law of the People's Republic of China (promulgated Standing Comm. Nat'l People's Cong., Apr. 4, 1989), available at <http://china.org.cn/english/government/207336.htm>; Special Maritime Procedure Law (promulgated by Standing Comm. Nat'l People's Cong., Dec. 25 1999), available at <http://www.asianlii.org/cn/legis/cen/laws/smpl267/>; Frontier Health and Quarantine Law of the People's Republic of China (promulgated by Standing Comm. Nat'l People's Cong., Dec. 2, 1986, effective May 1, 1987) available at <http://www.asianlii.org/cn/legis/cen/laws/fhaqlotproc561/>; Negotiable Instruments Law of the People's Republic of China (promulgated by the Standing Comm. Nat'l People's Cong., May 10, 1995, effective Jan. 1, 1996), available at <http://www.asianlii.org/cn/legis/cen/laws/nilotproc531/>; Civil Aviation Law of the People's Republic of China (promulgated by the Standing Comm. Nat'l People's Cong., Oct. 30, 1995, effective Mar. 1, 1996), available at <http://www.caac.gov.cn/b1/B4/200807/P020080731309034994872.pdf>; Seed Law of the People's Republic of China (promulgated by the Standing Comm. Nat'l People's Cong., July 8, 2000, effective Dec. 1, 2000), available at [http://www.gov.cn/english/laws/2005-09/08/content\\_30273.htm](http://www.gov.cn/english/laws/2005-09/08/content_30273.htm); Postal Law of the People's Republic of China (promulgated by the Standing Comm. Nat'l People's Cong., Dec. 2, 1986, effective Jan. 1, 1987), available at [http://www.fdi.gov.cn/pub/FDI\\_EN/Laws/GeneralLawsandRegulations/BasicLaws/P020060620320432658740.pdf](http://www.fdi.gov.cn/pub/FDI_EN/Laws/GeneralLawsandRegulations/BasicLaws/P020060620320432658740.pdf) (the content of Article 42 of the Postal Law was cancelled in a 2009 amendment); and the Meteorological Services Law of the People's Republic of China (promulgated by the Standing Comm. Nat'l People's Cong., Oct. 31, 1999, effective Jan. 1, 2000), available at [http://www.npc.gov.cn/englishnpc/Special/CombatingClimateChange/2009-08/25/content\\_1515212.htm](http://www.npc.gov.cn/englishnpc/Special/CombatingClimateChange/2009-08/25/content_1515212.htm).

<sup>78</sup> See Outer Space Treaty, *supra* note 6; Status of International Agreements relating to Activities in Outer Space, U.N. Doc. ST/SPACE/11/Rev.2/Add.1, (Jan. 1, 2008).

<sup>79</sup> See Liability Convention, *supra* note 8; Nat'l People's Cong. Standing Comm. (P.R.C.), *China's Accession to the "Outer Space Objects Convention on International Liability for Damage Caused by" Decisions*, [http://www.npc.gov.cn/wxzl/gongbao/2000-12/14/content\\_5002190.htm](http://www.npc.gov.cn/wxzl/gongbao/2000-12/14/content_5002190.htm).

<sup>80</sup> See Registration Convention, *supra* note 9; Nat'l People's Congress Standing Comm. (P.R.C.), *China's accession to "On the Convention on Registration of Objects Launched into Outer Space," the decision*, available at [http://www.npc.gov.cn/wxzl/gongbao/2000-12/16/content\\_5002192.htm](http://www.npc.gov.cn/wxzl/gongbao/2000-12/16/content_5002192.htm) (last visited Nov. 20, 2009).

<sup>81</sup> See Return and Rescue Convention, *supra* note 7; Nat'l People's Congress Standing Comm., (P.R.C.), *"On the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space Agreement," the decision*, available at

Standing Committee of the National People's Congress.<sup>82</sup> The provisions of these treaties have legally binding force on China, and shall be regarded as superior to national law provisions. In other words, should a dispute within the scope of the treaty provisions be raised, the international treaties can be applied as law without consideration of the existence or absence of national law. For example, if a foreigner's property right or personal right is injured during the launching process of a human made satellite, even if there is not applicable Chinese space tort law, the provisions of the Liability Convention<sup>83</sup> can be applied directly as a legal instrument to settle the dispute.

These treaties significantly affect China in two ways:

- i. The current regulations comply with the relevant U.N. space treaties. The registration rules and launch project license rules are all affected significantly by the relevant U.N. space treaties. The main contents of the rules adopted and complied with the relevant conventions. For example, the definition of "launching state" in the Chinese regulations adopted almost the same expression as the definition of the launching state in the Registration Convention and Liability Convention; the provisions regarding international registration have no conflict with the Registration Convention, but add detailed rules in accordance with the internal procedures about the national organ with the duty for registration. Without the provisions about international registration, provisions as to which organ has the duty for international registration would not have promulgated in Chinese domestic regulations. To conclude, the influence of the U.N. space treaties on Chinese domestic regulations is direct and significant.

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[http://www.npc.gov.cn/wxzl/gongbao/2000-12/16/content\\_5002188.htm](http://www.npc.gov.cn/wxzl/gongbao/2000-12/16/content_5002188.htm) (last visited Nov. 20, 2009).

<sup>82</sup> See also *Bulletin of The Standing Committee of NPC*, No.7 (1988), available at [http://search.npc.gov.cn:7000/was40/search?channelid=13334&templet=outline\\_cms\\_cw\\_hgb.jsp](http://search.npc.gov.cn:7000/was40/search?channelid=13334&templet=outline_cms_cw_hgb.jsp); Nat'l People's Cong. (P.R.C), *National People's Congress Standing Committee of China's accession in 1967, "States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, Treaty on Principles Governing the Activities," the decision*, available at [http://www.npc.gov.cn/wxzl/gongbao/2000-12/16/content\\_5001480.htm](http://www.npc.gov.cn/wxzl/gongbao/2000-12/16/content_5001480.htm) (last visited Nov. 20, 2009).

<sup>83</sup> Liability Convention, *supra* note 8.

ii. The special space law that will be made in China also needs to comply with the relevant U.N. space conventions.

It is inevitable and certain for China to legislate a new special national space law. What is uncertain is that when the new law will be passed and the degree of urgency that it thought to be needed. During the legislation process of the new space law, relevant U.N. space conventions need to be taken into consideration and regulated in a proper way. If relevant provisions of the U.N. space conventions are not taken into consideration and it leads to conflict between domestic and international obligations, then the domestic provisions that conflict with international obligations will have no legal binding force because of the above-mentioned theory. The result will be either the modification of domestic law, or the application of the international treaties superseding the relevant provisions of domestic law.

*B. The effect of Pacific Rim Space Law: the Asia-Pacific Space Cooperation Organization (APSCO)*

Besides the effect of U.N. space conventions, Chinese space regulations are also affected much by the relevant Asia-Pacific space treaties. The important regional treaty China drafted and concluded is the Convention on Asia-Pacific Space Cooperation Organization (hereinafter as “the ASPCO Convention”).<sup>84</sup> The APSCO was created by the convention in 2008. The establishment of the organization is the result of development and cooperation of space activity in this region, and became the legal framework and foundation for further development and cooperation.

It has been sixteen years since the idea of establishing the organization was initiated. China, Pakistan, and Thailand proposed to create such an organization in 1992, expecting to promote space technology cooperation in this region and to resolve the financial difficulty for space research. After more than ten

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<sup>84</sup> Convention of the Asia-Pacific Space Cooperation Organization, available at <http://tradeinservices.mofcom.gov.cn/en/b/2005-10-28/18583.shtml> [hereinafter APSCO Convention]. The Chinese version of this convention can be available on the NPC website [http://www.npc.gov.cn/wxzl/wxzl/2006-07/21/content\\_350740.htm](http://www.npc.gov.cn/wxzl/wxzl/2006-07/21/content_350740.htm).

years' efforts and discussions, the APSCO secretariat summoned two international conferences separately. One was in Bangkok and the other in Beijing in August and November 2003 where the drafting of articles of the organization was discussed and agreement was reached. Eight countries signed the convention in October 2005.<sup>85</sup> In December 2008, the organization formally started operations in Beijing. Now it has seven members including Bangladesh, China, Iran, Mongolia, Pakistan, Peru, and Thailand. Additionally, Indonesia and Turkey have also signed the convention. Decades after the establishment of the European Space Agency, the second regional space cooperation organization in the international society was created and functioned.

According to the provisions of the APSCO Convention, the APSCO is a not-for-profit inter-governmental organization with full international legal status. Its headquarters is located in China as the Host State. The organization may establish branch offices and relevant facilities within the territory of the Host State and other Member States after consultation with their Governments.<sup>86</sup>

In its internal framework, the organization establishes the Council as the highest decision-making body and the Secretariat as the executive organ. The Secretary-General is the chief executive officer of the organization and its legal representative and has full authority to run the Secretariat of the Organization.<sup>87</sup>

For membership, the organization is open to all Asia-Pacific States that are U.N. members. Additionally, a State outside of the Asia-Pacific Region who is a member of the United Nations may apply for status of Associate Member. The Council decides by consensus about its entry into the Organization.<sup>88</sup> In theory, the number of potential members is very big.

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<sup>85</sup> They are Bangladesh, China, Indonesia, Iran, Mongolia, Pakistan, Peru and Thailand. Representatives from Argentina, Malaysia, the Philippines, Russia and Sri Lanka attended the founding ceremony in Beijing.

<sup>86</sup> APSCO Convention, *supra* note 84, at arts. 1, 3.

<sup>87</sup> *Id.* at arts. 10, 11, 15, 16.

<sup>88</sup> *Id.* at art. 9.

The main objectives of the organization are to strengthen the cooperation of space technology and its application and the peaceful use of outer space. The objectives include:<sup>89</sup>

(1) Cooperation Development.

“To promote and strengthen the development of collaborative space programs among its Member States by establishing the basis for cooperation in peaceful applications of space science and technology;”<sup>90</sup>

(2) Assistance.

“To take effective actions to assist the Member States in such areas as space technological research and development, applications and training by elaborating and implementing space development policies;”<sup>91</sup>

(3) Achievements Sharing.

“To promote cooperation, joint development, and to share achievements among the Member States in space technology and its applications as well as in space science research by tapping the cooperative potential of the region.”<sup>92</sup>

(4) Industrialization.

“To enhance cooperation among relevant enterprises and institutions of the Member States and to promote the industrialization of space technology and its applications.”<sup>93</sup>

(5) International Cooperation.

“To contribute to the peaceful uses of outer space in the international cooperative activities in space technology and its applications.”<sup>94</sup>

The establishment of APSCO provides a solid basis for promotion of regional cooperation, which has a promising prospect in the future. As a matter of fact, some aspects of cooperation, such as the cooperation program of the small multi-missions satellite among the States in this region, and the education and training program on space technology and applica-

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<sup>89</sup> *Id.* at art. 4.

<sup>90</sup> *Id.*

<sup>91</sup> *Id.*

<sup>92</sup> *Id.*

<sup>93</sup> *Id.*

<sup>94</sup> *Id.*

tion, achieved progress before and after the establishment of APSCO.<sup>95</sup>

Viewed from the contents of the APSCO Convention, the new space law to be legislated in China must take into consideration two important issues on space cooperation and space technology. In fact, the space policy reflected in the 2000 white paper *China's Space Activities* addressed the convention's concern: the first priority for Chinese space cooperation is "actively enhancing multilateral cooperation in space technology and applications in the Asian-Pacific region, and promoting regional economic growth and environmental and natural calamity monitoring with space technology."<sup>96</sup> To some extent, the APSCO Convention is the result of this policy. According to the APSCO Convention, every Member State has the obligation to participate in "Basic Activities,"<sup>97</sup> and can choose to participate in "Optional Activities."<sup>98</sup> All the provisions have a direct effect on current Chinese space policy, and its effect on the future law cannot be ignored.

### 3. The influence of foreign legislation

Besides the affects of the above-mentioned international space conventions and the APSCO Convention, the influence of the foreign legislation is also noticeable. For three decades in China, when legislating new law, the legislative body has studied and actively and intentionally adopted foreign legislation during the process, especially a law with foreign elements. The

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<sup>95</sup> Ministry of Industry and Info. Tech. (P.R.C.), *Asia-Pacific Space Cooperation Organization "remote-sensing satellite data processing and application of course" official opening*, May 12, 2009. <http://www.miit.gov.cn/n11293472/n11293832/n11293907/n11368223/12341920.html> (for information relating to the progress of small multi-mission program and education and training activities. The first training program of the APSCO, "Training Course on Data Processing and Application of Remote Sensing Satellite", was held in Beijing. Forty-two representative trainees from the seven member states of the organization attended it. The program was co-sponsored by the Ministry of Industry and Information Technology of the People's Republic of China (MIIT), Asia Pacific Space Cooperation Organization (APSCO), and the Ministry of Information and Communication Technology of Thailand (MICT).).

<sup>96</sup> See The Information Office of the State Council, *China's Space Activities, a White Paper* (Nov. 22, 2000), available at <http://www.spaceref.com/china/china.white.paper.nov.22.2000.html>.

<sup>97</sup> See APSCO Convention, *supra* note 84, at art. 7.

<sup>98</sup> *Id.* at art. 8.

foreign legislation can be used as a kind of model, and the useful elements can be adopted in China's law. For example, a space object launching license system was adopted in many countries' law before China promulgated its system. One of the reasons of course, was that more and more civil space launching projects constituted challenges to the national supervision and administration process, therefore the license system was adopted for dealing with these challenges. Among other reasons is that relevant foreign laws also provided useful references for adopting this kind of administration mechanism.

The author's view is that many provisions of foreign laws, especially those in the Pacific Rim countries including Australia, Brazil, Canada, Japan, Korea and the U.S. can be used as an important source of reference and experience. For example, Chinese regulations refer to space activity insurance, but no specific issues related to insurance such as the limitation of insurance, can be found in the regulations. The active insurance law in China, *2009 Amendment of Insurance Law of the People's Republic of China*,<sup>99</sup> has no provisions regarding special insurance of the space activity. *The Provisions on the Administration of Reinsurance Business*,<sup>100</sup> promulgated by China Insurance Regulatory Commission promulgated in 2005, did address the special nature of space activity insurance, and excluded the application of two articles: one regarding the reinsurance percentage of the insured amount or the limit of liability and the other, regarding submission of documents.<sup>101</sup> The provisions relating to financial resources and commercialization in foreign laws are useful for reference. New laws passed by foreign countries should be paid more attention and analyzed to find positive

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<sup>99</sup> 2009 Amendment of Insurance Law of the People's Republic of China (promulgated by the Standing Comm. Nat'l People's Cong., Feb. 28, 2009, effective Oct. 1, 2009), available at [http://www.gov.cn/flfg/2009-02/28/content\\_1246444.htm](http://www.gov.cn/flfg/2009-02/28/content_1246444.htm).

<sup>100</sup> The Provisions on the Administration of Reinsurance Business (promulgated by China Ins. Regulatory Comm., Dec. 1, 2005), at art. 2, available at [http://www.gov.cn/ziliao/flfg/2005-10/29/content\\_86455.htm](http://www.gov.cn/ziliao/flfg/2005-10/29/content_86455.htm).

<sup>101</sup> *Id.* at arts. 12 & 26.

elements, for example, the 2008 French Space Operation Law<sup>102</sup> in respect to State guaranty, could be used in China.

## V. CONCLUSION

China's space technology and activity originated in 1956 and great achievements have been made for more than fifty years. However, Chinese national space law is lagging behind, and many aspects of space activities need to be regulated and developed. In particular, the situation should be changed that no unified space activity law exists. After the United Nations had basically completed the international space law treaties in the 1970s, China participated in those important treaties and other relevant activities, and referred to them in relevant ministerial rules. However, a unified and comprehensive space legislation system still does not exist. Therefore, the following can be inferred:

### *A. Development of Space Technology and activity may not be synchronized with law, although in many cases it is so*

From the view of international law, the period of rapid international space law development is slightly behind the development of space activity. The first significant space treaty did not come into being until ten years after the first human-made satellite had been launched, and the emergence of the Moon Agreement was twenty two years after that. Since then, the important treaties have been basically stable, and no new treaty has emerged up to now. China's participation in this process shows that acceding to international treaties is faster than that of making national law. China joined the Outer Space Treaty about thirteen years after its first human-made satellite was launched, and in the following five years, simultaneously joined the Return and Rescue Agreement, the Registration Convention, and the Liability Convention.<sup>103</sup> However, it cannot be de-

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<sup>102</sup> France, *LOI no 2008-518 du 3 juin 2008 relative aux opérations spatiales (Law No. 2008-518 of 3 June 2008 Related to Space Operations)*, 34 J. SPACE L. 435.

<sup>103</sup> See Outer Space Treaty, *supra* note 6; Return and Rescue Agreement, *supra* note 7; Registration Convention *supra* note 9; and the Liability Convention, *supra* note 8. In

nied that domestic legislation is lagging behind the pace, because there is no regulation up to now. Although access to international treaty law can make up for the lack of domestic legal provisions in the legal system, they cannot satisfy the needs of space activity development in many aspects.

*B. International Space Treaties affected domestic law greatly and need to be taken into consideration for National Space Law legislation in China*

International space treaties, especially the Convention of Asia-Pacific Space Cooperation Organization, play an irreplaceable role in space cooperation and space activity development. In the case of the absence of national space law in China, space activities often stimulate the development of international and domestic space rules.

The new space law in China cannot work without the existing international space treaties including the Asia-Pacific regional space treaties.<sup>104</sup> All of these treaties have legally binding force on contracting parties. The domestic law should incorporate well-developed international law rules into its national law rather than cause conflicts with it.

*C. The effect and executive power of regulatory documents are more specific, and regulatory documents exert two-side effect on legislation*

Even though no unified law exists, space technology and activity achievement has been remarkable in China over the past fifty years. Leaving aside other factors, in terms of regulation, the provisions in ministerial rules and other regulatory documents are very specific, making it much easier to implement and solve relevant practical issues. Thus, the urgency of formulating a unified law has greatly been reduced in the eye of the National People's Congress, which has a negative effect for the long-run space activities. Currently, regulatory documents are

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December of 1988, after the approval of the Standing Committee of NPC, China acceded to these three treaties.

<sup>104</sup> See *supra*, note 1.

in various forms including regulations, measures, decisions, opinions, detailed rules, procedures, criterion, notices, and so on. The existence of these documents serves as an important reference for future unification of legislation, which will have a positive effect in the future.

*D. Legislation still has a long way to go. Multiple departments need to participate and further efforts need to be made to coordinate and balance powers and liabilities. It seems unrealistic to expect the promulgation of national law within five years*

Entering the 21st century, legislative space activities have not developed rapidly except for the two ministerial rules directly related to space activities. There is no great progress in space legislation despite the breakthrough achievement of China's first human space flight in 2003. Although the ministries concerned are drafting space legislation bills, considering the complexity of the problem and the need for further research, domestic space legislation is not included in the 2008 legislative agenda of the National People's Congress.<sup>105</sup> The 5-year legislative agenda of the 11<sup>th</sup> National People's Congress was done in October 2008, while space law was not on the list of sixty-four laws of the agenda.<sup>106</sup> This means it is unlikely that a national space law will be passed in the next five years.

Sooner or later, Chinese national space law will come into existence. It is the author's view that the main concerns of this law should include provision of the international space treaties; reference to advanced legislation abroad; prediction and regulation towards new problems which might appear in the future; and practical coordination of competencies among the different departments and organs concerned.

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<sup>105</sup> See *The Standing Committee of the NPC's Legislation Plan 2008*, [http://www.npc.gov.cn/wxzl/gongbao/2008-06/06/content\\_1463234.htm](http://www.npc.gov.cn/wxzl/gongbao/2008-06/06/content_1463234.htm) (last visited Nov. 20, 2009).

<sup>106</sup> Nat'l People's St. Comm., *Eleventh Standing Comm. Leg. Plan*, [http://www.npc.gov.cn/wxzl/gongbao/2008-12/26/content\\_1474733.htm](http://www.npc.gov.cn/wxzl/gongbao/2008-12/26/content_1474733.htm) (last visited Nov. 20, 2009).



# CURRENT STATUS AND RECENT DEVELOPMENTS IN AUSTRALIA'S NATIONAL SPACE LAW AND ITS RELEVANCE TO SPACE LAW AND SPACE ACTIVITIES IN THE PACIFIC RIM

*Ricky J. Lee\**

## INTRODUCTION

For the country that some regard as the third in the history of the world to launch a satellite into outer space, Australia probably has the most comprehensive legal and regulatory regime for private space activities in the Pacific Rim region, with the possible exception of the United States.<sup>1</sup> Prompted by increasing prospects for private launch activities being conducted in Australia, the enactment of the Space Activities Act (1998) by the Commonwealth Parliament of Australia has led to the evolution of a comprehensive regulatory framework for private space launch activities as well as the implementation of the in-

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\* Senior Associate, Schweizer Kobras (Australia). Director of the International Institute of Space Law, fellow of the Commercial Law Association of Australia and member of the Outer Space Committee of the International Bar Association, the Editorial Board of *Convergence* and the International Law Section of the Law Council of Australia. The author would like to thank Prof. Joanne Irene Gabrynowicz, the National Centre for Remote Sensing, Air and Space Law at the School of Law, University of Mississippi, and the *Journal of Space Law* for their kind invitation for him to attend the Pacific Rim National Space Law Summit of 19-21 May 2009 in Honolulu, the United States, to present this paper. The views and opinions expressed in this paper are those of the author personally and do not necessarily represent those of any organisation with which the author may be associated. The contents of this paper are not, and are not intended to be, legal advice and may not necessarily reflect the most recent developments in the law.

<sup>1</sup> See Kerrie Dougherty, *Upper Atmospheric Research at Woomera: The Australia-Built Sounding Rockets*, 59 ACTA ASTRONAUTICA 54 (2006); Press Release, University of Adelaide, 40th Anniversary of Australia's First Satellite (Nov. 29, 2007), <http://www.adelaide.edu.au/news/news23081.html>; see also Mark T. Rigby, *WRESAT: Australia's First Satellite*, (Oct. 24, 2001) (WRESAT is an abbreviation for Weapons Research Establishment Satellite), <http://homepage.powerup.com.au/~woomera/wresat.htm>.

ternational legal principles arising from the five United Nations space treaties to which Australia is a party.

With the space industry becoming increasingly privatised and multinational in nature, many States – both industrialised and developing – are increasingly sensing the need to enact domestic space laws to deal with the international regulatory, responsibility, and liability obligations under international treaties.<sup>2</sup> States with significant past or present governmental space programs, such as Brazil,<sup>3</sup> the Republic of Korea (South Korea),<sup>4</sup> the Russian Federation,<sup>5</sup> the Ukraine,<sup>6</sup> the United Kingdom,<sup>7</sup> and the United States,<sup>8</sup> as well as States with substantial private sector involvement in space activities, such as Australia,<sup>9</sup> Belgium,<sup>10</sup> Hong Kong,<sup>11</sup> Norway,<sup>12</sup> South Africa,<sup>13</sup>

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<sup>2</sup> See Ricky J. Lee, *Legal and Policy Aspects of Launch Services Provided by Governmental and Private Providers*, in PROCEEDINGS OF ISRO-IISL SPACE LAW CONFERENCE 2005 – “BRINGING SPACE BENEFITS TO THE ASIAN REGION”, at 1-3 to 1-40 (V. Gopalakrishnan & Rajeev Lochan, eds., 2005) [hereinafter *Legal and Policy Aspects of Launch Services*].

<sup>3</sup> Regulation on Procedures and on Definition of Necessary Requirements for the Request, Evaluation, Issuance, Follow-up and Supervision of Licences for Carrying Out Launching Space Activities on Brazilian Territory, Portaria A.E.B., No. 27 (2002). (Brazil).

<sup>4</sup> Space Liability Act, No. 8852 (2007) (S. Korea), <http://unoosa.org/oosadb/showDocument.do?documentUId=402&level2=none&node=ROK1970&level1=countries&cmd=add>.

<sup>5</sup> Law on Space Activities, Res. No. 5663-1 (Aug. 20, 1993) (Russ.).

<sup>6</sup> Ordinance of the Supreme Soviet of Ukraine, on Space Activity, Law of Ukraine (Nov. 15, 1996) (Ukraine), <http://unoosa.org/oosadb/showDocument.do?documentUId=320&level2=none&node=UKR1970&level1=countries&cmd=add>.

<sup>7</sup> Outer Space Act, Ch. 38 (1986) (U.K.), [http://www.unoosa.org/oosa/en/SpaceLaw/national/united\\_kingdom/outer\\_space\\_act\\_1986E.html](http://www.unoosa.org/oosa/en/SpaceLaw/national/united_kingdom/outer_space_act_1986E.html).

<sup>8</sup> Commercial Space Launch Amendments Act of 2004, H.R. 5382, Pub. L. No. 108-492, 108th Cong., 2d Sess.

<sup>9</sup> Space Activities Act 1988, An Act about space activities, and for related purposes, No. 123 (1998) (Cth.), [http://www.unoosa.org/oosa/en/SpaceLaw/national/australia/space\\_activities\\_act\\_1998E.html](http://www.unoosa.org/oosa/en/SpaceLaw/national/australia/space_activities_act_1998E.html).

<sup>10</sup> Law on the Activities of Launching, Flight Operations or Guidance of Space Objects (2005) (Belg.), [http://www.belspo.be/belspo/res/rech/spatres/Loi/Loi\\_en.pdf](http://www.belspo.be/belspo/res/rech/spatres/Loi/Loi_en.pdf).

<sup>11</sup> Outer Space Ordinance, (1997) Cap. 523 (H.K.), [http://www.legislation.gov.hk/blis\\_pdf.nsf/6799165D2FEE3FA94825755E0033E532/3D53F187E7687316482575EF00139E26/\\$FILE/CAP\\_523\\_e\\_b5.pdf](http://www.legislation.gov.hk/blis_pdf.nsf/6799165D2FEE3FA94825755E0033E532/3D53F187E7687316482575EF00139E26/$FILE/CAP_523_e_b5.pdf).

<sup>12</sup> Act on Launching Objects from Norwegian Territory into Outer Space, No. 38 (June 13, 1969) (Nor.), available at <http://unoosa.org/oosadb/showDocument.do?documentUId=324&level2=none&node=NOR1970&level1=countries&cmd=add>.

<sup>13</sup> Space Affairs Act, No. 84 (1993) (S. Afr.), available at [http://www.unoosa.org/oosa/en/SpaceLaw/national/south\\_africa/space\\_affairs\\_act\\_1993E.html](http://www.unoosa.org/oosa/en/SpaceLaw/national/south_africa/space_affairs_act_1993E.html).

and Sweden,<sup>14</sup> have all enacted domestic national space laws dealing with space launch activities, particularly in the last fifteen years. This is in addition to the enactment of domestic laws dealing with satellite operations and radio-communications that has already taken place in most States of the world. However, the extraterritorial nature that is intrinsic of national laws dealing with private launch activities and the lack of harmonisation in such national laws has led to the potential of “forum shopping.” As other States in the Pacific Rim region start to enact national laws dealing with space activities, the existing Australian laws can serve as models of legal and regulatory provisions in other States.

This paper considers the content and development of national laws dealing with the regulation of launch activities under the Space Activities Act and the manner and form by which they implement the relevant international instruments and corresponding obligations. The relevance of the Australian domestic laws to other States in the Pacific Rim region is then discussed in the context of the various international and regional issues concerning space activities and how the Australian domestic laws can serve as legal and regulatory models for other States in the Pacific Rim.

## I. REGULATION OF LAUNCH ACTIVITIES UNDER AUSTRALIAN LAW

### A. *The Space Activities Act 1998 (Cth.)*

#### i. Overview

The Space Activities Act came into force in Australia when it received Royal Assent on December 21, 1998 and the Space Licensing and Safety Office (SLASO) was created to administer it. Since then, it has been amended by subsequent legislation on a number of occasions.<sup>15</sup> The Space Activities Act represents

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<sup>14</sup> Act on Space Activities, No. 963 (1982) (Swed.), available at <http://unoosa.org/oosadb/showDocument.do?documentUid=318&level2=none&node=SWE1970&level1=countries&cmd=add>.

<sup>15</sup> The Space Activities Act was amended in 2001 by the Space Activities Amendment (Bilateral Agreement) Act, No. 101 (2001) (Cth), to implement a bilateral agree-

a legislative attempt to develop a robust and comprehensive regulatory regime for space activities in conformity and implementation of the international treaties.

The Space Activities Act provides for regulations, a form of subordinate or delegated legislation that do not require parliamentary enactment, to be enacted where necessary and convenient to give effect to its provisions.<sup>16</sup> As a consequence, most of the necessary administrative details of the regulatory framework were left to the Space Activities Regulations (2001) (Cth.). As the Space Activities Act commenced in December 1998 and the Space Activities Regulations did not enter into force until June 28, 2001, there was in effect a 30-month long moratorium on Australian launch activities. The Space Activities Regulations have also been amended on a number of occasions since in 2001.<sup>17</sup>

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ment with the Russian Federation for cooperation on private launch activities, and again in 2002 when the Space Activities Amendment Act, No. 100 (2002) (Cth), was enacted in October 2002 to make various rectifying amendments and changes to the applicability and liability provisions as well as the introduction of special arrangements for scientific or educational space activities. *See* Space Activities Act, *supra* note 9, (amended by the Space Activities Amendment (Bilateral Agreement) Act, No. 101 (2001) (Cth), *available at* [http://www.austlii.edu.au/au/legis/cth/num\\_act/saaaa2001397/](http://www.austlii.edu.au/au/legis/cth/num_act/saaaa2001397/); and the Space Activities Amendment Act, No. 100 (2002) (Cth), *available at* [http://www.austlii.edu.au/au/legis/cth/num\\_act/saaa2002247/](http://www.austlii.edu.au/au/legis/cth/num_act/saaa2002247/).

<sup>16</sup> *See* Acts Interpretation Act § 46B, (1901), *available at* [http://www.austlii.edu.au/cgi-bin/sinodisp/au/legis/cth/consol\\_act/aia1901230/s46b.html?query=acts%20interpretation%20act%201901](http://www.austlii.edu.au/cgi-bin/sinodisp/au/legis/cth/consol_act/aia1901230/s46b.html?query=acts%20interpretation%20act%201901) (Regulations are a form of legislative instrument that, in this case, are made by the Governor-General of Australia on advice of the Cabinet. Although they do not require parliamentary approval, they must be tabled in both Houses of Parliament within fifteen sitting days of their enactment and may be disallowed by either House of Parliament within twelve sitting days.)

<sup>17</sup> The Space Activities Regulations, No. 186 (2001) (Cth.), were amended on July 3, 2002 by the Space Activities Amendment Regulations, No. 1 (2002) (Cth), the Space Activities Amendment Regulations, No. 1 (2003) (Cth), and the Space Activities Amendment Regulations, No. 1 (2004) (Cth). *See* The Space Activities Regulations, No. 186 (2001) (Cth.), *available at* [http://www.austlii.edu.au/cgi-bin/sinodisp/au/legis/cth/num\\_reg\\_es/sar20012001n186303.html?query=space%20activities%20regulations%202001](http://www.austlii.edu.au/cgi-bin/sinodisp/au/legis/cth/num_reg_es/sar20012001n186303.html?query=space%20activities%20regulations%202001) (amended by the Space Activities Amendment Regulations, No. 1 (July 3, 2002) (Cth), *available at* [http://www.austlii.edu.au/cgi-bin/sinodisp/au/legis/cth/num\\_reg\\_es/saar200212002n166410.html?query=space%20activities%20amendment%20regulation](http://www.austlii.edu.au/cgi-bin/sinodisp/au/legis/cth/num_reg_es/saar200212002n166410.html?query=space%20activities%20amendment%20regulation); the Space Activities Amendment Regulations, No. 1 (2003) (Cth), [http://www.austlii.edu.au/cgi-bin/sinodisp/au/legis/cth/num\\_reg\\_es/saar200312003n33410.html?query=space%20activities%20amendment%20regulation](http://www.austlii.edu.au/cgi-bin/sinodisp/au/legis/cth/num_reg_es/saar200312003n33410.html?query=space%20activities%20amendment%20regulation); and the Space Activities Amendment Regulations, No. 1 (2004) (Cth), [http://www.austlii.edu.au/cgi-bin/sinodisp/au/legis/cth/num\\_reg\\_es/saar200412004n79410.html?query=space%20activities%20amendment%20r](http://www.austlii.edu.au/cgi-bin/sinodisp/au/legis/cth/num_reg_es/saar200412004n79410.html?query=space%20activities%20amendment%20r)

In addition to the Space Activities Act, there are several other laws that directly relate to the conduct of launch activities by private launch operators. These laws include:

- (1) the Civil Aviation Safety Regulations (1998) (Cth.) and, in particular, Part 101 thereof, which came into force on July 1, 2002 and deals with airspace clearances and airspace exclusion areas for space launch operators;
- (2) the Customs (Prohibited Exports) Regulations (1958) (Cth.) that implements Australia's international obligations concerning export controls on rocket, missile and satellite technologies, such as those under the Wassenaar Arrangement on Export Controls for Conventional arms and Dual Use Goods and Technologies and the international Missile Technology Control Regime;<sup>18</sup>
- (3) the Transport Safety Investigation Act (2003) (Cth.) regulates all accident investigations conducted by the Australian Transport Safety Bureau (ATSB);<sup>19</sup>
- (4) the Christmas Island Space Centre (APSC Proposal) Ordinance (2001) (C.I.) and the corresponding Christmas Island Space Centre (APSC Proposal) Regulations (2001) (C.I.), which are legislative instruments for Christmas Island and relate to the previously proposed construction and use of land for a commercial launch facility by Asia Pacific Space Centre Pty Ltd on Christmas Island;<sup>20</sup> and

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egulation). The Senate Standing Committee on Regulations and Ordinances gave notice of motion to disallow the Space Activities Regulations in the Australian Senate on September 20, 2001 because of the legislative requirement for private information about employees and deemed employees to be provided to the Government. The notice of motion was subsequently withdrawn on September 27, 2001 as a result of assurances from the Government that all employees and deemed employees are to be notified of the launch operator's disclosure obligations under the Space Activities Act.

<sup>18</sup> Wassenaar Arrangement on Export Controls for Conventional Arms and Dual Use Goods and Technologies (1996), *available at* <http://www.wassenaar.org> [hereinafter Wassenaar Arrangement]; and the Missile Technology Control Régime 26 I.L.M. 539 (1987).

<sup>19</sup> It is not made explicitly clear whether the Transport Safety Investigation Act or the Space Activities Act would prevail in the event of an inconsistency. *See* Transport Safety Investigation Act (2003) (Cth.), *available at* [http://www.austlii.edu.au/au/legis/cth/consol\\_act/tsia2003374/](http://www.austlii.edu.au/au/legis/cth/consol_act/tsia2003374/); and the Space Activities Act, *supra* note 9.

<sup>20</sup> A motion to disallow the Christmas Island Space Centre (APSC Proposal) Ordinance (2001) (C.I.) and the corresponding Christmas Island Space Centre (APSC Pro-

- (5) the Customs Tariff Amendment (No. 4) Act (2001) (Cth.), which amended the Customs Tariff Act (1995) (Cth.) to provide for the exemption of the goods and equipment imported into Australia in direct connection with a space launch from import duties and tariffs.<sup>21</sup>

## ii. Regulated Space Activities

In all other States with legislative or regulatory frameworks for space launches, private space activities are generally regulated by an all-inclusive licence.<sup>22</sup> In Australia, on the other hand, the Space Activities Act provides for the several different categories of regulatory approvals for different types of launch activities and they are as follows:

- (1) a “space licence” for operating a launch facility in Australia in conjunction with a specific launch vehicle along particular flight paths;<sup>23</sup>
- (2) a “launch permit” for a launch operator to launch a space object or a series of space objects from Australia;<sup>24</sup>

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posal) Regulations (2001) (C.I.) was moved by the Australian Greens on June 19, 2002 on the basis that they did not provide adequate environmental safeguards and public consultations in the construction of the launch facility on Christmas Island by Asia Pacific Space Centre Pty Ltd. See Christmas Island Space Centre (APSC Proposal) Ordinance (2001) (C.I.), available at [http://scaleplus.law.gov.au/ComLaw/Legislation/LegislativeInstrument1.nsf/0/86F3D60277FC1A0CCA257006000253C5/\\$file/F2005B01580.pdf](http://scaleplus.law.gov.au/ComLaw/Legislation/LegislativeInstrument1.nsf/0/86F3D60277FC1A0CCA257006000253C5/$file/F2005B01580.pdf); and Christmas Island Space Centre (APSC Proposal) Regulations (2001) (C.I.), available at <http://www.comlaw.gov.au/ComLaw/Legislation/LegislativeInstrument1.nsf/asmade%5Cbydate/B7E42745C3197F6DCA25700C008087EA?OpenDocument>. The motion was defeated on June 20, 2002 with all other parties all voting against the disallowance motion.

<sup>21</sup> Australian Customs Notice No. 2001/48, Space Concession (July 17, 2001), available at <http://www.customs.gov.au/site/content2090.asp>.

<sup>22</sup> See, e.g., Commercial Space Launch Act, Pub. L. No. 98-575, 98 Stat. 3055 (1984) (codified at 49 U.S.C. §§ 2601-2623 (1984)) (U.S.); Outer Space Act, *supra* note 7; Space Affairs Act, *supra* note 13; and Act on Space Activities (1982) (Sweden); available at <http://www.unoosa.org/oosadb/showDocument.do?documentUId=318&level2=none&node=SWE1970&level1=countries&cmd=add>. See also discussion in Ricky J. Lee, *The Liability Convention and Private Space Launch Services – Domestic Regulatory Responses*, 31 ANNALS AIR & SPACE L. 351 (2006).

<sup>23</sup> Space Activities Act, *supra* note 9, § 15.

<sup>24</sup> *Id.* § 11. The launch permit may also licence an associated return of the launch vehicle and/or the payload to Australia. *Id.* § 26.

- (3) an “overseas launch certificate” for an Australian satellite owner to launch a space object or a series of space objects overseas;<sup>25</sup>
- (4) an “authorisation of return” for the return to Australia of a space object that was launched from overseas;<sup>26</sup> and
- (5) an “exemption certificate” to provide for emergency launches.<sup>27</sup>

In the case of “approved scientific or educational organisations,” the Space Activities Act subjects them to the same regulatory burden as commercial launch operators, but the fees payable in relation to each required licence are substantially reduced.<sup>28</sup> The Space Activities Act requires the Australian Government to enact guidelines on the criteria for an organisation to be declared as an “approved scientific or educational organisation.”<sup>29</sup> Accordingly, the Space Activities (Approved Scientific or Educational Organisations) Guidelines (2004) (Cth.) sets out the matters that the Government must take into consideration in deciding whether an applicant organisation is an “approved scientific or educational organisation.”<sup>30</sup>

## *B. Regulation of Launch Activities in Australia*

### i. Space Licences

With the space licence and the launch permit, the Space Activities Act separates the approval for the launch facility, launch vehicles and particular flight paths from that of the particular

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<sup>25</sup> *Id.* § 12.

<sup>26</sup> *Id.* § 14.

<sup>27</sup> *Id.* § 46; *see also* Space Activities Regulations, *supra* note 17, § 6.01.

<sup>28</sup> Space Activities Act, *supra* note 9, § 59(6A).

<sup>29</sup> *Id.* § 8A-B.

<sup>30</sup> The Government is required to consider the extent to which the principal function and principal activities of the organisation and the proposed space activities are educational and/or scientific in nature, whether the organisation is a non-profit organisation and the sources of the organisation’s funding in deciding whether an organisation would be declared to be an “approved scientific or educational organisation”: *Space Activities (Approved Scientific or Educational Organisation) Guidelines 2004* (Cth), § 4, available at [www.comlaw.gov.au](http://www.comlaw.gov.au).

launch.<sup>31</sup> In other words, the grant of a space licence is a prerequisite to the application of a launch permit to undertake a specific launch. This separation was made with the intent of streamlining the approval process for specific launches and, as a result, improving the competitiveness of the Australian launch industry. However, the complexity of the regulatory regime, especially in relation to flight safety concerns, would appear to nullify any benefits that may be derived from the separation.

#### ii. Launch Permits

Launch permits are required to authorise single launches or series of launches of the same or similar payloads.<sup>32</sup> Launch permits may also provide for the return of launch vehicles and/or space objects back to Australia, provided that the return is “connected” with the launch.<sup>33</sup> While this clearly covers the return of a reusable launch vehicle as being connected with the launch, this creates uncertainty in the case of returning the space object. If the return of the space object is connected with the launch, then a launch operator may be responsible and liable for the satellite operator returning the satellite with which the launch operator has no control. On the other hand, if the return of a satellite is not connected with a launch, then the Space Activities Act in fact does not provide for returns of Australian-launched payloads except by means of an exemption certificate, for authorisations of return only deal with overseas-launched space objects. As an exemption certificate is intended for emergency space activities only, the Australian Government can rectify this issue simply by including Australian-launched space objects in the scope of an authorisation of return.

As the demarcation between airspace and outer space remains unclear in the context of international law, some means of defining the applicability and scope of the Space Activities Act is required. In the United States, a launch involving a rocket of less than two hundred thousand pounds per second of

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<sup>31</sup> Space Activities Act, *supra* note 9, § 18.

<sup>32</sup> Space Activities Act, *supra* note 9, §§ 11 and 26.

<sup>33</sup> *Id.* § 26(2).

impulse and a ballistic coefficient of less than twelve pounds per square inch does not require a licence.<sup>34</sup> The Australian Government has opted instead to set an applicability threshold as defined by altitude, so that a launch taking place in Australia will need to be licensed if the launch vehicle and/or payload is intended to reach an altitude of 100 kilometres above mean sea level or higher.<sup>35</sup>

### iii. Flight Safety

The Flight Safety Code (Code) sets out the requirements for launch operators to demonstrate the safety and effectiveness of their proposed launch activities. The Code sets out the safety standards that have to be complied with by launch operators and the Space Activities Regulations require launch operators to undertake a risk hazard analysis in compliance with the Code, carried out either independently or by an employee of the launch operator. In an application for a launch permit, the launch operator is required to submit a flight safety plan to demonstrate its compliance with the Code.<sup>36</sup>

The Code measures the risk to public health and safety by calculating the “casualty expectation,” or  $E_C$ , being the average number of casualties that can occur as a result of an event if the event were repeated thousands of times.<sup>37</sup> With the risk of oversimplifying it, the casualty expectation of a launch can be calculated by:

$$E_C = P_E \times P_{IE} \times N_F \times A_C \times \frac{N_P}{A_P}$$

where:

- $P_E$  is the probability of the event, which can be the probability of failure of a particular event occurring in a particular interval of flight time;

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<sup>34</sup> 14 C.F.R. § 400.2.

<sup>35</sup> Space Activities Act, *supra* note 9, § 8.

<sup>36</sup> Space Activities Regulations, *supra* note 17, § 3.04(4)(j).

<sup>37</sup> Commonwealth of Australia, Space Licensing and Safety Office, *Flight Safety Code* (2d ed., 2002), ¶ 2.1, available at [http://www.innovation.gov.au/General/MEC-SLASO/Documents/FSC\\_Pubn1\\_20050602105043.pdf](http://www.innovation.gov.au/General/MEC-SLASO/Documents/FSC_Pubn1_20050602105043.pdf).

- $P_{IE}$  is the conditional probability given the event during a particular interval of flight time that fragments of a particular type will land on the “casualty area;”
- $N_f$  is the number of fragments of the type of fragments referred to above that are likely to be generated by the launch;
- $A_c$  is the “casualty area” associated with each fragment in which an individual is a casualty due to direct fragment impact or, in other words, the size of the area that one piece of the fragment would cause a casualty if a person is in the area; and
- $\frac{N_f}{A_c}$  is the population density of the casualty area.<sup>38</sup>

In the case of a commercial satellite launch, the probabilities of all events in each phase or time interval of the launch process are considered. Therefore, the total collective casualty expectation is the sum of the  $E_c$  values for all applicable time intervals, which in turn are calculated by the sum of the  $E_c$  values for all modes of failures. This is generated from the assumed rates of the failure modes and multiplying those rates with the duration of the flight time interval.<sup>39</sup> In this cumulative process, slight adjustments have to be made to the casualty expectation of each time interval to account for the probability of the launch not having failed in the previous time interval, even though this adjustment may be so small as to be negligible. In order for a flight safety plan to be approved, the casualty expectation calculated must not exceed the minimum launch safety standards prescribed in the Code as set out in Table 1 below. The Code also gives special consideration to the destructive effects of trigger debris on assets of high value or national significance. The Code defines “trigger debris” as debris of a particular shape, weight, velocity or explosive potential that can trigger a catastrophic chain of events on a “designated asset” or

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<sup>38</sup> *Id.* ¶ 4.2.5.

<sup>39</sup> *Id.* ¶¶ 4.2.6-14.

“protected asset.”<sup>40</sup> The quantity and type of trigger debris produced in association with a particular failure event is determined on the basis of expert engineering analysis and either agreed to by the launch operator and the owner of the asset or as determined by the Australian Government in the absence of agreement between the parties.<sup>41</sup>

Table 1. Minimum Australian Launch Safety Standards

SPECIFIC RISK	STANDARD
Maximum permitted third party collective risk (the sum of all individual risks)	$1 \times 10^{-4}$ per launch
Maximum permitted third party individual risk	$1 \times 10^{-7}$ per launch
Maximum permitted third party individual casualty risk on a per year basis	$1 \times 10^{-6}$ per year
Maximum permitted probability per launch of debris impact on a designated asset	$1 \times 10^{-5}$ per launch
Maximum permitted probability per year of debris impact on a designated asset	$1 \times 10^{-4}$ per launch
Maximum permitted probability per launch of trigger debris impact on a designated asset	$1 \times 10^{-7}$ per launch
Maximum permitted probability per year of trigger debris impact on a designated asset	$1 \times 10^{-6}$ per launch

The “designated assets” and “protected assets” are determined and declared by the Government and published in the *List of Designated and Protected Assets*.<sup>42</sup> Designated assets are assets that require special protection as a result of their remoteness and inaccessibility as well as the impact of their destruction on the Australian economy and its exports.<sup>43</sup> A launch must take into account the higher standards of risk management required in relation to designated assets, as set out in Ta-

<sup>40</sup> *Id.* ¶ 3.2.5.

<sup>41</sup> *Id.* ¶ 3.2.6.

<sup>42</sup> Space Licensing and Safety Office, *Commonwealth of Australia Space Activities Act 1998: Administrative Arrangements for the Classification of Assets for Space Launch Activities* (June 7, 2002), available at <http://www.asicc.com.au/Documents/AdminArrClassificationofAssets6-6-02.pdf>.

<sup>43</sup> Space Licensing and Safety Office, *Commonwealth of Australia Space Activities Act 1998: List of Designated and Protected Assets 7* (June 17, 2002), available at <http://www.asicc.com.au/Documents/ListDesignatedProtectedAssets6-6-02.pdf>. The list of designated assets currently includes oil and natural gas facilities located in the Timor Sea, the Carnarvon Basin off the Western Australian coast and the Cooper Basin in South Australia.

ble 1. Protected assets are assets that underpin the economic activity of a whole region, a state, or Australia as a whole and reflect the concern that the Australian Government has for the protection of the oil and gas industry from a possible catastrophe arising from space launch activities.<sup>44</sup> A launch must not have a protected asset within ten kilometres of the  $1 \times 10^{-7}$  impact probability isopleth for trigger debris.<sup>45</sup> It was recently estimated by the Government of Western Australia that damage to an offshore oil and gas facility by trigger debris may amount to A\$25 billion, not including the likely economic loss arising from such damage.<sup>46</sup>

In creating designations of high-value assets and requiring the risk hazard analysis process to take them into special consideration, the Australian Government has done more than most other States in reducing the risks and potential liabilities arising from commercial space activities. However, this also reflects the influence of the oil and gas industry on the policy priorities of the Australian Government.<sup>47</sup> While this may be seen as an additional and unnecessary regulatory burden, it can also be considered a positive step in the active reduction of the safety risk of space launches and a move that will increase public confidence in the Australian future space launch industry.

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<sup>44</sup> *Id.* This list of protected assets include the Burrup Peninsula, North Rankin and Goodwyn platforms and natural gas facilities, being the main gas supplies for Western Australia and for export; the Cossack floating facility producing oil and gas for export; the Ballera natural gas facility that constitutes the main gas supply for Brisbane and coastal Queensland; the Moomba natural gas facility that constitutes the main gas supply for Adelaide, Canberra, Sydney and rural New South Wales; the Palm Valley and Mereenie natural gas facilities that supply all the gas requirements of the Northern Territory; and the proposed Bayu-Undan platform to produce natural gas for large parts of Australia and to be a major revenue source for East Timor.

<sup>45</sup> *Flight Safety Code*, *supra* note 37, ¶ 3.2.7.

<sup>46</sup> Senate, *Official Hansard of Parliamentary Debate*, p. 5319 (Oct. 17, 2002), available at [www.aph.gov.au](http://www.aph.gov.au). This estimate is expressed in 2002 Australian dollar terms.

<sup>47</sup> The Australian Petroleum Production and Exploration Association has been active in advocating increased protection for platforms and other high-value oil and gas facilities in the regulatory framework for launch services: see House of Representatives, *Official Hansard of Parliamentary Debates*, p. 29193 (Aug. 6, 2001); and Senate Economics Legislation Committee, *Report on the Space Activities Amendment Bill 2002* (Aug. 2002).

## iv. Financial and Insurance Requirements

The Space Activities Act requires a launch operator to demonstrate its compliance with the insurance and financial responsibility requirements through an approved insurance compliance plan.<sup>48</sup> The Space Activities Act requires the launch operator to hold insurance policies to cover against any liability the Government and the launch operator may have to pay compensation to third parties.<sup>49</sup> It is possible for the launch operator to demonstrate that it has sufficient assets to pay any third party compensation claim instead of having to rely on insurance, but this is unlikely to occur, due to the high amount that would be required.<sup>50</sup>

The amount of the insurance cover required is either A\$750 million, as indexed from time to time, or the amount of the “maximum probable loss” (MPL) as determined by the Australian Government.<sup>51</sup> The MPL for a launch is determined by the application of the methodology contained in the *Maximum Probable Loss Methodology*.<sup>52</sup> The MPL calculation must be done by an independent person suitably experienced and qualified and is divided into third party casualty losses, third party property losses, environmental damage, and economic loss.<sup>53</sup> A separate calculation is required for the downrange flight portion of the launch from that of the launch itself, so that the total applicable MPL for a launch is the combined MPLs for the launch component and the downrange flight component.

In general terms, the MPL is the maximum amount of loss that may result from a given launch that results from failure events that have a higher chance of occurring than the “probability threshold.” The “probability threshold” is a measure to distinguish between likely and unlikely events and their corre-

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<sup>48</sup> Space Activities Regulations, *supra* note 17, § 3.04(4)(k). See also the Space Activities Act, *supra* note 9, at part 3, division 7.

<sup>49</sup> Space Activities Act, *supra* note 9, § 48(1).

<sup>50</sup> Space Activities Regulations, *supra* note 17, § 7.01.

<sup>51</sup> Space Activities Act, *supra* note 9, § 48(3).

<sup>52</sup> Space Licensing and Safety Office, *Maximum Probable Loss Methodology* (2d ed. 2002), available at <http://www.asicc.com.au/Documents/MPLmethodology10702.pdf>.

<sup>53</sup> Space Activities Regulations, *supra* note 17, § 7.02(2).

sponding losses, using the event probabilities derived from the hazard risk analysis of the flight safety plan. The probability threshold in Australia is prescribed as  $1 \times 10^{-7}$ , or one in ten million, which is comparable to that of the United States.<sup>54</sup> Given that probability threshold, the largest and most costly accident within that threshold and the casualty area that contains all the possible debris impact points within the probability threshold are chosen for the purposes of a governmental determination of the MPL amount. In other words, the loss of a property that has a risk of less than one in ten million will not be taken into account when determining the MPL of a particular launch.

Table 2. Methodology for Calculating Maximum Probable Loss<sup>55</sup>

CATEGORY	METHODOLOGY
Third party casualty losses	A value of A\$5,000,000 is attributed to each casualty that is likely to occur in the casualty area, as determined by multiplying the casualty area with its population density.
Third party property losses	This can be determined by either: <ul style="list-style-type: none"> <li>• 50% of the third party casualty loss estimate; or</li> <li>• where the flight safety plan identified a single high-value property within the probability threshold area (such as an oil platform), a specific analysis of the property damage to that property is required.</li> </ul>
Environmental damage	This is determined by the higher result of two calculations: <ul style="list-style-type: none"> <li>• A\$100,000; or</li> <li>• if there is a particular high-value property in the impact area, the accurate cost associated with restoring the environment.</li> </ul>
Economic loss	This is determined by the higher result of two calculations: <ul style="list-style-type: none"> <li>• by multiplying the number of estimated third party casualties with the gross domestic product per capita; or</li> <li>• by the sum of the loss-of-use estimates of high value assets based on engineering and financial estimates for that facility.</li> </ul>

<sup>54</sup> *Maximum Probable Loss Methodology*, *supra* note 52, at 7.

<sup>55</sup> *Id.* at 8-11.

*C. Regulation of Australian Overseas Launch Activities*

## i. Applicability

The Space Activities Act does not make a distinction between overseas launch operators of Australian nationality and Australian payload owners launching overseas, as any “responsible party” for an overseas launch would appear to be required to hold an overseas launch certificate.<sup>56</sup> The Space Activities Act defines a “responsible party” as being an Australian that carries out a launch or owns, in full or in part, the payload launched from overseas.<sup>57</sup> As a result, the requirement of an overseas launch certificate is imposed on both Australian launch operators and satellite operators for satellites launched overseas and, from a regulatory perspective, this is appropriate as Australia would be a launching State for then purposes of the Liability Convention in either case.

It is clearly in the interest of the Australian Government to seek to pass on its liability to the launch operator or the payload owner where Australia is a launching State of an overseas launch. However, such extraterritorial legislation would only have effect in imposing civil or criminal sanctions if the Australian national was within Australian jurisdiction at the time. As a result, while an Australian satellite operator is likely to be in Australia at the time of the overseas launch, this is unlikely to be the case involving an overseas launch operator of Australian nationality. In the absence of any bilateral agreement between the governments concerned, this affords negligible protection to Australia in the absence of any bilateral or multilateral agreement concerning the licensing and insurance cover for claims made under the Liability Convention.

## ii. Financial Responsibility

An application for an overseas launch certificate has to satisfy the insurance or financial responsibility requirements of the

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<sup>56</sup> Space Activities Act, *supra* note 9, § 12.

<sup>57</sup> *Id.* § 8.

Space Activities Act in order to provide financial protection to the Australian Government. The Space Activities Act requires the responsible party to have insurance sufficient to cover the Australian Government against any liability under the Liability Convention or any other provision of international law.<sup>58</sup>

As with a launch permit, the amount of the insurance cover required is either A\$750 million or the maximum probable loss of the launch as determined by the Australian Government, whichever is lower.<sup>59</sup> The maximum probable loss for an overseas launch is either the amount as determined in the case of an Australian launch under a launch permit or the amount assessed by an insurance analyst jointly appointed by the Australian Government and the responsible party to be the amount of liability to pay compensation that the Government may incur as a result of the launch.<sup>60</sup>

#### *D. Regulation of the Return of Overseas-Launched Space Objects*

The Space Activities Act provides that an authorisation of return is required when an overseas-launched space object is returned to Australia.<sup>61</sup> It must be noted that the Australian Government is not liable internationally for any loss or damage suffered as a result of a return destined for Australia as it would not be regarded as a launching State.<sup>62</sup> The requirement of an authorisation of return is thus clearly intended to protect potential Australian nationals from injury, loss, or damage from the return. In the case of an Australian-launched space object being returned to Australia, the return segment is simply authorised and regulated as a part of the launch permit.<sup>63</sup>

In satisfying the financial responsibility requirements of an authorisation of return, the Space Activities Act imposes the

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<sup>58</sup> *Id.* § 48(2).

<sup>59</sup> *Id.* § 48(3).

<sup>60</sup> Space Activities Regulations, *supra* note 17, §§ 7.02 and 7.03(1).

<sup>61</sup> Space Activities Act, *supra* note 9, § 14.

<sup>62</sup> Convention on International Liability for Damage Caused by Space Objects, art. I, *opened for signature* Mar. 29, 1972, 24 U.S.T. 2389, 961 U.N.T.S. 187, <http://www.oosa.unvienna.org/pdf/publications/STSPACE11E.pdf> [hereinafter *Liability Convention*].

<sup>63</sup> Space Activities Act, *supra* note 9, § 13.

same requirements on authorisations of return as those for launch permits.

### *E. Launch Safety and Accident Investigation*

#### i. Launch Safety Officer

The Government is required by the Space Activities Act to appoint a launch safety officer for each launch facility licensed under a space licence.<sup>64</sup> The launch safety officer has the responsibility of ensuring that the Space Activities Act and the Space Activities Regulations are complied with and that no person or property is endangered by a launch that takes place at the facility.<sup>65</sup>

The launch safety officer has the following powers:

- (1) to enter and inspect the launch facility and any space object, including the inspection and testing of any equipment, with the consent of the holder of the space licence;<sup>66</sup>
- (2) to request for the provision of any information or assistance from the launch operator that is relevant to safety or the launch operator's compliance with the conditions of the space licence or the launch permit;<sup>67</sup>
- (3) to give directions concerning the launch and any associated return of a space object to be carried out at the launch facility that are necessary to avoid any danger to public health, with which the launch operator must record and report the steps taken accordingly;<sup>68</sup>
- (4) give directions requiring the launch or return to be aborted or the space object to be destroyed at any time where necessary, with which the space licence holder must record and report the steps taken accordingly;<sup>69</sup>

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<sup>64</sup> Space Activities Act, *supra* note 9, § 50.

<sup>65</sup> *Id.* § 51.

<sup>66</sup> *Id.* § 52(2)(a).

<sup>67</sup> *Id.* § 52(2)(b).

<sup>68</sup> *Id.* §§ 52(2)(c)-(d), and Space Activities Regulations, *supra* note 17, § 8.03.

<sup>69</sup> *Id.*

- (5) where the seriousness and urgency of the circumstances necessitate a search of the launch facility to locate a thing relating to a possible offence under the Space Activities Act that may be lost, concealed or destroyed, to undertake such a search and, if found, seize the thing;<sup>70</sup> and
- (6) The launch safety officer also has the primary responsibility for ensuring that the Australian Government and the public are notified of an imminent launch.<sup>71</sup> Such a notice must be given to the prescribed government authorities between two to ten days before the launch, specifying the date and time of the launch.

It appears that the launch safety officer also has the responsibility of ensuring that Airservices Australia is informed for the purposes of airspace clearance, even though Part 101 of the Civil Aviation Safety Regulations (1998) (Cth.) imposes that responsibility on the launch operator itself.<sup>72</sup> If there is any residential community within fifty kilometres of the launch facility, the launch safety officer must also ensure that notifications are given to all local newspapers, radio stations, and other community media within the notification period for broadcast.<sup>73</sup> On the day of the launch, the notice must again be broadcast on all local radio stations some hours before the launch.<sup>74</sup>

## ii. Investigation of Accidents

The Space Activities Act provides a regime for investigations of incidents or accidents that took place during the liability period and the ATSB would carry out such investigations.<sup>75</sup>

The term “liability period” under the Space Activities Act means the period of thirty days from the launch or from a relevant re-entry manoeuvre to the time when the space object

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<sup>70</sup> Space Activities Act, *supra* note 9, § 56(1).

<sup>71</sup> *Id.* § 51(a) and (aa).

<sup>72</sup> Civil Aviation Safety Regulations (1998) (Cth.), § 101.450, *available at* [http://www.casa.gov.au/scripts/nc.dll?WCMS:STANDARD:1001:pc=PC\\_90991](http://www.casa.gov.au/scripts/nc.dll?WCMS:STANDARD:1001:pc=PC_90991).

<sup>73</sup> Space Activities Regulations, *supra* note 17, § 8.01(2).

<sup>74</sup> *Id.* § 8.01(5).

<sup>75</sup> Space Activities Act, *supra* note 9, § 84.

comes to rest on Earth.<sup>76</sup> It appears from the Space Activities Act that the Australian Government intends to limit the time for which a launch operator is liable to third parties to the liability period.

Under the Space Activities Act, an “accident” is where a person died or suffered serious injury or if property was destroyed or seriously damaged.<sup>77</sup> An “incident” is where an accident nearly occurred or where an event took place that affects or could affect the safety of the present and future operations of the launch operator.<sup>78</sup> The reason why such a distinction is made is because the Government *must* appoint a suitably experienced and qualified investigator in the case of an accident, whereas it *may* choose not to do so in the case of an incident.<sup>79</sup> This is similar to the regime provided for aviation accidents under Part 2A of the Air Navigation Act (1920) (Cth.).<sup>80</sup>

The ATSB has the following powers under the Space Activities Act:

- (1) the ATSB may require, by written notice, a person to attend a hearing and answer questions, which may be on oath or affirmation, or to provide any documents, records, components or equipments relevant to the investigation;<sup>81</sup>
- (2) the ATSB may enter and search the accident site with or without the consent of the owner of the site during the “access period” as specified by the ATSB, which is to be no more than twenty-eight days unless the Australian Government approves otherwise, and take any necessary samples, photographs, video recordings and sketches;<sup>82</sup> and

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<sup>76</sup> *Id.* § 8.

<sup>77</sup> *Id.* § 85.

<sup>78</sup> *Id.* § 86.

<sup>79</sup> *Id.* § 88.

<sup>80</sup> Air Navigation Act, No. 50 (1920) (Cth.), at Part 2A, available at <http://scaleplus.law.gov.au/ComLaw/Management.nsf/current/bytitle/A84AE2AC0D87C338CA256F710006F002?OpenDocument&VIEW=compilations>.

<sup>81</sup> *Id.* § 91(1)-(3).

<sup>82</sup> *Id.* § 100(1) and Transport Safety Investigation Act, *supra* note 19, §§ 33-36.

- (3) remove the wreckage or any part thereof from the accident site.<sup>83</sup>

In protecting the interests of the launch operator as well as ensuring that the information obtained by the ATSB will be true and accurate, the answers and anything provided to the ATSB cannot be admitted as evidence against the provider in any legal proceedings.<sup>84</sup> While it is a criminal offence to refuse to answer questions or to refuse to give testimony on oath or affirmation, a person nevertheless retains the privilege against self-incrimination in that a person is not compelled to provide testimony or documents that would incriminate them.<sup>85</sup> As for the wreckage, it is deemed to have been taken into the ATSB's custody until no longer needed for the investigation, even if the ATSB took no steps to move the wreckage.<sup>86</sup>

At the end of the investigation, the ATSB is required to provide a written report of the investigation. The Space Activities Act provides that this report *may* be published if it is considered to be desirable in the interest of promoting safety in the space industry and this benefit outweighs the potential impact on the interests of the launch operator.<sup>87</sup> The investigation report is not admissible as evidence in an Australian court except in relation to a coronial inquiry concerning the death of an individual as a result of the accident.<sup>88</sup> Even if the report is published, the statements, communications, and medical or personal information collected during the investigation cannot be disclosed, unless incorporated as part of the investigation report, except by order of a court and generally only with restricted circulation for the purposes of domestic litigation in Australia.<sup>89</sup>

On October 30, 2001, an anomaly occurred during a HyShot rocket launch used to test an experimental supersonic-combustion ramjet (scramjet) engine built by the University of

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<sup>83</sup> Space Activities Act, *supra* note 9, § 100(1)(k) and Transport Safety Investigation Act, *supra* note 19, § 36.

<sup>84</sup> Space Activities Act, *supra* note 9, § 91(5)-(6).

<sup>85</sup> *Id.* § 92(1)-(2).

<sup>86</sup> *Id.* § 94.

<sup>87</sup> *Id.* § 93.

<sup>88</sup> Transport Safety Investigation Act, *supra* note 19, § 27.

<sup>89</sup> Space Activities Act, *supra* note 9, § 96.

Queensland at Woomera, South Australia. The ATSB reported on June 18, 2002 and found that the risk hazard analysis conducted by the University of Queensland did not give sufficient allowance for the rocket vehicle malfunctioning and going off course, especially its potential impact along the Stuart Highway linking Adelaide, South Australia, to Alice Springs and Darwin in the Northern Territory.<sup>90</sup> Although the investigation and the resulting report were highly technical in nature, this has provided the ATSB with a much-needed opportunity to undertake an investigation concerning space activities and acquire some experience in the process.

#### *F. Liability Issues*

##### *i. Scope of Part 4 of the Space Activities Act 1998 (Cth)*

One of the most important features of the Space Activities Act is the imposition of liability on the launch operator for damage caused to third parties, regardless of whether the damage was incurred in Australia or elsewhere. The rationale behind this is that the launch operator, and not the Australian Government, should be financially responsible for any liability incurred as a result of activities conducted by the launch operator. This is comparable with the regime imposed in the United States, which was clearly the model on which the Australian liability framework was based.

Part 4 of the Space Activities Act provides for the regulation of third party liability of the launch operator and the amount of compensation payable, provided that the damage was suffered during the "liability period" and Australia is a launching State of the space object.<sup>91</sup> The Part applies regardless of whether the loss or damage was suffered in Australia or elsewhere and regardless of whether the launch or return was

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<sup>90</sup> Neville McMartin, *Final Report of the Investigation into the Anomaly of the Hy-Shot Rocket at Woomera, South Australia on Oct. 30, 2001*, at iv (2002), available at [http://www.atsb.gov.au/media/36170/sir200206\\_001.pdf](http://www.atsb.gov.au/media/36170/sir200206_001.pdf). The wreckage was located 28 kilometres east of the Stuart Highway. *Id.*

<sup>91</sup> Space Activities Act, *supra* note 9, § 63.

authorised under the Space Activities Act.<sup>92</sup> However, it is possible for third party liability to fall outside the scope of Part 4, such as where the liability is caused outside the liability period. The Space Activities Act is silent on the liability, procedure and the amount of compensation payable in such cases.

If Part 4 of the Space Activities Act applies to a particular third party liability claim, it is important to note that there is more than one avenue through which liability may be prescribed on the launch operator. This is particularly so for foreign third parties as the Liability Convention is not the only means by which the third party may seek compensation. These avenues include:

- (1) Australian third parties taking proceedings in Australian courts with the liability and compensation payable determined in accordance with the Space Activities Act;
- (2) foreign third parties taking proceedings in Australian courts with the liability and compensation payable determined in accordance with the Space Activities Act;
- (3) Australian third parties taking common law proceedings in Australian courts;
- (4) foreign third parties taking common law proceedings in Australian courts;
- (5) foreign third parties taking proceedings in foreign courts in tort; and
- (6) action taken by foreign governments under the Liability Convention.<sup>93</sup>

These options will now be considered in turn.

ii. Proceedings under the *Space Activities Act 1998* (Cth.)

The Space Activities Act imposes an absolute liability regime on launch operators in that they are liable to pay compen-

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<sup>92</sup> *Id.*

<sup>93</sup> See discussion in Lee, *supra* note 22.

sation on any damage caused to a third party on Earth and to aircraft in flight during the “liability period,” except where the loss or damage was caused with the intent or gross negligence of the third party.<sup>94</sup> However, if the damage is caused to another space object in space, the launch operator is liable only to the extent that it was the fault of the launch operator.<sup>95</sup> This liability regime reflects the position contained in Articles II and III of the Liability Convention and effectively implements the international principles of liability for space activities into Australian domestic law.

Provided that there was no breach of any of the conditions on the space licence or launch permit, the liability of the launch operator in proceedings brought under the Space Activities Act is limited to the insured amount as required by the Space Activities Act, which is either the MPL amount or the statutory ceiling of A\$750 million.<sup>96</sup> In other words, a claim brought by a third party against a launch operator under the Space Activities Act must be less than the amount of the insurance cover provided to the launch operators or the claim is limited in its recovery to the insurance amount. While there are other options for foreign third parties, the ability of an Australian third party to recover more than the insurance cover would depend on the possibility of common law claims in tort, as discussed below.

### iii. Tort Claims

#### *a. Overview*

One issue of particular interest to Australian space lawyers, from an international and constitutional point of view, is whether the Space Activities Act is capable of being an exclusive code concerning liability arising from launch activities. From established legal principles, it appears that the Space Activities Act cannot apply extraterritorially to the extent that it requires a foreign plaintiff to take proceedings only in Australia and only

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<sup>94</sup> Space Activities Act, *supra* note 9, § 67.

<sup>95</sup> *Id.* § 68.

<sup>96</sup> *Id.* §§ 69(3) and 48(3).

under the Act and, as a result, the possibility of legal actions in foreign courts remains a source of liability for Australian launch operators. On the other hand, if a foreign third party chooses to sue in Australia, then the third party is likely to be bound by any Australian law limiting the liability of a launch operator or satellite operator. In other words, if the Space Activities Act can validly abolish tort actions by third parties in Australia, the abolition or limitation would apply equally to both Australian and foreign third parties suing in Australia, though it is likely to have no effect on limiting the rights of foreign third parties suing in foreign courts against an Australian or foreign entity.

It is unclear, however, whether the Space Activities Act in fact abolishes common law claims based on tort law in Australia. The Australian Government has signalled an intention that the Space Activities Act was intended to abolish all other third party liability in Australia, especially tort liability, for launch operators.<sup>97</sup> However, there are reasons why an Australian court may not give such effect. These reasons are:

- (1) the Space Activities Act does not expressly specify that it intends to substitute or abolish the tort liability of launch operators;
- (2) the Parliament may be considered to have done no more than to limit the amount of compensation payable rather than to abolish tort claims altogether; and
- (3) Section 69(4) of the Space Activities Act lends further support to the view that the legislative intention was not to exclude tort claims.<sup>98</sup>

#### *b. Legislative Intention*

It may be questionable that the Parliament did intend to abolish domestic tort claims. This is because the Space Activities Act lacks the clear terms that exist in other laws concerning the abolition of common law claims. The prevailing view is that, if the Parliament intended to remove a fundamental cause of

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<sup>97</sup> *Id.* § 64.

<sup>98</sup> *Id.* § 69(4).

action concerning a specific matter it should clearly and expressly do so, but instead the Space Activities Act makes no reference to any other civil liability for launch operators or their abolition under Part 4 of the Space Activities Act.<sup>99</sup> The Civil Aviation (Carriers' Liability) Act (1959) (Cth.), for example, provides in clear terms that the liability under the relevant international convention "is in substitution for any civil liability of the carrier under any other law in respect of the injury."<sup>100</sup>

*c. Limitation on Compensation Payable*

Section 64 of the Space Activities Act provides that "*Compensation* for damage to which this Part applies caused to third parties is only *payable* in accordance with this Part."<sup>101</sup> As the provision refers to "compensation" being "payable" rather than "claims" being "determined" or other terms of similar effect, it is arguable that the provision in the Space Activities Act does no more than to limit the liability of launch operators, regardless of how the action is brought, rather than to abolish common law actions altogether. During the parliamentary debates in the House of Representatives concerning the Space Activities Amendment Act (2002), it was stated that the Government had intended to place a cap on the liabilities of launch operators as an alternative approach to the exclusion of all common law rights altogether.<sup>102</sup> This statement was made by a parliamentarian sitting on the Government benches and, furthermore, was not contradicted by the relevant Minister or his Parliamentary Secretary at the time.

This may well be the preferred view that may be adopted by the courts in the event of a future claim. If the Parliament intended no more than to limit the compensation payable, an interpretation clearly open from the terms of the provisions, then the launch operator may be subject to claims brought both un-

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<sup>99</sup> *Id.* § 64.

<sup>100</sup> Civil Aviation (Carriers' Liability) Act (1959) (Cth.), § 13, available at [http://www.austlii.edu.au/au/legis/cth/consol\\_act/cala1959327/](http://www.austlii.edu.au/au/legis/cth/consol_act/cala1959327/).

<sup>101</sup> Space Activities Act, *supra* note 9, § 64(1) (emphasis added).

<sup>102</sup> House of Representatives, *Official Hansard of Parliamentary Debates*, at 2349 (May 16, 2002).

der the Space Activities Act and in tort. In practice, however, a third party is unlikely to pursue the tort option as it requires the third party to prove negligence on the part of the launch operator while the compensation payable will be limited in both cases by the provisions of the Space Activities Act.<sup>103</sup>

*d. Section 69(4) of the Space Activities Act 1998 (Cth.)*

Section 69(4) of the Space Activities Act is also curious in wording, if indeed the Parliament intended to abolish domestic tort claims rather than to merely limit the amount of compensation payable. Section 69(4) provides that:

(4) If:

- (a) the responsible party has paid compensation for the damage of an amount equal to the insured amount for the launch permit or overseas launch certificate; and
- (b) *apart from this section*, the responsible party would be liable to pay further compensation to Australian nationals for the damage of an amount (the ***excess amount***) in excess of the insured amount for the launch permit or overseas launch certificate;

then the [Australian Government] is liable to pay compensation to the Australian nationals for the damage of an amount equal to so much of the excess amount as does not exceed \$ 3 billion.<sup>104</sup>

If Part 4 of the Space Activities Act is intended by the Federal Parliament to be an exclusive regime concerning liability, it would appear that section 69(4) would have no operation, as there would not be any compensation payable to Australian nationals “apart from this section.” However, if Part 4 merely limits the amount of compensation payable, then it is reasonable to assume that a Court may find a launch operator to be *liable* for an amount in excess of its insurance cover. In such a case, section 69(4) will have operation as the launch operator is only re-

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<sup>103</sup> Space Activities Act, *supra* note 9, § 69(3).

<sup>104</sup> *Id.* § 69(4). Emphasis added.

quired to pay an amount equalling its insurance cover, with any excess amount up to A\$3 billion to be payable by the Government if the third party is an Australian national. If the third party is a foreigner, their recovery in Australian courts will be limited to the insurance cover of the launch operator.

In sum, therefore, there appears to be some support for the view that common law actions in tort may be brought against Australian launch operators. However, unless the limitation of one year has expired before the third party began proceedings or if the damages claimed exceed the insurance cover of the launch operator, there appears to be little financial benefit to be gained for a third party to bring a claim in tort rather than pursuant to the Space Activities Act. This is especially so as the third party will be required to establish the requirements of a negligence action in tort, whereas absolute liability is prescribed in actions proceeding under the Space Activities Act.

#### iv. Compensation for Domestic Claims

On a practical level, the Space Activities Act effectively limits the compensation payable by launch operators but not to abolish the liability itself. As it is possible for a launch operator to be found liable for an amount exceeding the insured amount, the launch operator is only required to pay compensation equaling the insured amount. While this would be the end of the process for an action brought under the Space Activities Act, this is not the case if an Australian third party brings an action in tort. This is because section 69(4) will then have application as the Government will compensate an Australian third party up to an amount of A\$3 billion in excess of the insured amount. If the excess liability exceeds A\$3 billion, no further compensation is payable as the Space Activities Act effectively exonerates the launch operator or the Government from being required to pay any further compensation to an Australian third party. The reason why the Government indemnity is not available in actions brought under the Space Activities Act is because the liability would not have arisen "apart from this Section." being Section 69 of the Space Activities Act.

Where a foreign third party brings a tort claim in Australia or overseas, the governmental contribution provided under the Space Activities Act is not available as it applies only to liability of the launch operator to Australian nationals.<sup>105</sup> Consequently, in the case of a claim brought overseas, the launch operator is liable for the entire amount awarded to the foreign third party, subject to its ability to call on its insurance cover for at least part, if not all, of the compensation awarded. If the foreign third party brings proceedings in Australia, however, the Space Activities Act will have application to limit the launch operator's liability and the total compensation that may be received by the third party to the insured amount, regardless of whether the action was framed in tort or pursuant to the Act. As a result, it may be more beneficial for a foreign third party to bring proceedings in its domestic courts concerning large claims, if possible, to maximise the compensation payable.

#### v. Claims under the Liability Convention

The Liability Convention provides that a State may bring a claim against Australia where the State or one of its nationals has suffered injury, loss or damage caused by a space object for which Australia is a launching State.<sup>106</sup> The Liability Convention also provides for a claim to be negotiated through diplomatic channels between the governments and, in the event that negotiations fail to resolve the claim, a Claims Commission is to be established to determine the claim.<sup>107</sup> While the Liability Convention does not require the exhaustion of local remedies before bringing a claim, it does prevent a claim to be brought when domestic proceedings have already begun.<sup>108</sup> In other words, a foreign third party may take action privately in domestic courts or to promote its government to take up its claim through the Liability Convention, but not both.

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<sup>105</sup> Space Activities Act, *supra* note 9, § 69(3).

<sup>106</sup> Liability Convention, *supra* note 62, at art. VIII.

<sup>107</sup> *Id.* at art. IX.

<sup>108</sup> *Id.* at art. XI(2).

The Space Activities Act provides that the launch operator is liable to reimburse the Australian Government for the full amount of the compensation or the insurance amount, whichever is lower, provided that the launch was authorised and fully compliant with the conditions of the relevant space licence and launch permit.<sup>109</sup> As liability under the Liability Convention is imposed on the Australian Government, this effectively means that the Government would pay any amount in excess of the insurance amount claimed by the foreign government.

#### vi. Liability Outside the Scope of Part 4

The liability concerning any damage arising outside the liability period is very different to that for damage incurred within the liability period. Essentially, the Space Activities Act is silent on the liability arising outside the liability period, leaving the common law or international law to determine the liability and the compensation payable of the launch operator, the payload owner or the Australian Government.

The term “liability period” means the period of thirty days from the launch or from a relevant re-entry manoeuvre to the time when the space object comes to rest on Earth.<sup>110</sup> With this in mind, it appears that there are several scenarios for damage to be caused outside this liability period, including (but not limited to):

- (1) damage caused by remnants of the launch vehicle over thirty days after its launch, such as the re-entry of a third stage rocket colliding with an aircraft in flight; or
- (2) damage caused by the payload carried by the launch vehicle over thirty days after its launch, such as a collision with another satellite.

Where an Australian third party suffers the damage, that third party will have recourse against either the launch operator or the payload owner in common law. The procedures and

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<sup>109</sup> Space Activities Act, *supra* note 9, § 74(2).

<sup>110</sup> *Id.* § 8.

limitations imposed under the Space Activities Act will have no application on such claims as Part 4 is confined in its scope to liability caused within the liability period.<sup>111</sup> The choice of the appropriate defendant in such a claim may depend on several factors, the most important of which would be the degree of fault or negligence. Other factors would likely include the insurance cover, financial support, fault, or negligence and the location of the launch operator or payload owner.

If a foreign third party suffers the damage outside the liability period, Australia will be liable as a launching State for the purposes of the Liability Convention.<sup>112</sup> The foreign third party would have several options:

- (1) the third party may choose to sue in Australian domestic courts against the launch operator, in which case the claim will be determined in accordance with common law principles of tort and the damages that may be payable would be unlimited;
- (2) the third party may choose to sue in foreign courts against the Australian launch operator, subject to various jurisdiction and enforcement issues, and the claim will be determined in accordance with the local principles of tort and the damages that may be payable would again be unlimited; or
- (3) the national government of the third party may choose to pursue a claim against the Australian Government in accordance with the Liability Convention, in which case the Australian Government, and not the private operator, would be liable in accordance with articles II and III of the Liability Convention. It is unclear whether the Australian Government will have recourse against the launch operator in such case, though it is unlikely in the absence of any legislative provision to permit it.

While the concept of the liability period was designed to limit the liability exposure of Australian launch operators, it appears somewhat strange that the Space Activities Act would

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<sup>111</sup> *Id.* § 63.

<sup>112</sup> Liability Convention, *supra* note 62, at art. I.

fail to provide any protection to the launch operator in the case of liability falling outside the liability period. As it currently stands, a prudent launch operator would ensure that its insurance cover extends for a period sufficiently long for the third or fourth stages of the launch vehicle to pose no threat to any third party. Consequently, without legislative change to provide for some form of governmental indemnity, this effectively negates any financial or competitive advantage an Australian launch operator may have vis-à-vis foreign launch operators.

### *G. Suggested Changes to the Australian Law*

#### i. Statutory Ceiling on Insurance Cover

Some concerns remain within the Australian launch industry relating to the statutory ceiling on the insurance cover for launch operators as required under the Space Activities Act. The Senate Economics Legislation Committee noted recently that the statutory ceiling on the insurance cover provided under the Space Activities Act exceeds the ceilings imposed in other States (except for the Russian Federation and the United States), especially considering the Australian requirement to have a flight path that avoids any high-value designated assets or protected assets.<sup>113</sup> On the other hand, the Australian Petroleum Production and Exploration Association (APPEA) argued that the potential high costs associated with any damage caused by space launches meant that the insurance cap artificially lowers the risk borne by launch operators, as liability under the Space Activities Act is capped at the corresponding insurance cover.<sup>114</sup>

It does appear, however, that this ceiling is unlikely to change except for the purpose of indexation, as the launch industry is unlikely to accept a higher exposure to liability than it does presently under the Space Activities Act.

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<sup>113</sup> Senate Economics Legislation Committee, *supra* note 47, ¶ 1.18. It was noted that the insurance ceilings imposed by other States are: US\$ 100 million for China, US\$ 53 million for France, US\$ 200 million for Japan and US\$ 500 million for Russia and the United States.

<sup>114</sup> *Id.* ¶ 1.21.

## ii. Common Law Actions by Third Parties

Confusion remains over the effect of the Space Activities Act on potential common law tort claims brought by Australian and foreign third parties in Australia. One of the current Australian launch operators suggested to the Senate Economics Legislation Committee that the Space Activities Act leaves open the possibility of tort actions in common law.<sup>115</sup> The Government's response was that the liability limitation provided in the Space Activities Act means that immunity is available to launch operators for liability in excess of the insurance cover.<sup>116</sup> The Government appears not to appreciate the fact that a foreign third party may bring claims in foreign domestic courts instead of the Liability Convention and the Space Activities Act does not provide for any protection, such as an indemnity, to the launch operator in such cases. Further, the possibility of common law claims also allow a third party to begin proceedings outside the time period of one year provided under the Space Activities Act, provided that the action is brought within any time limit imposed by an applicable statute of time limitations.

## iii. Governmental Indemnity for Common Law Claims

In common law actions brought by Australian nationals, the governmental contribution of \$3 billion in respect of claims brought in excess of the insurance cover is widely considered to be too low.<sup>117</sup> In the submissions made to the Senate Economics Legislation Committee, this view is shared by the launch industry as well as the APPEA. This is particularly the case considering this contribution is not provided in claims brought by foreign third parties or a claim brought pursuant to the Space Activities Act rather than in common law.

It has also been noted that the Australian Government's contribution of A\$3 billion to any common law liability of the launch operator does not specify whether or not the indemnity relates to any one incident and whether or not the Government

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<sup>115</sup> *Id.* ¶ 1.32.

<sup>116</sup> *Id.* ¶ 1.33, referring to Space Activities Act, *supra* note 9, § 69(3).

<sup>117</sup> *Id.*

is exposed to an indemnity in a case where there are multiple third party claimants.<sup>118</sup> As this has the potential of seriously affecting the potential liability of launch operators, this is an issue that should be clarified in any future amendments to the Space Activities Act.

#### iv. Claims Outside the Liability Period

The Space Activities Act does not provide any protection for launch operators in the event of damage caused outside the “liability period,” as defined in the Act, for a launch. If the governmental intention of reducing and limiting the liability of launch operators is to be given effect, the Space Activities Act should either provide for a blanket indemnity for damage caused outside the liability period, regardless of how or where the proceedings are brought, or to effectively and validly abolish any tort actions relating to such damage caused outside the liability period.

#### v. Indemnity for Foreign Private Claims

Given that the Space Activities Act is unlikely to be able to prevent foreign private claims made against the launch operator, the Act does not address this issue nor does it protect the launch operator with any financial indemnity. It appears that the Government may not have considered this possibility and assumed that all foreign claims would be made through the Liability Convention. In order to be consistent in protecting the potential liability of the launch industry, the Space Activities Act should extend the governmental indemnity in the case of private claims for both Australian and foreign third parties, regardless of where the proceedings are brought.

The simplest solution may well be to extend the indemnity provided under section 69(4) of the Space Activities Act to foreign nationals and foreign claims, as a foreign private proceed-

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<sup>118</sup> House of Representatives, *Official Hansard of Parliamentary Debates*, p. 2350 (May 16, 2002).

ing would be a liability arising “apart from this section,” being section 69 of the Act.

## II. RELEVANCE OF AUSTRALIAN SPACE LAW IN THE PACIFIC RIM

### *A. Extraterritorial Operation of the Australian Laws*

It is notable that the Space Activities Act, by its very nature and licensing provisions, has an element of extraterritorial application. The statute applies to activities conducted by Australian nationals outside Australia. The extraterritoriality of these national space laws stem from the very international obligations that they seek to implement, namely the provisions of the Outer Space Treaty and the Liability Convention in the case of the Space Activities Act. Consequently, one may expect that the national space laws of other States, including those in the Pacific Rim region, would have similar scope and need for extraterritorial application.<sup>119</sup>

The extraterritorial operation of national space laws have the potential effect of requiring multiple licensing requirements to be imposed on a multinational firm. For example, a Hong Kong national procuring the launch of a space object from Australia would be subject to regulation and licensing under both the Outer Space Ordinance of Hong Kong and the Space Activities Act of Australia. The burden imposed by the multiplicity of national laws licensing space activities may cause private space ventures to go “forum shopping” or to consider their corporate structure in a manner that most alleviates their regulatory difficulties. The multinational Sea Launch Company LLC is one of the more notable examples of where the possible licensing requirements under both the national space laws of the United Kingdom and the United States have led to it relocating itself to the United States from the Cayman Islands, a Crown colony of the United Kingdom.<sup>120</sup>

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<sup>119</sup> See *e.g.*, Outer Space Ordinance, (1999) Cap. 523, § 3. (H.K.), available at <http://www.hklii.org/hk/legis/en/ord/523/> (the Outer Space Ordinance of Hong Kong applies to space activities “whether carried on in Hong Kong or elsewhere”).

<sup>120</sup> Sea Launch Company LLC was required to obtain a launch licence under both the Commercial Space Launch Act of the United States, under which the Boeing Company

Consequently, when considering the licensing and other regulatory requirements imposed on a multinational launch service provider or satellite operator, it is important to consider the licensing requirements under the national space laws of all States that may have extraterritorial application to the private entity. In the context of Australian law, where there may be a jurisdictional connection between Australia and the relevant entity or activity, the potential application of the national space laws of Australia will need to be evaluated and considered. These considerations may have a serious impact in the ownership and corporate structure of the private venture as well as the nature of the space activity as contemplated.

*B. Benefits of Harmonisation and Reciprocal Recognition in the Regulation of Multinational Private Space Activities*

As regional and international strategies that may be deployed to combat the problems of having multiple licensing requirements and the disadvantages of forum shopping, at least two of the more viable methods of alleviating the problems would be to harmonise the important provisions of the domestic laws concerning space activities, such as the financial responsibility and insurance requirements, and to provide for reciprocal recognition of the more onerous elements of the technical regulation of space activities, such as launch safety and risk certifications of launch vehicles or the qualifications of relevant technical staff.

The conceptual benefits that may be derived from harmonisation of important regulatory provisions are abundantly clear.<sup>121</sup> If the regulatory burden imposed by the domestic laws regulating space activities is equivalent or at least similar between different States, the advantages that may be derived

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was considered to have a "controlling interest" in Sea Launch Company LLC, as well as the Outer Space Act of the United Kingdom, which by the force and effect of the Outer Space Act (Cayman Islands) Order 1998 (U.K.) applies to the Cayman Islands. See *Legal and Policy Aspects of Launch Services*, *supra* note 2; and Press Release, Sea Launch Company LLC, Sea Launch Moves Partnership Headquarters to Long Beach (Apr. 13, 2000), available at [http://www.boeing.com/special/sea-launch/news\\_releases/2000/nr\\_000413.html](http://www.boeing.com/special/sea-launch/news_releases/2000/nr_000413.html).

<sup>121</sup> See *Legal and Policy Aspects of Launch Services*, *supra* note 2.

from forum shopping would be significantly reduced. Further, steps toward harmonisation would reduce the degree of uncertainty and opacity involved in the regulation of private space activities, enabling easier access to substantial finance and increasing international trade in space-related services. The intergovernmental negotiations in relation to harmonisation would also have the incidental benefit of increasing cooperation in the field of space activities, which is a particularly fruitful benefit in a region such as the Pacific Rim where such cooperation is somewhat lacking.

In addition or as an alternative to harmonisation of regulatory provisions, reciprocal recognition of licensing and certification of launch facilities, launch vehicles, and technical expertise of personnel would greatly reduce the regulatory compliance costs of private space ventures that seek to import into one State the whole or part of a launch facility or launch vehicle that has been certified or licensed for the same type of space activities in another State. For example, the Space Activities Regulations reduces the compliance costs and regulatory burden in relation to the certification or licensing of a launch facility or a launch vehicle in Australia where a “technical recognition instrument” is in force with the effect that the Australian Government would recognise the licensing or certification granted in another State.<sup>122</sup> Such initiatives, if adopted by more States on a reciprocal basis, would greatly reduce the regulatory burden imposed by States with onerous licensing and certification requirements on private launch service providers seeking to conduct launch activities in a State other than the State where the launch facility or launch vehicle was manufactured and originally licensed.

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<sup>122</sup> Space Activities Regulations, *supra* note 17, § 2.06(8). What was contemplated was the future existence of technical recognition instruments between Australia and Russia that would enable the former to recognize the licensing and certification of launch facilities and launch vehicles of the latter.

*C. Trade Restrictions Imposed on Space Technologies*

In the United States, the Arms Export Control Act (1976) (U.S.) and the International Traffic in Arms Regulations (ITAR) effectively provide that satellites, including electronic equipment specifically designed or modified for spacecraft or spaceflight, are on the U.S. Munitions List and thus may not be exported for launch without governmental approval.<sup>123</sup> Complemented at an international level by the implementation of the Wassenaar Agreement on Export Controls for Conventional Arms and Dual-Use Goods and Technologies<sup>124</sup> and the Missile Technology Control Regime (MTCR), these arrangements have a significant impact on the provision of commercial launch services by States such as Australia, China, and India to the United States.<sup>125</sup>

In Australia, those export controls required under the Wassenaar Agreement and the MTCR are implemented under the Customs Act 1901 (Cth.).<sup>126</sup> Part 1 of the Defence and Strategic Goods List directly implements the Munitions List contained in the Wassenaar Agreement. Part 3 of the Defence and Strategic Goods List implements the Dual Use Goods and Technologies List contained in the Wassenaar Agreement and the items in the MTCR Annex.

In the context of considering the regulatory impact of the national laws of Australia on multinational private space activities, it is important to consider the impact of domestic and international export controls on items containing restricted space technologies. This is because export controls have a significant impact on the ability of a launch service provider, satellite manufacturer, or satellite operator to provide some services to

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<sup>123</sup> H. PETER VAN FENEMA, THE INTERNATIONAL TRADE IN LAUNCH SERVICES: THE EFFECT OF U.S. LAWS, POLICIES AND PRACTICES ON ITS DEVELOPMENT at 112-114 (1999).

<sup>124</sup> Wassenaar Arrangement, *supra* note 18.

<sup>125</sup> See discussion in Van Fenema, *supra* note 123, at 110-181; and Steven R. Freeland and Ricky J. Lee, *The Impact of Arms Limitation Agreements and Export Control Regulations on Launch Activities*, 45 PROC. COLL. L. OUTER SPACE 321 (2002).

<sup>126</sup> Customs Act, 1901, § 112 (Cth.), available at [http://www.austlii.edu.au/au/legis/cth/consol\\_act/ca1901124/](http://www.austlii.edu.au/au/legis/cth/consol_act/ca1901124/). See also generally the Customs (Prohibited Exports) Regulations, 1958, (Cth.), available at [http://www.austlii.edu.au/au/legis/cth/consol\\_reg/ce1958439/](http://www.austlii.edu.au/au/legis/cth/consol_reg/ce1958439/).

customers in States that may be subject to export restrictions, including those in the Pacific Rim region.

*D. Australian Laws as Models for Other Pacific Rim States*

Reflecting on the objectives of the Space Activities Act, there is no reasonable doubt that the Australian Government has succeeded in instituting a comprehensive regulatory framework for private space activities. In recent years, there is a clear trend towards more complex regulation of private launch activities in the domestic laws of States that were being enacted, from the early and somewhat simplistic national laws found in Norway and Sweden in 1969 and 1982, respectively, to the more recent and complex national laws found in the United States and Australia in 1984 and 1998, respectively.

In particular, with a regulatory framework focused primarily on private and multinational space launch activities, the Space Activities Act may serve as a useful model for other States, particularly in the Pacific Rim region, that are considering the enactment of their own national laws that would adequately implement their international obligations under the relevant treaties as well as to sufficiently pass onto the private sector the international liability and responsibility arising from these treaties. It can be expected that, as the commercial space launch industry become increasingly privatised and multinational in nature in the future, the need for domestic regulation of space activities will only increase over time. In the absence of internationally negotiated model laws, the Space Activities Act may well be a useful reference for States seeking to enact their own regulations.

### III. CONCLUDING OBSERVATIONS

Many commentators have observed or predicted a continuing shift of political, economic, and technological power from the Transatlantic to the Pacific Rim in the present century.<sup>127</sup> It is

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<sup>127</sup> See, e.g., James A. Baker III, *America in Asia: Emerging Architecture for a Pacific Community*, 70(5) FOREIGN AFFS. 1 (1992); STAFFAN BURENSTAM LINDER, *THE PACIFIC CENTURY: ECONOMIC AND POLITICAL CONSEQUENCES OF ASIAN-PACIFIC DYNAMISM*

only reasonable to expect that such a shift would have an impact on the increasingly multinational and gradually privatising space industry. Due to the need to implement the international obligations of States under the relevant international treaties and regulatory instruments, the enactment of domestic laws dealing with space activities is an important precondition to the emergence of a vibrant regional space industry in the Pacific Rim.

In this context, the development of domestic laws in Australia dealing with space activities have demonstrated the potential complexity of the regulatory frameworks in balancing the needs of States to encourage foreign investment and trade in space-related services, to ensure compliance with international and regional obligations, as well as to protect the national governments from exposure to international liability. It is through an adequate balance between these interests that enables Australia to adopt a regulatory regime that may prove to be advantageous in the future evolution and development of the space industry in the Pacific Rim.

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(1986); Thomas Brosch and Brian H. Kleiner, *The Growing Business Power of the Pacific Rim*, 24 *MAN. RES. NEWS* 141 (2001); JOHN RAVENHILL, *APEC AND THE CONSTRUCTION OF PACIFIC RIM REGIONALISM* (2002); and DEREK MCDUGALL, *ASIA PACIFIC IN WORLD POLITICS* (2007).



# CURRENT STATUS AND RECENT DEVELOPMENTS IN CANADA'S NATIONAL SPACE LAW AND ITS RELEVANCE TO PACIFIC RIM SPACE LAW AND ACTIVITIES

*Bruce Mann\**

There have been no legislative changes in Canada's national space law<sup>1</sup> over the last couple of years, nor has there been any space law jurisprudence. However, a couple of unusual satellite licensing situations in Canada will be of particular interest to Pacific Rim countries, as will an analysis of Canada's legislated capacity to implement space debris mitigation guidelines.

## I. MARITIME TRAFFIC INFORMATION FROM REMOTE SENSING SATELLITES

In April 2009, the Canadian space hardware designer and manufacturer COM DEV International Ltd. announced<sup>2</sup> that it had successfully completed testing of a satellite to be used in a high performance maritime Automatic Identification System (AIS) capable of receiving and de-colliding AIS signals from thousands of ships around the world, including busy shipping lanes such as the Pacific Rim's Malaca Straits. A subsidiary, exactEarth Ltd.,<sup>3</sup> was created in June 2009 to provide detailed near real time data about ship traffic to customers worldwide, using a constellation of satellites to be built and placed in orbit over the next few years.

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\* Senior Counsel, Justice Legal Services Division, Department of Foreign Affairs and International Trade, Ottawa, Canada. The opinions in this paper are his own and do not necessarily reflect the views of the Government of Canada.

<sup>1</sup> Remote Sensing Space Systems Act, 2005 S.C., ch. 45 (Can.) [hereinafter RSSSA].

<sup>2</sup> Press Release, Com Dev Int'l, Com Dev Successfully Demonstrates Advanced Space-Based AIS Technology, (Apr. 28, 2009), <http://micro.newswire.ca/release.cgi?rkey=1704286079&view=28380-0&Start=10&htm=0> [hereinafter Com Dev Int'l].

<sup>3</sup> exactEarth Ltd., <http://www.exactearth.com/about-us.aspx> (last visited Nov. 25, 2009).

Although the system at first blush appears to be a satellite communications relay, it in fact meets the definition in Canada's legislation<sup>4</sup> of a "remote sensing space system," since it is comprised of:

(a) one or more remote sensing satellites and the mission control centre and other facilities used to operate the satellites; and

(b) the facilities used to receive, store, process or distribute raw data from the satellites.<sup>5</sup>

The satellites are considered to be "remote sensing satellites" because they are capable of sensing the surface of the Earth through the use of electromagnetic waves.

Not unlike optical and hyperspectral sensors, which detect electromagnetic waves emanating from sources on the surface of the Earth, the Com Dev system will produce information about the location of ships on the surface of the Earth that is derived from AIS transponder signals received from each ship, giving the ship's location (based on GPS signals received by the ship), heading, speed, cargo, etc.<sup>6</sup> AIS receivers on ships or on land are limited in range to a radius of about 90 km, due to the curvature of the surface of the Earth. A satellite-borne AIS sensor, circling the globe in 90-100 minutes, can detect signals over a swath of several thousand kilometres.

While AIS signals from ships are not encrypted, their aggregation into a "global maritime picture"<sup>7</sup> makes the data far more sensitive, calling for encryption of downlinked data and restrictions on distribution of data products.

If the system were to combine AIS data with optical or SAR satellite data indicating the location of ships, it could provide valuable information about the presence of ships that are not transmitting AIS signals (or that are transmitting misleading signals), with obvious environmental and international security implications.

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<sup>4</sup> RSSSA, *supra* note 1.

<sup>5</sup> *Id.*

<sup>6</sup> Com Dev Int'l, *supra* note 2.

<sup>7</sup> This is the term used by exactEarth Ltd. See <http://www.exactearth.com/Data-Integrity.aspx>.

## II. LICENCE REQUIRED FOR OPERATION OF GROUND STATION IN CANADA, USING FOREIGN-OWNED SATELLITES

Early in 2009, the German Aerospace Agency (DLR)<sup>8</sup> announced its intention to develop a satellite ground station at Inuvik, in Canada's Northwest Territories, to downlink data from foreign-owned satellites operated from outside Canada. Construction of the satellite station by a Canadian-Swedish company, PrioraNet Canada<sup>9</sup> is under way. The location will be of particular interest to Pacific Rim nations, as it will provide immediate downloading capability of data collected over their territories on South-North passes of polar orbit remote sensing satellites, overcoming limits of the station mask of far-North satellite receiving stations on the other side of the North Pole.

The fundamental licence requirement under Canadian legislation states as follows:

5. No person shall operate a remote sensing space system in any manner, directly or indirectly, except under the authority of a licence.<sup>10</sup>

In this case, the satellites and ground receiving station together comprise a system under Canada's RSSSA, and a licence is required even though only part of the system is operated in Canada.<sup>11</sup> However, if the satellites themselves are to be operated under a regime licensed and controlled in a like-minded foreign state, the operation of the satellites can be exempted from the provisions of the RSSSA. The Minister of Foreign Affairs can make an exemption order where key Canadian interests (Canada's national security, the defence of Canada, the safety of Canadian forces, Canada's conduct of international relations, and Canada's international obligations) would not be compromised, and provision can be made for protection of the

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<sup>8</sup> Applied Remote Sensing Cluster, *Inuvik, Set-up of DLR-receiving antennas for the TanDEM-X mission in INUVIK (North Canada) has been successfully*, [http://www.dlr.de/caf/en/desktopdefault.aspx/tabid-2677/4035\\_read-19272/](http://www.dlr.de/caf/en/desktopdefault.aspx/tabid-2677/4035_read-19272/) (last visited Nov. 26, 2009).

<sup>9</sup> Space Mart, *PrioraNet Canada - A New Canadian Swedish Space Company*, Nov. 9, 2009, [http://www.spacemart.com/reports/PrioraNet\\_Canada\\_A\\_New\\_Canadian\\_Swedish\\_Space\\_Company\\_999.html](http://www.spacemart.com/reports/PrioraNet_Canada_A_New_Canadian_Swedish_Space_Company_999.html).

<sup>10</sup> RSSSA, *supra* note 1.

<sup>11</sup> *Id.*

environment, public health and the safety of persons and property.<sup>12</sup> The exemption order could apply to the satellites and all foreign ground facilities, leaving Canada to regulate only the ground receiving station and related processing and distribution facilities in Canada.

### III. SPACE DEBRIS MITIGATION GUIDELINES

Several recent events have moved the subject of liability for space debris from interesting academic discussion to a real world issue that requires legal analysis. The Chinese anti-satellite (ASAT) experiment in January 2007 brought home not only the enhanced risk to spacecraft for decades to come from the resulting debris, but our inability to deal with such risk-creation legally until such time as it manifests itself in damage to the property of other states.<sup>13</sup> The collision between *Cosmos 2251* and *Iridium 33* a year later (February 2009) belied to a certain extent the emerging conventional wisdom that it is really just the untrackable tiny bits of space debris we should worry about, and not so much intact satellites.<sup>14</sup> And then in March 2009 the reality of the danger from space debris was reinforced when three astronauts on the *International Space Station* were forced to take refuge in the *Soyuz* pod, ready to make their escape and return to Earth should the Space Station be catastrophically damaged.<sup>15</sup> A week or so later the *RADARSAT* operators were put on alert about the risk of collision with debris from the *Cosmos-Iridium collision*, which reportedly is spread over altitudes from 500 to 2000 km.<sup>16</sup>

Canada supports the Space Debris Mitigation Guidelines (Guidelines) established by the Inter-Agency Space Debris Coor-

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<sup>12</sup> *Id.* at cl. 3 (a) - (c).

<sup>13</sup> Marc Kaufman & Dafna Linzer, *China Heats Up Space Arms Race; Destroyed Own Satellite, Sparking Condemnation from Many Countries*, HAMILTON SPECTATOR, Jan. 17, 2007, at A06.

<sup>14</sup> Tu Thanh Ha, *Satellite Smash-up Creates Dangerous Debris*, GLOBE & MAIL, Feb. 13, 2009, at A2.

<sup>15</sup> *Astronauts Evacuated Over Debris*, WINNIPEG FREE PRESS, Mar. 13, 2009, at A17.

<sup>16</sup> Anthony Salloum, *Opinion, Reaching for the Stars Through a Cloud of Debris; Growing Importance of Space Makes It important to Have a Long-term Strategy*, TORONTO STAR, July 20, 2009, at A11.

dination Committee (IADC), as endorsed by the United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS) in 2007.<sup>17</sup> The Guidelines have not been explicitly implemented in Canadian legislation, but they can be given effect through existing legislation and administrative arrangements.

Under Canada's Remote Sensing Space Systems Regulations<sup>18</sup> (RSSSR), in order to obtain an operating licence, a system operator must provide detailed information about the launch, about the orbit, and about the potential hazard from space debris and the strategy to mitigate that hazard for each satellite of the system.<sup>19</sup> An operating licence will not be issued unless the Minister of Foreign Affairs has approved a System Disposal Plan that provides for protection of the environment, public health and the safety of persons and property.<sup>20</sup> A satellite licensee (or former licensee) is required by law to ensure that satellites are disposed of in accordance with an approved System Disposal Plan.<sup>21</sup>

As illustrated below, the seven Space Debris Mitigation Guidelines can be implemented in respect of Canadian remote sensing space systems so as to minimize the probability of accidental collisions involving Canadian satellites or debris generated wholly or in part from the operation of Canadian satellites.

Guideline 1: Limit debris released during normal operations.<sup>22</sup>

The information to be submitted for a Canadian satellite system licence<sup>23</sup> requires an assessment of space debris expected to be released from each satellite during normal operations and the measures proposed to mitigate the production of space debris.

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<sup>17</sup> Comm. on the Peaceful Uses of Outer Space, *Report of the Committee on the Peaceful Uses of Outer Space*, U.N. Doc. A/62/20 (June 26, 2007). The UN General Assembly subsequently endorsed the U.N. *Space Debris Mitigation Guidelines*. See G.A. Res. 62/217, U.N. Doc. A/RES/62/217 (Jan. 10, 2008).

<sup>18</sup> Remote Sensing Space Systems Regulations, S.O.R./ 2007-66 (Can.) [hereinafter RSSSR].

<sup>19</sup> *Id.* at Schedule 1, §§ 9 – 12.

<sup>20</sup> RSSSA, *supra* note 1, § 9(1).

<sup>21</sup> *Id.* at ¶ 9(1)(a)(i).

<sup>22</sup> *Report of the Committee on the Peaceful Uses of Outer Space*, *supra* note 17, at Annex § 4.

<sup>23</sup> RSSSR, *supra* note 18, at Schedule 1, ¶ 12(h).

Guideline 2: Minimize the potential for break-ups during operational phases<sup>24</sup>

The information to be submitted for a satellite system licence<sup>25</sup> requires an assessment of space debris expected to be released by intentional break-ups and the measures proposed to mitigate the production of space debris.

Guideline 3: Limit the probability of accidental collision in orbit<sup>26</sup>

Orbit information, including launch, operational, and proposed disposal orbits must be provided<sup>27</sup> to obtain a licence and must be kept up-to-date. To protect their investment, satellite operators can be expected to monitor for potential collisions, and take appropriate evasive measures. Inactive satellites cannot take evasive measures, and for this reason a detailed system disposal plan is required,<sup>28</sup> to ensure that Canadian satellites, at the end of their mission life, will be de-orbited safely.

Guideline 4: Avoid intentional destruction and other harmful activities<sup>29</sup>

An assessment must be provided about debris expected to be released during normal operations by explosions, and measures to mitigate the production of space debris.<sup>30</sup> Intentional destruction of a satellite may not be harmful if it is carried out at the point of re-entry into Earth's atmosphere, in order to facilitate burn-up.

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<sup>24</sup> *Report of the Committee on the Peaceful Uses of Outer Space*, *supra* note 17, at Annex § 4.

<sup>25</sup> RSSSR, *supra* note 18, at Schedule 1, ¶ 12(h).

<sup>26</sup> *Report of the Committee on the Peaceful Uses of Outer Space*, *supra* note 17, at Annex § 4.

<sup>27</sup> RSSSR, *supra* note 18, at Schedule 1 § 11.

<sup>28</sup> RSSSA, *supra* note 1, at ¶ 9(1)(1)(a).; Remote Sensing Space Systems Regulations, *supra* note 18, at Schedule 1 § 12.

<sup>29</sup> *Report of the Committee on the Peaceful Uses of Outer Space*, *supra* note 17, at Annex § 4.

<sup>30</sup> RSSSR, *supra* note 18, at Schedule 1, ¶ 12(h).

Guideline 5: Minimize potential for post-mission break-ups  
resulting from stored energy<sup>31</sup>

Licensees are required to estimate the quantity of hazardous material and dangerous goods that will be in a satellite at the end of its mission life.<sup>32</sup> While this information requirement is designed to identify, and minimize the quantity expected to reach the surface of the Earth on re-entry, it is also useful to estimate the degree of risk presented by such material should a satellite become inactive and uncontrollable before a disposal plan can be carried out.

Guideline 6: Limit the long-term presence of spacecraft and  
launch vehicles orbital stages in low-Earth orbit (LEO) region  
after the end of their mission.<sup>33</sup>

The technical description of each remote sensing satellite included in a system licence application is required to include the amount of propellant allocated for the disposal of the satellite.<sup>34</sup> It is a normal licence condition that this minimum amount of propellant be maintained at all times, in order to facilitate the timely de-orbiting of a satellite at the end of its mission life. In fact, the mission life may depend on the amount of propellant maintained in this reserve.

Guideline 7: Limit the long-term interference of spacecraft and  
launch vehicle orbital stages with the geosynchronous Earth  
orbit (GEO) region after the end of their mission.<sup>35</sup>

For geosynchronous satellites, the reserve amount of propellant allocated for the disposal of the satellite, as required to be reported in a licence application, must be sufficient to place

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<sup>31</sup> *Report of the Committee on the Peaceful Uses of Outer Space*, *supra* note 17, at Annex § 4.

<sup>32</sup> RSSSR, *supra* note 18, at Schedule 1, ¶ 12(f).

<sup>33</sup> *Report of the Committee on the Peaceful Uses of Outer Space*, *supra* note 17, at Annex § 4.

<sup>34</sup> RSSSR, *supra* note 18, at Schedule 1 ¶ 13(a).

<sup>35</sup> *Report of the Committee on the Peaceful Uses of Outer Space*, *supra* note 17, at Annex § 4.

the satellite in a supersynchronous “graveyard” orbit at the end of its mission life.<sup>36</sup>

Although the System Disposal Plan (Plan) normally is prepared by the satellite system licensee, and approved by the Minister of Foreign Affairs when issuing a licence, the Plan can be amended at any time by the Minister, upon giving notice to the Licensee and providing time for the Licensee to make representations.<sup>37</sup> In this way, the Minister of Foreign Affairs can incorporate elements of the Space Debris Mitigation Guidelines into the System Disposal Plan for a licensed satellite system even after the licence has been issued.

A satellite system licence can be cancelled by the Minister for a number of reasons, including the licensee’s failure or *inability* to comply with the conditions of the licence, including the System Disposal Plan.<sup>38</sup> When a licence is cancelled, the Minister may make an order requiring the person whose licence is cancelled to take any measures the Minister considers advisable, having regard to the system disposal plan, including its provisions for the safety of persons and property.<sup>39</sup>

Thus although the legal route is somewhat torturous, under Canadian law, the Space Debris Mitigation Guidelines can be implemented and enforced, in respect of satellites of licensed Canadian remote sensing space systems.

#### IV. *RADARSAT-1* WILL ADHERE TO GUIDELINES

In their presentation at the 2009 Space Governance Roundtable and Space Debris Congress<sup>40</sup> the Canadian Space Agency (CSA) stated that disposal plans for *RADARSAT-1* satellite are guided by UNCOPUOS Space Debris Mitigation Guidelines 5 and 6. The CSA plans to dissipate potential energy stored in

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<sup>36</sup> Lynda Hurst, *Space the Final Frontier for “Orbital Debris”*, TORONTO STAR, Apr. 7, 2008, at 02.

<sup>37</sup> RSSSA, *supra* note 1, ¶ 9(3)(b).

<sup>38</sup> *Id.* at clauses 10-13.

<sup>39</sup> *Id.*

<sup>40</sup> Hughes Gilbert, Canadian Space Agency, presentation to the McGill Institute of Air and Space Law International Interdisciplinary Congress on Space Debris, Session 3, *Implementation of the UN Space Debris Mitigation Guidelines in Canada*, (May 7, 2009). [www.mcgill.ca/files/iasl/Session\\_3\\_Hugues\\_Gilbert.pdf](http://www.mcgill.ca/files/iasl/Session_3_Hugues_Gilbert.pdf).

propellant tanks, wheels and batteries, with the remaining propellant to be used to lower the orbit of the satellite and orient it so as to maximize drag as it enters the atmosphere.<sup>41</sup>

The *RADARSAT-1* satellite was put into operation in 1995, with an expected service life of 5 years.<sup>42</sup> When its end of life comes imminent, its operator, the Canadian Space Agency, will have to balance the value of its continued operation against the likelihood of its failure (loss of control) and the risk it will present if not de-orbited safely.

#### A. Other satellites

There is no corresponding legislation with respect to satellites that do not fall under the jurisdiction of the Remote Sensing Space Systems Act, notably communications satellites. However, Canadian applicants for geostationary satellite radiofrequency licences issued by Canada's Department of Industry are asked to comply with the International Telecommunications Union's Recommendation ITU-R S.1003,<sup>43</sup> which among other things recommends:

- that as little debris as possible should be released into the geostationary region during the placement of a satellite in orbit;<sup>44</sup>
- that every reasonable effort should be made to shorten the lifetime of debris in the transfer orbit;<sup>45</sup>
- that a geostationary satellite at the end of its life should be transferred, before complete exhaustion of its propellant, to a supersynchronous graveyard orbit such that the disposed satellite does not subsequently intersect the geosta-

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<sup>41</sup> *Id.*

<sup>42</sup> Paul Taylor, *A Hawkeyed Addition to Canada's Arctic Arsenal, Nothing Larger Than a Car Will Escape the Gaze of Radarsat 2, Set to Monitor Climate Change and Traffic in the North*, GLOBE & MAIL, Dec. 10, 2007, at A3.

<sup>43</sup> International Telecommunication Union/ITU Radiocommunication Sector, *Environmental Protection of the Geostationary-Satellite Orbit*, ITU-R S.1003-1 (Jan. 1, 2003), available at <http://electronics.ihs.com/document/abstract/U.S.AZEBAAAAAAAAA>.

<sup>44</sup> *Id.*

<sup>45</sup> *Id.*

tionary region under the influence of perturbing forces on its trajectory within 200 km of the geostationary altitude.<sup>46</sup>

Canada's Department of Industry recommends that Canadian satellite operators transfer satellites at the end of their mission life to a super synchronous orbit at least 300 km higher than the 35,786 km geosynchronous orbit.<sup>47</sup>

Canadian legislation does not give government officials direct authority to order Canadian commercial communications satellite operators to carry out such manoeuvres. This being said, there have been no incidents where Canadian satellite operators have refused to follow such Industry Canada recommendations.

### *B. Liability issues*

While Canada, like many countries, voluntarily supports the non-binding Space Debris Mitigation Guidelines<sup>48</sup> of the Committee on the Peaceful Uses of Outer Space, one cannot ignore the possibility that the *Guidelines* will become relevant to the determination of fault in chain-reaction situations where the debris resulting from the collision of two spacecraft damages a third spacecraft. The relevant portions of Article IV of the Convention on International Liability for Damage Caused by Space Objects<sup>49</sup> (Liability Convention) provide:

1. In the event of damage being caused elsewhere than on the surface of the Earth to a space object of one launching State ... by a space object of another launching State, and of damage thereby being caused to a third State ... the first two States shall be jointly and severally liable to the third State, to the extent indicated by the following: ... (b) If the damage has been caused to a space object of the third State ... elsewhere than on the surface of the Earth, their liabil-

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<sup>46</sup> *Id.*

<sup>47</sup> Hurst, *supra* note 36.

<sup>48</sup> *Space Debris Mitigation Guidelines*, *supra* note 17.

<sup>49</sup> Convention on International Liability for Damage Caused by Space Objects, *opened for signature* Mar. 29, 1972, art. IV, 24 U.S.T. 2389, 961 U.N.T.S. 187 [hereinafter *Liability Convention*].

ity to the third State shall be based on the fault of either of the first two States.<sup>50</sup>

2. In all cases of joint and several liability referred to in paragraph 1 of this article, the burden of compensation for the damage shall be apportioned between the first two States in accordance with the extent to which they were at fault; if the extent of the fault of each of these States cannot be established, the burden of compensation shall be apportioned equally between them.<sup>51</sup>

If satellite A collides with satellite B, and a piece of the resulting debris is determined to be the cause of damage to satellite C, the launching States of satellites A and B are liable to the launching state of satellite C, in proportion to the extent to which they were at fault. According to the Convention, it does not appear to be necessary to prove which of the satellites the piece of debris fatal to satellite C came from. Naturally States A and B will each seek to prove that they were not at fault, or at least were only at fault to a small degree, in respect of the initial collision, to avoid liability to each other and to state C.

It might also be important to determine whether state C had sufficient warning about the imminent possible collision between satellites A and B to take evasive action and steer clear of the debris cloud of satellites A and B. If the enhanced debris cloud, containing debris of satellites A, B, and C, were to damage a fourth satellite D, the degree of fault of all countries, including state D, which theoretically might have taken measures to avoid the debris cloud, would have to be examined. To date there is no jurisprudence under the Liability Convention to describe the parameters for determining fault. One might expect questions such as:

Why did satellites A and B collide? If either of them were active, what measures did their operators take to steer clear of a collision? If either of them were inactive, why were they still in orbit? Did their operators ignore warning signs of imminent failure in order to prolong revenue? What measures did their

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<sup>50</sup> *Id.* at art. IV ¶ 1.

<sup>51</sup> *Id.* at art. IV ¶ 2.

operators take to render them less lethal, and mitigate the amount of space debris should they be involved in a collision, such as deleting propellant, shutting down reaction wheels and discharging batteries? Did their owners continue to track them, so as to be able to warn other satellite operators of potential collisions? Did their owners orient them so as to minimize their cross-sectional area in their orbital path? Was the enhanced debris cloud from satellites A, B, and C so large that the operator of satellite D could not avoid it even if forewarned?

Would an internationally supported space object tracking system<sup>52</sup> designed to track millions of objects, including debris clouds associated with a particular explosion or collision, be able to provide clear evidence of responsibility for collisions?

As debris clouds become more prevalent and it becomes impossible to track and assess the actual liability of individual States for a loss, would it be reasonable for space-faring States to be assessed a contribution to enterprise liability, based on individual acts of risk-creation such as failing to de-orbit a satellite or failing to deplete propellant before a satellite becomes inactive.

The Space Debris Mitigation Guidelines, insofar as they set identifiable and measurable duties of care on space faring States, may be seen as highly relevant in the future in determining the extent to which States are at fault in two-object collisions, and for creating debris clouds which subsequently inflict damage to the space objects of third States.

The prospect of being detected and held accountable for future damage from space debris could be a powerful incentive to adhere strictly to the Guidelines.

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<sup>52</sup> Currently, Stratcom, a branch of the U.S. Air Force, tracks several thousand space objects.

# CURRENT STATUS AND RECENT DEVELOPMENTS IN KOREA'S NATIONAL SPACE LAWS

*Sang-Myon Rhee*\*

## I. INTRODUCTION

South Korea decided to enter into the space race rather late. It was not until 1987, some thirty years after the first satellite *Sputnik* was launched by the Soviet Union in 1957. It has launched a satellite and determined to launch its satellite at its own space center, to be set up in the future. Although its recent effort on August 25, 2009, to launch a satellite at the newly established Naro Space Center by using Russian rocket technology turned out to be a failure, it is expected that South Korea will again show its resilience with another effort again in a year. Currently, it has eleven satellites getting ready to be launched elsewhere as “piggy-back” payloads. The most recent one *Arirang 2*, launched on July 28, 2006 at Plesetsk in Russia, is equipped with a one-meter resolution camera. The first South Korean female astronaut Yi So-yeon carried out science experiments on board a *Soyuz TMA-12* a Russian craft launched on April 8, 2008. South Korea has also exported its prototype satellites and related parts to developing countries using its advanced technology, including optical lens cameras such as has recently been sold to Turkey. Once it acquires its own launching capability, hopefully in the next attempt, it may enter into the group of space faring nations. The development of space law has paralleled the development of space technology and activities since the establishment of the Korean Aerospace Research Institute (KARI) in 1989. For these reasons, it is useful to examine the aspects of development of South Korea's national legislation

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\* Professor of Law, Seoul National University (SJD, Harvard). A member of the Board of Directors, International Institute of Space Law.

along with those in the development of space technology, industry, and activities.

## II. AEROSPACE INDUSTRY PROMOTION ACT (1987, 2008) AND THE FOUNDATION

It was nearly a year before the Seoul Olympic in 1988 that South Korea showed its will to develop space technology and industry by enacting the Aerospace Industry Promotion Act<sup>1</sup> in December 1987. Article 1 of the Aerospace Industry Promotion Act states that its aim is to promote research and development of aerospace science and technology, and to support aerospace industry in a rational way for a healthy development of the national economy and thereby elevating the living standard of the people.<sup>2</sup> South Korea was then turning into a democratic country wrapping up the era of the military rule of over a quarter of a century. The Korean National Assembly in concert with the newly reforming government adopted the Aerospace Industry Promotion Act to lay the foundation of the new era by promoting the research and development of aerospace technology and industry as a part of developing its economy as one of the newly industrialized countries. The Aerospace Industry Promotion Act first of all stated the Government's duty to make plans for the goal and the direction along with strategies; to procure financial sources to bring up experts; and to procure financial resources to invest them to construct the foundation for the industry by tapping resources abroad to expedite the development through international cooperation with the developed countries.

The Aerospace Industry Promotion Act pursued the promotion of the technology and science for the development of the aerospace industry in hoping that the development in such fields may help develop its national economy. Thus the priority in such investments was apparently on the development of airplanes including passenger airplanes, jet fighters, military helicopters, etc. Developing space objects might have looked like a

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<sup>1</sup> Aerospace Industry Promotion Act, Act No. 3991 (Dec. 4, 1987).

<sup>2</sup> *Id.* at art. 1.

remote possibility.<sup>3</sup> What the Government could do for space science and technology was merely to give projects to capable national or public research institutes or universities. The government also was to financially help such related organizations that would pursue such goals following the themes of the Aerospace Industry Promotion Act.<sup>4</sup>

Korea Advanced Institute of Science and Technology (KAIST) was firstly designated by the then Ministry of Science and Technology as one of the most favored institutions to be considered for a investment partner in the field. In less than three years, it made a 48kg satellite *Uribyol (Our-Star)* in September 1991, assisted by a team of the University of Surrey in England, and successfully launched it as piggyback outside of Korea in August 1992.<sup>5</sup> KAIST made *Uribyol No. 2* in September of the next year and an advanced *Uribyol No. 3* in May 1999 now with its own technology.<sup>6</sup> *Uribyol No. 3* weighing 110 kg and was equipped with a camera for 400 meter resolution and other various experimental equipments for telecommunications, radioactivity, among others. It was relatively advanced compared to the previous two satellites in the series with a far advanced three channel fan shaped CCD camera for 15 meter high resolution and advanced instruments for testing radioactivity, sound transmission, and electronic gauges for measuring temperature and magnetism.<sup>7</sup>

South Korea soon set up another goal in November 1994 to launch *Arirang* series multipurpose satellites to observe the Korean peninsula and the marginal seas, and to conduct various tests in the space regarding environmental matters. *Arirang 1* with 470 kg developed by the Korea Aerospace Research Institute (KARI) and TRW, Inc. was launched successfully in December 1999 from the Vandenberg Space Center in the U.S. It

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<sup>3</sup> Now, South Korea produces small passenger airplanes, elementary supersonic jet fighters, and certain military helicopters equipped with modern intellectual technology.

<sup>4</sup> Aerospace Industry Promotion Act, *supra* note 1, at art. 4.

<sup>5</sup> See Satellite Technology Research Center, KAIST, *Current Status and Plans of Space Development of Our Country*, available at [http://143.248.9.139/sub\\_02\\_2.asp](http://143.248.9.139/sub_02_2.asp) (last visited Dec. 1, 2009).

<sup>6</sup> *Id.*

<sup>7</sup> *Id.*

contained a camera with 6.6 meter resolution.<sup>8</sup> A development project for *Arirang 2* started in December 1999 right after the first one, but its launch became rather late due to the cancellation of the launch contract with China in 2001 due to the U.S. advise that China was not a member of the Missile Technology Control Regime (MTCR). For these reasons, *Arirang 2* was launched late on July 28, 2006 at Plesetsk Russia.<sup>9</sup> It equipped with 1 meter high resolution camera in black and white, which had been developed jointly with ELOP, Ltd. in Israel.<sup>10</sup>

Less than ten years since its first show of interests in the development of space technology and industry, South Korea dared in April 1996 to draw a preliminary basic plan to launch its own satellites at its own launching center using its own launch vehicles. A 'basic plan' for such purpose was established in December 2000 after a series of revisions.<sup>11</sup> Unfortunately, however South Korea did not have any experience in launching comparable rockets, which was influenced by the traditional policy of the U.S. to the effect that having such a capacity might incite North Korea's ambition to develop intercontinental missiles. In 2001 South Korea chose to join the MCTR in 2001, so as, hopefully, to tap expertise from a developed member of the group. By joining the group, it was allowed to develop a ballistic missile capability of flying, at most, a 300 kilometer range, which is a standard set by the MCTR. However, it has to rely on itself for higher technology. On November 28, 2002, Korea claimed for a successful development of three stage liquid fuel rocket, *KSR-III*.<sup>12</sup> It was based on its previous development of one and two stages solid fuel rockets in the earlier and latter parts of the 1990s. It was a notable development in that all the skills and the parts of the *KSR-III* was procured only from do-

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<sup>8</sup> *Id.*

<sup>9</sup> See *The U.S. Dissuaded Russia from Transferring Rocket Technology to South Korea Worrying about Development of WMD*, 566 SHINDONG-A 82-92 (Nov. 1, 2006).

<sup>10</sup> See Satellite Technology Research Center, KAIST, [http://143.248.9.139/sub\\_02\\_2.asp](http://143.248.9.139/sub_02_2.asp) (last visited Dec. 1, 2009).

<sup>11</sup> Choe Jong-bae, *Space Development Plan of Our Country*, 12 (4) MULIHAG-GUA CHEOMDAN-GISUL [PHYSICS & HIGH TECHNOLOGY] 3 (2003).

<sup>12</sup> *Id.*

mestic resources without any assistance from abroad.<sup>13</sup> In August 2002, Korea started developing the first domestic launch vehicle *KSLV-1*, and revamped its efforts to construct the Naro Space Center at the southern tip of the peninsula.

A third series of satellites that the Ministry had planned since October 1998 was the *Science Technology Satellite (STSAT)*. The first one was launched on September 27, 2003 at Plesetsk Russia. Payloads included Data Collection System (DCS), Narrow Angle Star Sensor (NAST), Solid State Telescope (SST), and the FUV Imaging Spectrograph (FIMS). Unfortunately, the second *STSAT* was not successfully launched by the two stage *KSLV-1* on August 25, 2009 at the Naro Space Center. Its first stage rocket provided by Russia and the second stage one manufactured solely by Korean technology functioned all right, but the satellite itself was unable to enter into the designated low orbit due to the mal-function of the separation scheme of the double cover at the final stage.

### III. SPACE DEVELOPMENT PROMOTION ACT (2005, 2009)

Along with the progress of science and technology toward launching its own satellite at its own Space Center, South Korea pursued enacting basic laws for space development, which would pave the way toward becoming a space faring nation. The 1987 Aerospace Industry Promotion Act contributed toward the development of aerospace technology and industry. In the mean time, without any comprehensive law dealing with satellites, the Government had to apply various rules scattered in different Acts. Along with its ambitious plan for a self-reliant satellite launch, Korea needed a basic space law for an orderly and effective promotion of space development. In 2005 South Korea enacted the Space Development Promotion Act at the time when the initial plan of the launch was formulated.<sup>14</sup>

The purpose of the Space Development Promotion Act is to pursue the systematic promotion of space development and the

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<sup>13</sup> *Id.*

<sup>14</sup> Space Development Promotion Act, Act No. 9440 (Feb. 6, 2009), *effective* Aug. 7, 2009.

effective use and management of space objects, thereby contributing toward the national security and the development of the national economy to elevate the standard of living of the people.<sup>15</sup> The words of “space development” mean research activities and technology development activities relevant to the design, manufacturing, launch and/or operation of space objects, and the use and exploration of outer space as well as activities that promote such activities. The Space Development Promotion Act would not conflict with the 1987 Aerospace Industry Promotion Act, which was to deal with the aspects of industries for development of science and technology in aerospace matters and the necessary governmental support and assistance thereto.

The Space Development Promotion Act is a basic law dealing with space development and the effective use and management of space objects unless otherwise provided elsewhere.<sup>16</sup> It provides first of all for the duties of the Government,<sup>17</sup> which include making basic plans for space development and implementing them to meet overall policies in conformity with space treaties that it has ratified.<sup>18</sup> The Minister of Education, Science and Technology (MEST) shall map out a Basic Plan every five years subject to review and deliberation by the National Space Committee, composed of ministers of MEST, the Ministry of Foreign Affairs, the Ministry of Defense, and other chiefs of the related central administrative agencies, along with civilian experts having extensive knowledge and experience. MEST should make a yearly execution plan.<sup>19</sup> Since it is a bifocal organization of education and science, the deputy minister in charge of the latter deals with matters of space development. The Basic Plan would provide the purpose and scope of space development policies and the plans to implement them with strategy for space development through designated organizational structure based on an expanded foundation and infrastructure necessary for space development. It also provides the task of investment

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<sup>15</sup> *Id.* at art. 1.

<sup>16</sup> *Id.* at art. 4.

<sup>17</sup> *Id.* at art. 5.

<sup>18</sup> *Id.* at art. 3.

<sup>19</sup> *Id.* at art. 5.

planning for obtaining the financial resources necessary for space development. It should, of course, include plans for training specialists necessary for space development to be executed following the guidelines for promoting space development projects with possible international cooperation outlined therein. It further stipulates rules relating the use and management of space objects, and the practical applications using the results of space development, such as satellite information, etc.<sup>20</sup>

The Basic Plan should be reviewed by the National Space Committee.<sup>21</sup> It has been established under the President of the Republic to review primary governmental policies relevant to the Basic Plan, and any possible modulation of related affairs of the government agencies. It would also assess the use and management of space development projects, and review generation of financial resources necessary for space development as well as investment plans. It also deals with such practical matters as giving launch permits of space objects.<sup>22</sup> The National Space Committee has a Subcommittee of Practical Affairs for Promotion of Space Development, chaired by the Deputy Minister of the MEST in charge of science to carry out its affairs effectively.<sup>23</sup>

The Space Development Promotion Act also provides an article dealing with an expert body, the Space Development Institute, to be designated by MEST to implement space development projects.<sup>24</sup> Such an Institute is to carry out execution of space development projects in accordance with the Basic Plan for integrated development, launch, and operation of space objects, and other affairs relevant to space development projects set by Presidential Decree. As yet the Korea Aerospace Research Institute (KARI) would be the sole candidate for such an expert body.<sup>25</sup>

Next, the Space Development Promotion Act provides administrative matters of registration dealing with launches fol-

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<sup>20</sup> *Id.*

<sup>21</sup> *Id.* at art. 6.

<sup>22</sup> *Id.*

<sup>23</sup> *Id.* at art. 6(5).

<sup>24</sup> *Id.* at art. 7(1).

<sup>25</sup> *Id.* at art. 7.

lowing the terms provided in the Convention on Registration of Objects Launched into Outer Space (Registration Convention).<sup>26</sup> With regard to registration of domestic space objects, Korean citizens who desire to launch a space object within the country or elsewhere outside the country, shall make a preliminary registration to the MEST in accordance with Presidential Decree not more than 180 days before the scheduled launch date.<sup>27</sup> Foreigners who would make a preliminary registration to the MEST should identify the launching in an area or facility within Korean territory or its jurisdiction.<sup>28</sup> Korean citizens should do the same when launching a satellite in a foreign country or when utilizing a space launch vehicle owned by the Korean government or Korean citizens. Any person, who would make a preliminary registration of a space object above shall then formally register it with the MEST in accordance with the Enforcement Ordinance of the Space Development Promotion Act<sup>29</sup> not more than 90 days after it reaches its planned orbit.<sup>30</sup> However, space objects registered in foreign countries under agreement with the government of the launching country in the Registration Convention would not have to do so.<sup>31</sup> Once a space object is registered domestically, the MEST shall re-register it with the UN by way of the Ministry of Foreign Affairs and Trade (MOFAT) in accordance with the Registration Convention, with the exception of satellites to be registered with the UN.<sup>32</sup>

With regard to launch permit, the Space Development Promotion Act provides that a person who wants to launch a space launch vehicle is to obtain a permit from the MEST, whether the launch is to take place in an area or facility within Korean

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<sup>26</sup> *Id.* at art. 8-10. See Convention on Registration of Objects Launched into Outer Space, opened for signature Nov. 12, 1974, 28 U.S.T. 695, 1023 U.N.T.S. 15 [hereinafter Registration Convention].

<sup>27</sup> Space Development Promotion Act, *supra* note 5, at art. 8(1).

<sup>28</sup> *Id.* at art. 8(2).

<sup>29</sup> See Enforcement Ordinance of the Space Development Promotion Act, Presidential Decree No. 20793 (May 27, 2008) at art. 10.

<sup>30</sup> Space Development Promotion Act, *supra* note 5, at art. 8(5).

<sup>31</sup> *Id.*

<sup>32</sup> *Id.* at art. 9. According to Art. 44 of the Radio Wave Act, a satellite launched by Korean nationals should be registered with the U.N. in accordance with the Convention on Registration of Objects Launched into Outer Space. See Radio Active Act, Act No. 9780 (enacted Jan. 21, 2000, revised June 9, 2009, enforced Sept. 10, 2009).

territory or its jurisdiction or in a foreign country, utilizing a space launch vehicle owned by the Korean government or Korean citizens. Any person who wants to obtain a launch permit shall submit launch plan to the MEST a launch plan along with a safety analysis report, a payloads operation plan, and the damage liability coverage.<sup>33</sup>

Due to the virtually sea-locked geographical environment with a number of scattered islands and islets off the coast of the southern tip where the Naro Space Center is located, and owing to the sea-locked situation of the peninsula, South Korea may need to make revamped efforts in tackling possibilities for liabilities for any possible damages incurred by launching. The Space Development Promotion Act provides strict liability in accordance with the relevant provisions in the Convention on International Liability for Damages Caused by Space Objects (Liability Convention).<sup>34</sup> Thus, a person who would launch space objects shall assume the liability for damages owing to space accidents caused by the space objects. Since the definition of "space objects" includes space launch vehicle,<sup>35</sup> damages incurred by failed launch should also be included. The scope of liability for damages and the limit of responsibility are also to be specified by other laws,<sup>36</sup> such as the Space Liability Act,<sup>37</sup> which will be analyzed below.

According to the Space Development Promotion Act, the Minister of the MEST may designate an agency responsible for promoting the distribution and use of satellite information obtained through space activities.<sup>38</sup> He or she should discuss such matters as space geographical information with the Minister of Land, Transportation and Maritime Affairs in accordance with the Act of National Space Information.<sup>39</sup> The MEST may support

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<sup>33</sup> *Id.* at art. 11.

<sup>34</sup> *Id.* at art. 14. See Convention on International Liability for Damage Caused by Space Objects, *opened for signature* Mar. 29 1972, 24 U.S.T. 2389, 961 U.N.T.S. 187 [hereinafter Liability Convention].

<sup>35</sup> *Id.* at art. 2 (4).

<sup>36</sup> Space Development Promotion Act, *supra* note 5, at art. 14.

<sup>37</sup> Space Liability Act, Law No. 8852 (Feb. 29, 2008).

<sup>38</sup> *Id.* at art. 17(1).

<sup>39</sup> *Id.*

financially to expedite the distribution and use of such information. The Space Development Promotion Act also declares that the Government should make effort so as not to interfere into private life of a person in utilizing such information.<sup>40</sup> However, it does not deal with any matters relating to international principles relating to remote sensing.

The MEST also has a broad rights and duties in dealing with its role as a modulator of the space program. The Minister may request assistance from relevant government agencies regarding safety matters related to launching and managing possible accidents.<sup>41</sup> He or she may also request for assistance to relevant governmental agencies with regard to carrying out possible support plans to private space development activities and research and development investment by providing space development manpower, tax benefits, financial support, procurement, etc.<sup>42</sup>

The Space Development Promotion Act stipulates rescue of astronauts who fall in Korean jurisdiction due to an accidental or emergency landing, involved in an accident by providing rules regarding the Korean government's duty to render necessary assistance and return them to the country of launch, to the country of registration, or to the international organization responsible for the launch of the said space object.<sup>43</sup> In cases of foreign space objects falling to or making an emergency landing on Korean territory, the Korean government should also return the foreign space objects to the country of launch, country of registration or international organization responsible for the launch of the space objects.<sup>44</sup>

The Space Development Promotion Act also provides certain concerted action by the Government with private individuals and entities. The MEST may collect information and conduct fact-finding surveys on space development activities and space industry for the systematic promotion and effective implemen-

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<sup>40</sup> *Id.* at art. 17(3).

<sup>41</sup> *Id.* at art. 20.

<sup>42</sup> *Id.* at art. 18.

<sup>43</sup> *Id.* at art. 22.

<sup>44</sup> *Id.* at art. 23.

tation of space development activities. It may also request the related central administrative agencies, research centers, educational organizations, or related companies to submit relevant data or statements if deemed necessary for conducting such fact-finding surveys.<sup>45</sup> The MEST may also consign the following activities to government-funded research institutes in the area of science and technology established by law or other related expert institutes, such as safety review relevant to the permits or permits for changes, collection of information and fact-finding surveys on space development activities and space industry.<sup>46</sup>

Finally, the Space Development Promotion Act stipulates penalties for an effective enforcement. First, it prescribes three year imprisonment to those who violated rules of secrecy imposed upon those who currently engage in or previously engaged in any work under the Space Development Promotion Act not to disclose any information they encounter during their duty, or not to use that information except for the purpose of the Space Development Promotion Act.<sup>47</sup> It also stipulated severe penalties as high as five year imprisonment with regard to any launch without the launch permit,<sup>48</sup> as high as three year imprisonment with respect to any violation regarding suspension or revision of the space development.<sup>49</sup> The Space Development Promotion Act also provides various non-penal fines to minor violations relating to registration, report of changed facts, and space accident inquiry.<sup>50</sup>

#### IV. SPACE LIABILITY ACT (2008)

A peculiar aspect of the Korean national legislations regarding space development and activities would be the separate legislation of the Space Liability Act,<sup>51</sup> annexed to Article 14 of the Space Development Promotion Act above. The purpose of

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<sup>45</sup> *Id.* at art. 24.

<sup>46</sup> *Id.* at art. 26.

<sup>47</sup> *Id.* at art. 25.

<sup>48</sup> *Id.* at art. 27(1).

<sup>49</sup> *Id.* at art. 19.

<sup>50</sup> *Id.* at art. 29.

<sup>51</sup> *Id.*

the Space Liability Act is to protect the injured party as well as to contribute to counter any possible demolition of space activities due to too much compensation by stipulating the extent of damages and the limit of liability when the damage incurs in the space activities.<sup>52</sup> One of the reasons for the separate legislation annexed to the Space Development Promotion Act is to make it convenient to stipulate the absolute liability principle as provided in Article II of the Liability Convention as a basic tenet. Considering the possibility of enormous amounts of damages in space related accidents, it would be unreasonable if a launcher were required to make full compensation in accordance with the related general fault provisions in the Korean Civil Law. A launcher may not easily retrieve the possible benefit out of the enormous investment. Article 4 of the Space Liability Act, following the absolute compensation principle declared in Article II of the Liability Convention, declares the same by providing that “in case space damage occurs, the launching party shall have responsibility to pay compensation.”<sup>53</sup>

However, the Space Liability Act provides limited liability in case of space damages occur caused by armed conflict, hostile activity, civil war, or rebellion and when caused in outer space, wherein the launching party shall be liable only if the damage is due to his willful misconduct or negligence.<sup>54</sup> This provision seems to be reasonable because it would be too harsh to apply the principle of absolute liability in case of such abnormal *force majeure* situation. However, it excludes other situations of force majeure caused by natural disaster.

The Space Liability Act further declares that “the launching party who paid compensation for damage caused by the third party’s willful misconduct or negligence may present a claim for indemnification to that third party,”<sup>55</sup> however, “if the damage was due to the supply of components, materials or service (including, physical service), the launching party may present a claim for indemnification to the supplier only if the damage is

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<sup>52</sup> *Id.* at art. 1.

<sup>53</sup> *Id.* at art. 4(1).

<sup>54</sup> *Id.*

<sup>55</sup> *Id.* at art. 4(2).

due to wilful misconduct or gross negligence of the supplier or his employees.”<sup>56</sup> Such limitation of indemnification appears to protect the space related industry in the event of minor negligence, considering the fact that the legal relationship between the launcher and the material or service supplier has already provided in each relevant contract.

The Space Liability Act stipulates Korean Government's right of indemnification “[i]n the event the Government has paid compensation for damage to a foreign state, according to the Liability Convention, it may present a claim for indemnification to the launching party.”<sup>57</sup> As a matter of international comity, the Space Liability Act declares that “The application of this act can be prevented or limited to the natural, legal person, organization or the government of the state in reciprocity.”<sup>58</sup>

Significantly, the Space Liability Act makes it clear that the Product Liability Act<sup>59</sup> is not applied for space damages.<sup>60</sup> This provision has been stipulated apparently to protect the young industries, which might stand as a major compensator due to its supply in case the relevant provisions of the Product Liability Act might apply. For these reasons, it is incumbent for the launcher as a system integrator to examine every part with tight certification system.

The amount of compensation to be paid by the launching party is limited to two hundred billion won, which could be approximately two hundred million dollars, if the exchange rate of one dollar is one thousand Korean won.<sup>61</sup> This could have been provided by using Special Drawing Rights (SDR) instead of Korean won considering its recent trends of fluctuations. The Space Liability Act provides a mandatory participation in a third-party liability insurance, declaring that “[a]ny person seeking to obtain a launch permit for space launch vehicles under Space Development Promotion Act shall insure against the

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<sup>56</sup> *Id.*

<sup>57</sup> *Id.* at art. 3(1).

<sup>58</sup> *Id.* at art. 3(2).

<sup>59</sup> Product Liability Act, Act No. 6109 (enacted Jan. 12, 2000, enforced July 1, 2002).

<sup>60</sup> Space Liability Act, *supra* note 28, at 4(3).

<sup>61</sup> *Id.* at art. 5.

third party liability.”<sup>62</sup> The minimum amount of the third party liability insurance policy under the Space Liability Act is to be set by the decree of the MEST in consideration of the characteristics of space objects, the difficulties of technology, circumstances around the launch site and the domestic and foreign insurance markets.<sup>63</sup> Due to the limited amount of two hundred billion won, which would be around two hundred million US dollars, and possibly insufficient coverage of the insurance policy, the Space Liability Act further provides that “[t]he Government may provide the launching party with the financial support, in case it thinks appropriate in order to achieve the purpose of this Act when the amount of the compensation would exceed the insured amount.”<sup>64</sup> Such a support from the Government could be limited to the extent allowed eventually by a resolution to be adopted at the National Assembly.

In accordance with Article X of the Convention on International Liability for Damages Caused by Space Objects, the Space Liability Act also provides that “[s]uch right of claim for compensation under this Act will extinct by prescription unless the injured party or his legal representative would not make a claim within one year after the date on which the person became aware of the damage and the responsible party.”<sup>65</sup> The period of one year is not a statute of limitation but an extinctive prescription. The Space Liability Act further declares that “the right of claim of compensation according to this Act shall not be exercised once it is over three years from the date of the occurrence of the space damages.”<sup>66</sup> In case where the injured party or his legal representative became not aware of the damage and the responsible party, either of them would then make a claim within three years after the date on which the person was injured.

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<sup>62</sup> *Id.* at art. 6(1).

<sup>63</sup> *Id.*

<sup>64</sup> *Id.* at art. 7(2).

<sup>65</sup> *Id.* at art. 8(1).

<sup>66</sup> *Id.* at art. 8(2).

## V. CONCLUSION

Just as the 1989 Aerospace Industry Promotion Act has laid a legal ground in promoting relevant technology and industries, the 2005 Space Development Promotion Act, revised once in early 2008, and again in early 2009, would also lay a corner stone in promoting space development. The Space Development Promotion Act appears to be a declared norm of the Republic applicable in the process of realizing its dream to become a space faring nation. Space matters are under the control of the Government, the most responsible one being the Ministry of Education, Science and Technology (MEST) subject to the review of its policies by the National Space Committee under the President. The Korea Aerospace Research Institute (KARI) would still remain as one of the most important space research institutes. Korea certainly needs an independent National Space Agency, but as yet the KARI functions as one of most important Space Development Institutes. Despite its contributions in developing space technology the mean time, it is still merely a research institute staying outside the relevant decision making process by the Government.

Korea's separate legislation of the Space Liability Act annexed to the Space Development Promotion Act is unique in that it provides detailed rules of compensation coupled with insurance and possible support by the Government. It should be noted that the Act does deal with direct injury but not indirect injury. The maximum amount of compensation by the launcher two hundred billion won or approximately two hundred million US dollars seems to be rather small taking account of the enormous size of any possible accidents, even if it would be covered by insurance and further by the governmental support through a legislative action by the National Assembly when necessary. Considering the recent fluctuation of the value of the currency up to fifty percent, it would desirable that the Special Drawing Rights (SDR) should be used in calculating the amount of compensation, as has been widely used in international conventions, as well as in domestic laws in various countries including the Commercial Act of South Korea.



# THE ROLE OF INTERNATIONAL LAW IN CHINESE SPACE LAW AND ITS RELEVANCE TO PACIFIC RIM SPACE LAW AND ACTIVITIES

*Li Shouping\**

## I. INTRODUCTION

China successfully launched its first human-made satellite, *Dongfanghong-I*, on April 24, 1970,<sup>1</sup> which marked the commencement of China's space era. In the past four decades, China realized a series of space dreams such as human space flight and lunar exploration, which marked the fast development of China's space technology. China has now joined the ranks of the world's space powers.<sup>2</sup> However, China's space legislation seriously lags behind the development of its space technology.<sup>3</sup> China's space activities are in the stage of administrative management which is oriented by space policies, supplemented by administrative regulation, and without integrated space law.<sup>4</sup>

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\* Professor Li Shouping, LL.M.,PH.D in Law, Space Law Institute, Beijing Institute of Technology, No.5 Zhongguancun South Street, Beijing, China. Email: lishouping@bit.edu.cn.

<sup>1</sup> Info, Office of the St. Council, *China's Space Activities in 2000 (White Paper)*, Part II, (Beijing, China, Nov. 2000) [hereinafter *2000 White Paper*], available at <http://www.china.org.cn/e-white/8/20-3.htm#a>.

<sup>2</sup> See YANSONG, XU, CHINA'S SPACE ACTIVITIES: PRESENT AND FUTURE 57-60 (United Nations Institute for Disarmament Research), <http://www.unidir.org/pdf/articles/pdf-art2663.pdf>; see also, Info, Office of the St. Council, *China's Space Activities in 2006 (White Paper)*, Part II, (Beijing, China, Oct. 2006) [hereinafter *2006 White Paper*], <http://china.org.cn/english/2006/Oct/183588.htm>.

<sup>3</sup> Yun Zhao, *National Space Legislation in Mainland China*, 33 J. SPACE L. 427 (2007).

<sup>4</sup> *Id.* at 428; see also, Prof. Dr. Li Juqian, Assoc. Professor Council-Member of China Inst. of Space Law, Dir. of Pub. Int'l Law Research Inst. Sch. of Int'l Law, China Univ. of Political Sci. and Law Beijing, China, Address at Pacific Rim National Space Law Summit, *Current Legal Status and Developments in Chinese Space Law and its Relevance to Pacific Rim Space Law and Activities* (May 20, 2009), <http://rescommunis.wordpress.com/2009/05/20/pacific-rim-national-space-law-summit-china/>; see also, Comm. on the Peaceful Uses of Outer Space (COPUOS), *Information on National Legislation Relevant to the Peaceful Exploration and Use of Outer Space*, UN. Doc. A/AC.105/932 (Feb. 2,

Prompted by international space legislation and the development of China's space activities, the Chinese government is accelerating its efforts to research China's domestic space legislation and improve its space policies.<sup>5</sup> This paper is divided into four parts. The first part introduces China's space legislation and policies over the past thirty years since the reform and opening. The second part elaborates the characteristics of China's space legislation and policies, as well as problems of China's space legislation and the reasons for those problems. The third part introduces the role international space legislation, including U.N., multilateral, and bilateral space treaties which China has joined in promoting and improving China's space legislation and policies. The fourth part addresses the effect of China's space policies on the space activities and legislation of Pacific Rim countries, as well as the effect of Pacific Rim countries' space legislation and activities on China's own space legislation and space policies.

## II. STATUS OF CHINESE SPACE LEGISLATION

According to the Law of the People's Republic of China on Legislation,<sup>6</sup> the legal system of China has several levels. At the highest level, with the most significant legal effect, is the Constitution adopted by the National People's Congress; no laws, administrative regulations, local regulations, autonomous regulations, separate regulations, or rules may contradict it.<sup>7</sup> At the second level is the law adopted by the National People's Congress and its Standing Committee.<sup>8</sup> At the third level are the administrative regulations adopted by the State Council and

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2009) [hereinafter *Info. on Nat'l Legislation*] (note by the secretariat based on information received by Jan. 26, 2009 from China, the Czech Republic, Germany, Mongolia, the Republic of Korea, and Turkey), available at [http://www.oosa.unvienna.org/pdf/reports/ac105/AC105\\_932E.pdf](http://www.oosa.unvienna.org/pdf/reports/ac105/AC105_932E.pdf).[http://www.unoosa.org/pdf/reports/ac105/AC105\\_932E.pdf](http://www.unoosa.org/pdf/reports/ac105/AC105_932E.pdf).

<sup>5</sup> See Juqian, *supra* note 4; see also, *Info. on Nat'l Legislation*, *supra* note 4.

<sup>6</sup> Li fa fa [Law on Legislation] (promulgated by the Standing Comm. Nat'l People's Cong., Mar. 15, 2000, effective July 1, 2000) 2000 Standing Comm. Nat'l People's Cong. Gaz. 112 (P.R.C.), available at <http://www.china.org.cn/english/government/207420.htm>.

<sup>7</sup> *Id.* at ch. IV, art. 78.

<sup>8</sup> *Id.* at ch. II, § 1.

local regulations adopted by local peoples' congresses.<sup>9</sup> At the lowest level are rules of the departments under the State Council and of the local governments.<sup>10</sup> This legal system thus forms a rigorous multi-level system.<sup>11</sup>

In China, the National People's Congress has not formulated space law, nor has the State Council or Local People's Congresses at various levels made administrative regulations or local regulations on space activities.<sup>12</sup> That is to say, there is no space legislation at law or administrative regulation level in China. Related space legislation exists at the level of administrative rules.<sup>13</sup>

#### *A. Status of Space Legislation at the Level of Administrative Rules*

In the aspect of civilian use of outer space, together with the Ministry of Foreign Affairs, the Commission of Science, Technology and Industry for National Defence (COSTIND) released the first regulation on space activities,<sup>14</sup> Measures on the Administration of Registration of Space Objects, on February 8, 2001.<sup>15</sup> These measures constituted the nationalization of the multilateral Convention on Registration of Objects Launched into Outer Space<sup>16</sup> in China. On November 21, 2002, the COSTIND released the Interim Measures on the Administration of Permits for Civil Space Launch Projects (Interim

<sup>9</sup> *Id.* at ch. I, art. 2; ch. III, art. 56; ch. IV, § 1, art. 63.

<sup>10</sup> *Id.* at ch. IV, § 2, art. 71.

<sup>11</sup> See also China's Regulations, World Security Institute, <http://www.wsichina.org/space/subprogram.cfm?subprogramid=2&charid=1> (last visited Nov. 14, 2009) [hereinafter China's Regulations].

<sup>12</sup> See Juqian, *supra* note 4; see also, *Info. on Nat'l Legislation*, *supra* note 4.

<sup>13</sup> China's Regulations, *supra* note 11; see also, Yun Zhao, *supra* note 3 at 428.

<sup>14</sup> Yun Zhao, *supra* note 3 at 431.

<sup>15</sup> Measures for the Administration of Registration of Objects Launched into Outer Space (Order No. 6 promulgated by the Comm'n of Sci., Tech., and Indus. for Nat'l Def. (COSTIND) and the Ministry of Foreign Affairs, Feb. 8, 2001), *translated in* 33 *J. Space L.* 437 (2007), [hereinafter Measures for Administration of Registration of Objects], available at [http://www.spacelaw.olemiss.edu/library/space/China/Laws/JSL\\_33.2\\_China%20Law.pdf](http://www.spacelaw.olemiss.edu/library/space/China/Laws/JSL_33.2_China%20Law.pdf).

<sup>16</sup> Convention on Registration of Objects Launched into Outer Space, *opened for signature* Nov. 12, 1974, 28 U.S.T. 695, 1023 U.N.T.S. 15.

Measures).<sup>17</sup> It established a management system requiring permits for the entry of spacecraft into outer space from the territory of China for non-military purposes.<sup>18</sup> In affiliation with the Interim Measures, the Examination and Approval Procedure of Permits for Civil Space Launch Projects was promulgated.<sup>19</sup> On August 18, 2002, together with the Ministry of Finance, the COSTIND formulated the Measures on the Administration of Special Research on the Civilian Use of Defence Science and Technology Industry. It included provisions for nationally funded scientific research activities such as the transfer of space technology from military use to civil use through the Defence Science and Technology Industry.<sup>20</sup> Other related administrative rules, such as regulations on foreign damages caused by space objects, the management of the commercialization of space, international space cooperation and coordination, etc. are under research and drafting.<sup>21</sup>

Additionally, in with respect to the military use of outer space, the State Council and Military Commission of the Communist Party of China (CPC) Central Committee jointly released the Regulations on Export Control of Military Items of the People's Republic of China on October 22, 1997.<sup>22</sup> This regulation was amended on October 15, 2002. It requires that the State manage military exports through a licensing system<sup>23</sup> so that only military trading companies that have legally obtained

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<sup>17</sup> Interim Measures on the Administration of Permits for Civil Space Launch (Decree No. 12 promulgated by the Comm'n of Sci., Tech, and Indus. for Nat'l Def. (COSTIND), Nov. 21, 2002, effective Dec. 21, 2002) [hereinafter Interim Measures], Asian LII (last visited Oct. 23, 2009), available at <http://www.asianlii.org/cn/legis/cen/laws/imotaopfcslp771/>.

<sup>18</sup> *Id.* at ch. I, art. II.

<sup>19</sup> *Id.* at ch. II.

<sup>20</sup> See, e.g., Evan S. Medeiros, Testimony presented to the U.S.-China Economic and Security Review Commission, Analyzing China's Defense Industries and Implication for Chinese Military Modernization, (Rand Corp., Feb. 6, 2004), at 5-6, available at [http://www.rand.org/pubs/testimonies/2005/RAND\\_CT217.pdf](http://www.rand.org/pubs/testimonies/2005/RAND_CT217.pdf).

<sup>21</sup> See Yun Zhao, *supra* note 3, at 434-35.

<sup>22</sup> Regulations on Control of Military Products Export (promulgated by the St. Council and the Cent. Military Comm'n, Oct. 22, 1997, effective Jan. 1, 1998, revised Oct. 15, 2002) [hereinafter Military Export Regulations], available at [http://www.nti.org/db/china/engdocs/exconmpe\\_1002.htm](http://www.nti.org/db/china/engdocs/exconmpe_1002.htm).

<sup>23</sup> *Id.* at ch. II, art. 13.

military export authorization<sup>24</sup> can legally export certain military products. Military exports are reviewed and approved by the State Bureau of Military Products Trade or by the State Bureau of Military Products Trade in joint consultation with the relevant departments in the State Council and the Central Military Commission.<sup>25</sup> To this end, the Military Products Export Control List was announced by the COSTIND and the General Reserve Department of the Peoples' Liberation Army (PLA) on November 11, 2002 and has been implemented since November 15, 2002.<sup>26</sup> In this list, Category 8 – Rocket, Missile, Military Satellite and its auxiliary equipment – is related to military space products. In this category, strict regulation has been made on the export of military satellites and carrier rockets, which also provides a reference for the management of related civilian space products. On August 22, 2002, the State Council promulgated the Regulations of the People's Republic of China on Export Control of Missiles and Missile-related Items and Technologies<sup>27</sup> as well as the Missiles and Missile-related Items and Technologies Export Control List.<sup>28</sup> These Regulations are formulated for the purpose of safeguarding the State security and social and public interests, and for the prevention of the proliferation of mass destruction weapons through export control.<sup>29</sup>

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<sup>24</sup> *Id.* at ch. II, art. 15.

<sup>25</sup> *Id.* at ch. II, art. 16.

<sup>26</sup> Yun Zhao, *supra* note 3 at 433.

<sup>27</sup> Regulations of the People's Republic of China on Export Control of Missiles and Missile-related Items and Technologies (promulgated by the St. Council, Aug. 22, 2002) [hereinafter Control Regulations], available at [http://www.nti.org/db/China/engdocs/expreg\\_0802.htm](http://www.nti.org/db/China/engdocs/expreg_0802.htm).

<sup>28</sup> Missiles and Missile-related Items and Technologies Export Control List (promulgated by the St. Council, Aug. 22, 2002), available at [http://www.nti.org/db/China/engdocs/conlist\\_0802.htm](http://www.nti.org/db/China/engdocs/conlist_0802.htm); see also, [http://www.nti.org/db/China/engdocs/liujy\\_0802.htm](http://www.nti.org/db/China/engdocs/liujy_0802.htm).

<sup>29</sup> Control Regulations, *supra* note 27, at art. 1, 3; Military Export Regulations, *supra* note 22; see also, Fu Cong, Department of Arms Control and Disarmament, Ministry of Foreign Affairs of China, presentation at the Tokyo Workshop on Non-Proliferation Export Control Regimes, An Introduction of China's Export Control System, (Dec. 1997), available at <http://www.nti.org/db/china/engdocs/cong1297.htm>.

*B. Related Policies on Space Activities*

China's space policies are explicitly shown in such documents as the White Papers of China's Space Activities in 2000<sup>30</sup> and 2006.<sup>31</sup> These two White Papers elaborate the policies, positions, and standpoints of Chinese Government in the space arena. They are authoritative documents on China's space industry. Policies concerning space industry regulated in the Industrial Policies Outline of National Defense Industry (Outline)<sup>32</sup> are also a part of the China's Space Policies. The Outline was approved by the State Council in April 2004 and was jointly promulgated by the COSTIND and the State Development and Reform Commission. Since the commencement of China's space undertaking, rich experience has been gained, and a series of effective management systems formed, in the area of space technology management, international commercial launch services, among others.<sup>33</sup>

In 2007, the COSTIND adopted the Eleventh-Five-Year-Plan<sup>34</sup> on Space Development and the Eleventh-Five-Year-Plan of the Space Science Program to guide and regulate space activities as well as the research in the space sciences. These two plans clarified the guiding ideology, development objectives, and

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<sup>30</sup> 2000 White Paper, *supra* note 1.

<sup>31</sup> 2006 White Paper, *supra* note 2.

<sup>32</sup> Info. Office of the St. Council, *China's National Defense in 2004 (White Paper)* (Beijing, China, Dec. 2004), available at <http://www.china.org.cn/e-white/20041227/index.htm>.

<sup>33</sup> 2006 White Paper, *supra* note 2; see, e.g., Memorandum of Agreement Regarding International Trade in Commercial Launch Services, with Annex, U.S.-P.R.C., Jan. 26, 1989, State Dep't No. 89-116, 1989 WL 428857 [hereinafter Launch Services Memorandum]; Control Regulations, *supra* note 27; Interim Measures, *supra* note 17; Measures for Administration of Registration of Objects, *supra* note 15; Qi Yongliang, *A Study of Aerospace Legislation in China*, 33 J. Space L. 405 (2007).

<sup>34</sup> Press Release, Chinese National Space Administration, Eleventh - Five-Year-Plan of the Science Space Program issued by COSTIND, (Mar. 19, 2007), <http://www.cnsa.gov.cn/n615709/n620682/n639462/94761.html>; see also, Yun Zhao, *National Space Legislation in Mainland China*, 33 J. SPACE L. 427, 435-36 (2007); *Blueprint for Aerospace Development in Next Five Years*, CHINA VIEW, Oct. 19, 2007, [http://news.xinhuanet.com/english/2007-10/19/content\\_6912455.htm](http://news.xinhuanet.com/english/2007-10/19/content_6912455.htm); *Info. on Nat'l Legislation*, *supra* note 4; see also *China Unveils Landmark Space Program*, CHINA DAILY, Mar. 12, 2007, available at <http://www.china.org.cn/english/news/202430.htm>.

major tasks of space development.<sup>35</sup> Meanwhile, in order to promote the development of the satellite application industry, the COSTIND and the State Development and Reform Commission jointly issued the Several Opinions Relevant to the Promotion of Development of the Satellite Application Industry, which provided guidance on the principles, methods and objectives of the promotion of development of satellite application industry.<sup>36</sup>

Additionally, China established a relatively systematic policy mechanism on the mitigation of space debris. Firstly, under the unified leadership of the China National Space Administration (CNSA), a Space Debris Action Plan (2006-2010)<sup>37</sup> was drafted. This action plan makes the mitigation of space debris not only a policy, but also an action to protect the space environment. Secondly, during the Tenth-Five-Year-Plan, China started to formulate space debris mitigation standards that would be appropriate for the legal and technological context in China at the time.<sup>38</sup> In the System Framework of National Defence Science and Technology Industry Standards, some project standards for space debris technology were provided. In July 2005, China formally issued the Standard QJ3221 for Space Industry—Requirements on Space Debris Mitigation.<sup>39</sup> Finally, in

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<sup>35</sup> The Eleventh-Five-Year-Plan on Space Development was approved by the State Council and issued by COSTIND on October 18, 2007. Five important scientific projects were included in this plan, namely manned space flight project, lunar exploration project, high-resolution earth observation project, compass satellite navigation system project, and new launch vehicle project. The Eleventh-Five-Year-Plan of the Science Space Program was approved by the State Council and issued by COSTIND. It published the first blueprint of Chinese government on future space scientific development.

<sup>36</sup> Eric Hagt, *Mutually Assured Vulnerabilities in Space*, World Security Institute, <http://www.wsichina.org/space/focus.cfm?focusid=99&charid=1>; see also, 2006 *White Paper*, *supra* note 2.

<sup>37</sup> Dr. Feng Jiehan, Wuhan Univ. Inst. of Int'l Law, Wuhan, Hubei, P.R.C., Space Debris Mitigation: Policies, Law, and Standards Development in China, presentation at the International Interdisciplinary Congress on Space Debris (May 2009) (PowerPoint presentation), available at [http://www.mcgill.ca/files/iasl/Session\\_3\\_Feng\\_Jeihan.pdf](http://www.mcgill.ca/files/iasl/Session_3_Feng_Jeihan.pdf); see also, Peter B. de Selding, *China Says Work Underway to Mitigate Space Junk*, SPACE NEWS, Sept. 3, 2007, [https://www.space.com/spacenews/070903\\_businessmonday\\_china\\_debris.html](https://www.space.com/spacenews/070903_businessmonday_china_debris.html).

<sup>38</sup> The Ministry of Sci. and Tech., *Progresses for Space Debris Study*, CHINA SCI. & TECH. NEWSLETTER NO. 340, Aug. 20, 2003, available at [http://www.most.cn/eng/newsletters/2003/200411/t20041130\\_17740.htm](http://www.most.cn/eng/newsletters/2003/200411/t20041130_17740.htm).

<sup>39</sup> According to Article VI of the Standardization Law of the People's Republic of China, Trade standards shall be formulated by competent administrative authorities

2006, the drafting of Space Debris Standards Framework System Table (first edition) was completed. This table divided the standards for space debris into three categories: namely, the general standard, management standard, and technology standard. It also planned anticipated levels of response to these standards, such as an international standard, a national standard, an industry standard, and an enterprise standard.

### III. COMMENTS ON CHINESE SPACE LEGISLATION

From the aforementioned legislations and policies on space activities, one can see that Chinese Space Legislation and Policies have the following characteristics. Firstly, China has established relatively perfect development policies for the space industry. Explicit guidance on structural adjustments, development plans, and directions for space industries were set up in China's Space Activities in 2000, China's Space Activities in 2006, Eleventh-Five-Year-Plan on Space Development, Industrial Policies Outline of Defence Industry. Though these documents are promulgated by COSTIND, they are approved by the State Council, which represents the position of the Central Government. These documents are not legally binding, but they have obvious effects when space industries are mainly led by the government.<sup>40</sup>

Secondly, in the aspect of mitigation of space debris, the Chinese government set up a systematic quasi-regulatory

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under the State Council and reported to the department of standardization administration under the State Council for the record, and shall be annulled on publication of the national standards. *See* Standardization Law, Art. VI (promulgated by Standing Comm. Nat'l People's Cong., Dec. 29, 1988, effective Apr. 1, 1989) Asian LII (last visited Oct. 24, 2009) (P.R.C.), *available at* <http://www.asianlii.org/cn/legis/cen/laws/slotproc450/>; *see also* Guidelines for De-Commissioning of Satellite and Mitigation of Space Debris (promulgated by the Office of the Telecomm. Auth., July 21, 2007), *available at* [http://www.ofta.gov.hk/en/report-paper-guide/guidance-notes/gn\\_200706.pdf](http://www.ofta.gov.hk/en/report-paper-guide/guidance-notes/gn_200706.pdf); *see also*, Jeff Foust, Futron Corp., Bethesda, Md., Session 3 – Current Coordination and Implementation: Summary, presentation at the International Interdisciplinary Congress on Space Debris (May 2009) (PowerPoint presentation), *available at* [http://www.mcgill.ca/files/iasl/Session\\_6\\_Jeff\\_Foust.pdf](http://www.mcgill.ca/files/iasl/Session_6_Jeff_Foust.pdf).

<sup>40</sup> *See* LAW MAKING IN THE PEOPLE'S REPUBLIC OF CHINA: TERMS, PROCEDURES, HIERARCHY, AND INTERPRETATION, TAO-TAI HSIA AND CONSTANCE AXINN JOHNSON 24 (Law Library of Congress 1986).

mechanism. The Space Debris Action Plan (2006-2010)<sup>41</sup> is a policy document issued by CNSA. The Space Debris Standards Framework System Table and the Standard QJ3221 for Space Industry – Requirements on Space Debris Mitigation are industrial standards which have quasi-legal binding force. These documents are important domestic measures to implement the Space Debris Mitigation Guidelines of the U.N. Committee on the Peaceful Uses of Outer Space (COPUOS) and the Inter-Agency Debris Coordination Committee (IADC) Space Debris Mitigation Guidelines.

Thirdly, existing Chinese civil space legislation and policies are formulated by subordinate bodies of the State Council such as COSTIND, and the Ministry of Foreign Affairs, among others. Meanwhile, legislation on the military use of outer space is made by the State Council and the Military Commission of the CPC Central Committee. Enforcement regulations of related rules and military space policies are elaborated by COSTIND and the General Reserve Department of the PLA.<sup>42</sup>

Fourth, Chinese regulations and policies for space activities almost cover all areas of space activities. National space legislation should at least include the following five aspects. First, the approval and authorization of space activities; second, the supervision of space activities; third, the registration of space objects; fourth, the liability and compensation for damage; and fifth, the other regulations such as issues related to insurance and compensation and intellectual property rights (IPR). There is no integrated space law in China and the number of special regulations is very small.<sup>43</sup> But the aforementioned areas are regulated by documents or policies. For example, the approval and authorization of space activities and the registration of space objects are regulated by administrative rules. Damages caused by space objects are addressed by normative documents,

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<sup>41</sup> See Dr. Feng Jiehan, *supra* note 37.

<sup>42</sup> China's Regulations, *supra* note 11.

<sup>43</sup> See Juqian, *supra* note 4.

while the issues of insurance and IPR<sup>44</sup> are progressively reflected in bilateral treaties or domestic documents.<sup>45</sup>

Of course, generally speaking, the limitations of Chinese space legislation are apparent and not in line with the development of Chinese space technology or the status of China as a space power. Therefore, attention should be paid to Chinese space legislation.<sup>46</sup>

Firstly, there is no space legislation at the levels of law and regulation. The level of existing space legislation is too low.<sup>47</sup> The space law system with Chinese characteristics has not been established. Actually, direct space legislation only includes the Measures on the Administration of Registration of Space Objects<sup>48</sup> and the Interim Measures on the Administration of Permits for Civil Space Launch Projects.<sup>49</sup> Other rules are to some extent related to space activities, but are not considered special space legislation.

These two measures are promulgated by the State Council and belong to the category of administrative rules. Only the Regulations of the People's Republic of China on Export Control of Missiles and Missile-related Items and Technologies belong to the category of administrative regulation. Special space regulations and laws should be urgently developed.<sup>50</sup> The establishment of an integrated space law and space law system is a direction in which Chinese space legislation is proceeding.<sup>51</sup>

Secondly, because of the lack of integrated space legislation,<sup>52</sup> the management of space activities and legislation is

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<sup>44</sup> See e.g., Intellectual Property Protection in China, Bilateral Cooperation Plan on Intellectual Property in 2007 Signed by China and U.K, Ministry of Comm., Nov. 13, 2006, <http://www.chinaipr.gov.cn/Frontier/243726.shtml>; see also, generally, Judicial Protection of IPR in China, <http://www.chinaiprlaw.com/english/laws/laws.htm>.

<sup>45</sup> See, e.g., Inter-Agency Space Debris Coordination Committee (IADC), Steering Group and Working Group 4, *IADC Space Debris Mitigation Guidelines*, IADC -02-01 (Sept. 2007), available at [http://orbitaldebris.jsc.nasa.gov/library/IADC\\_Mitigation\\_Guidelines\\_Rev\\_1\\_Sep07.pdf](http://orbitaldebris.jsc.nasa.gov/library/IADC_Mitigation_Guidelines_Rev_1_Sep07.pdf).

<sup>46</sup> See Qi Yongliang, *supra* note 33, at 406, 409-10.

<sup>47</sup> See Juqian, *supra* note 4.

<sup>48</sup> See Measures for Administration of Objects, *supra* note 15.

<sup>49</sup> See Interim Measures, *supra* note 17.

<sup>50</sup> See Qi Yongliang, *supra* note 33, at 410.

<sup>51</sup> *Info. on Nat'l Legislation*, *supra* note 4; 2006 White Paper, *supra* note 2.

<sup>52</sup> *Info. on Nat'l Legislation*, *supra* note 4.

quite complicated. Several departments have the same power to administrate space activities and to set rules and regulations. The divided power to manage space activities and legislation will inevitably lead to the discordance of space legislation and policies.<sup>53</sup>

Because of the lack of integrated space legislation especially in the area of the civilian and military use of outer space, there is no unified agency to manage space activities. The policies and regulations only focus on their own areas. When a space activity has the purpose of both military use and civilian use, it may be that several departments would like to take charge of it or that no department would manage it.<sup>54</sup>

Finally, though almost all areas of space activities are covered by China's space policies, with the development of space technologies and activities, the following aspects of Chinese space legislation need to be improved: IPR protection to promote the commercialization of space activities; space environment protection; legislation on insurance for commercial space activities; rescue systems in view of the success of human space flight; liability for space damages; management mechanism of space activities; and so on.<sup>55</sup>

From the reality of Chinese space legislation, it can be seen that the management of space activities is governed by administrative policies. It is difficult to improve the imperfections of space legislation and upgrade the level of space legislation in a short time. Space legislation is not even included in the Eleventh-Five-Year-Plan on Legislation of the National People's Congress. Thus, it is feasible to speed up the pace to make administrative regulations and separate legislations on space activities so as to increase the efficiency of Chinese space legislation. In fact, relative government agencies have started to formulate Measures on Space Activities and Measures on the Compensation for Damages Caused by Space Objects.<sup>56</sup>

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<sup>53</sup> See Juqian, *supra* note 4.

<sup>54</sup> Medeiros, *supra* note 20, at 5-6; *see also*, Qi Yongliang, *supra* note 33; China's Regulations, *supra* note 11; Yun Zhao, *supra* note 3.

<sup>55</sup> Yun Zhao, *supra* note 3, at 435; 2006 White Paper, *supra* note 2.

<sup>56</sup> Qi Yongliang, *supra* note 33, at 410.

#### IV. THE ROLE OF INTERNATIONAL LAW IN CHINESE SPACE LEGISLATION

International law related to space activities mainly include the international space treaties formulated within the framework of the U.N.; regional cooperation conventions; and, bilateral or multilateral treaties signed among countries or international organizations. Though the documents adopted by U.N. General Assembly do not have binding force, they are vital sources of international space law. The Chinese government acceded to the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space<sup>57</sup> (Outer Space Treaty); the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space<sup>58</sup> (Rescue and Return Agreement); the Convention on International Liability for Damage Caused by Space Objects<sup>59</sup> (Liability Convention); and the Convention on Registration of Objects Launched into Outer Space<sup>60</sup> (Registration Convention). These treaties provided the basis for the domestic legislation of space activities in China.<sup>61</sup>

Multilateral treaties to which China acceded include the Constitution of Asia-Pacific Space Cooperation Organization,<sup>62</sup>

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<sup>57</sup> Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, *opened for signature* Jan. 27, 1967, 18 U.S.T. 2410, 610 U.N.T.S. 205 [hereinafter Outer Space Treaty]. China acceded to the Outer Space Treaty on December 30, 1983.

<sup>58</sup> Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space, *opened for signature* Apr. 22, 1968, 19 U.S.T. 7570, 672 U.N.T.S. 119 [hereinafter Rescue and Return Agreement]. China acceded to the Rescue and Return Agreement on December 14, 1988.

<sup>59</sup> Convention on International Liability for Damage Caused by Space Objects, *opened for signature* Mar. 29 1972, 24 U.S.T. 2389, 961 U.N.T.S. 187 [hereinafter Liability Convention]. China acceded to the Liability Convention on December 12, 1988.

<sup>60</sup> Convention on Registration of Objects Launched into Outer Space, Jan. 14 1975, 28 U.S.T. 695, 1023 U.N.T.S. 15 [hereinafter Registration Convention]. China acceded to the Registration Convention on December 12, 1988.

<sup>61</sup> Ling Yan, *Comments on the Chinese Space Regulations*, 7 Chinese Journal of International Law 681, 682 (2008).

<sup>62</sup> Convention of the Asia-Pacific Space Cooperation Organization, available at <http://tradeinservices.mofcom.gov.cn/en/b/2005-10-28/18583.shtml> (last visited Oct. 25, 2009); see also, Press Release, China Nat'l Space Admin. (CNSA), COSTIND Held Press Conference for the Signing of APSCO Convention, Nov. 2, 2005, <http://www.cnsa.gov.cn/>

which was signed with Asia Pacific Space Cooperation Organization (APSCO) member states in October, 2005. Bilateral treaties between China and the countries with which it cooperates include: Cooperative Agreement between the China National Space Administration and the Russian Space Agency on Joint Chinese-Russian Exploration of Mars in March, 2007;<sup>63</sup> the Chinese and American Memorandum of Agreement on Satellite Technology Safeguards;<sup>64</sup> the Memorandum of Agreement on Liability for Satellite Launches;<sup>65</sup> the Memorandum of Agreement Regarding International Trade in Commercial Launch Services;<sup>66</sup> and the 1988 Protocol on Research and Production of the Earth Resource Satellite and Supplementary Protocols on the Joint Research and Manufacturing of Earth Resource Satellite between China and Brazil.<sup>67</sup> In addition, on May 24, 2007 the first meeting between China and the Space Cooperation Steering Committee of the European Space Agency (ESA) was held in the headquarters of ESA in Paris. Both parties signed the China-E.U. Space Cooperation Actuality and Cooperative Plan Protocol.<sup>68</sup> These multilateral and bilateral treaties also

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n615709/n620682/n639462/54452.html (last visited Nov. 16, 2009); 2006 White Paper, *supra* note 2.

<sup>63</sup> On March 26, 2007, the Administrator of the China National Space Administration, Sun Laiyan, and the head of the Russian Space Agency, Anatoly Perminov, both signed the "Cooperative Agreement between the China National Space Administration and the Russian Space Agency on joint Chinese-Russian exploration of Mars". According to this Agreement, China and Russia will use a carrier rocket to launch China's small satellite and Russia's Forbes detectors. Then the Forbes detectors will send China's small satellite into the orbit of Mars. After that, the small satellite will automatically complete the mission of space environment exploration. Both will also conduct joint explorations of the space environment of Mars, including an exploration of the occultation of Mars' ionosphere. See *China and Russia Join Hands to Explore Mars*, PEOPLE'S DAILY ONLINE, May 30, 2007, [http://english.people.com.cn/200705/30/eng20070530\\_379330.html](http://english.people.com.cn/200705/30/eng20070530_379330.html).

<sup>64</sup> Memorandum of Agreement on Satellite Technology Safeguards, U.S.-P.R.C., Feb. 11, 1993, State Dep't No. 93-56, 1993 WL 152924.

<sup>65</sup> Memorandum of Agreement on Liability for Satellite Launches, U.S.-P.R.C., Dec. 17, 1988, State Dep't No. 89-114, 1989 WL 428798.

<sup>66</sup> See Launch Services Memorandum, *supra* note 33.

<sup>67</sup> See Zi Yuan CBERS (China-Brazil Earth Resources Satellite), <http://www.globalsecurity.org/space/world/china/zy-1.htm> (last visited Nov. 16, 2009).

<sup>68</sup> China National Space Administration, China-EU Space Agreement Signed for Further Cooperation, May 24, 20-07, <http://www.cnsa.gov.cn/n615709/n620682/n639462/102448.html>.

provide guidance for the improvement of Chinese space legislation and policies.

Generally speaking, the role of international law in Chinese space legislation is manifested in the following ways:

On the one hand, international space treaties and documents within the framework of U.N. have directly promoted Chinese space legislation. Existing space legislation in China was generated because of the promotion of international space conventions and documents within the framework of UN.<sup>69</sup> Article 6 of the Outer Space Treaty stipulates that the activities of non-governmental entities in outer space shall require authorization and continuing supervision by the appropriate State Party to the Treaty.<sup>70</sup> In order to fulfill this obligation, the Chinese government formulated the Interim Measures on the Administration of Permits for Civil Space Launch Projects.<sup>71</sup> Article 1 of the Measures clarifies that the present measures are formulated with a view to performing the obligations of China as a contracting State to the international outer space convention.<sup>72</sup> The Registration Convention requires a launching state to register the space object it launches.<sup>73</sup> To this end, Article 1 of the Measures on the Administration of Registration of Space Objects stipulates that the purpose of the Measures is to perform the obligations of China as a contracting state to Registration Convention.<sup>74</sup> Thus, one of the objectives of Chinese space legislation is to perform its international obligation.

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<sup>69</sup> See, e.g., Yun Zhao, *supra* note 3, at 430 (stating that CNSA was established to fulfill international obligations); see also, Ling Yan, *Comments on the Chinese Space Regulations*, 7 CHINESE J. OF INT'L L. 681, 689 (2008).

<sup>70</sup> Outer Space Treaty, *supra* note 57, at art. 6.

<sup>71</sup> See Interim Measures, *supra* note 17.

<sup>72</sup> Article 1 of the Interim Measures stipulates that the present measures are formulated with a view to regulating the administration of civil space launch projects, promoting the healthy development of civil space industry, maintaining the state security and the public benefits, and performing the obligations of China as a contracting state to the international outer space convention. *Id.* at art. 1.

<sup>73</sup> Registration Convention, *supra* note 60, at art. II (1).

<sup>74</sup> Article 1 of the Measures on the Administration of Registration stipulates that the present measures are formulated with a view to strengthening the administration of space activities, establishing the registration system of space objects, maintaining the benefits of China as a launching state, and performing the obligations of China as a contracting party to the Registration Convention. Measures on the Administration of Registration, *supra* note 15, at art. 1.

On the other hand, other international space treaties and documents facilitate research on the formulation of Chinese space policies and legislation. With the expansion of China's space cooperation, more and more bilateral and multilateral conventions are signed.<sup>75</sup> International documents to which China is a party are increasing, thus giving a boost to the process of creating and expanding Chinese space legislation and policies.<sup>76</sup> After joining the IADC, China participated in drafting the Space Debris Mitigation Guidelines<sup>77</sup> and joined COPUOS to adopt them. The Chinese government has also made efforts to create normative documents on the mitigation of space debris and research on the legislations of space environment protection.<sup>78</sup>

Meanwhile, the two protocols<sup>79</sup> between China and Brazil mentioned IPR protection in the commercialization of outer space bilateral agreements between China and America and addressed the issue of service trade of commercial launching.<sup>80</sup> These agreements urge the Chinese government to make research on legislation of IPR protection and service trade of commercial launching.<sup>81</sup>

In the U.N. Conference on Disarmament (UNCD), the Chinese government actively participates in and facilitates international negotiations on the prevention of an arms race in outer space. China holds that international legal documents to pre-

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<sup>75</sup> See, e.g., Draft Treaty on the Prevention of the Placement of Weapons in Outer Space, the Threat or Use of Force Against Outer Space Objects, *submitted to* plenary session of the Conference on Disarmament, Feb. 12, 2008 [hereinafter Draft Treaty], available at [http://www.in.mid.ru/brp\\_4.nsf/0/0D6E0C64D34F8CFAC32573EE002D082A](http://www.in.mid.ru/brp_4.nsf/0/0D6E0C64D34F8CFAC32573EE002D082A); see also, China and Russia Jointly Submit a Treaty, <http://www.fmprc.gov.cn/eng/zxxx/t409610.htm> (last visited Nov. 17, 2009).

<sup>76</sup> Qi Yongliang, *supra* note 33, at 406-407.

<sup>77</sup> Inter-Agency Space Debris Coordination Committee (IADC), Steering Group and Working Group 4, *IADC Space Debris Mitigation Guidelines*, IADC -02-01 (Sept. 2007), available at [http://orbitaldebris.jsc.nasa.gov/library/IADC\\_Mitigation\\_Guidelines\\_Rev\\_1\\_Sep07.pdf](http://orbitaldebris.jsc.nasa.gov/library/IADC_Mitigation_Guidelines_Rev_1_Sep07.pdf).

<sup>78</sup> *2006 White Paper*, *supra* note 2, at Part III, Major Tasks.

<sup>79</sup> See CBERS – China-Brazil Earth Resources Satellite, [http://www.brazil.org.cn/tecnologia/cibers\\_en.htm](http://www.brazil.org.cn/tecnologia/cibers_en.htm) (last visited Nov. 16, 2009).

<sup>80</sup> See Launch Services Memorandum, *supra* note 33.

<sup>81</sup> *2006 White Paper*, *supra* note 2.

vent arms race in outer space should be formulated.<sup>82</sup> Chinese space policies on the prevention of militarization and weaponization involve performing China's obligation of peaceful exploration and use of outer space.<sup>83</sup>

#### V. ITS RELEVANCE TO PACIFIC RIM SPACE LAW AND ACTIVITIES

In the Pacific Rim, space legislation of the United States, Japan, and Canada are relatively advanced and perfect. Their space legislation provides a reference for Chinese space legislation, while Chinese space legislation and policies have also had an impact on the space policies and activities of other Pacific Rim countries.

Firstly, China's space policy on the peaceful use of outer space affects the space activities and legislations of Pacific Rim countries. In recent years, the Chinese government has actively advocated for the peaceful use of outer space. In the meetings of COPUOS and the UNCD, China actively promoted the prevention of arms race and weaponization in outer space. On May 22, 2006, the delegations of China and the Russian Federation distributed in the UNCD documents titled, "Verification Aspects of PAROS,"<sup>84</sup> "Definition Issues Regarding Legal Instruments on the Prevention of Weaponization of Outer Space;"<sup>85</sup> and "Existing International Legal Instruments and the Prevention of the Weaponization of Outer Space."<sup>86</sup> On February 12, 2008, China and Russia jointly submitted to the UNCD in Geneva a Draft

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<sup>82</sup> See Letter from Hu Xiaodi, Permanent Representative of China to the Conference on Disarmament, China's Position on and Suggestion for Ways to Address the Issue of Prevention of an Arms Race, addressed to the Secretary-General of the Conference on Disarmament (Feb. 9, 2000) [hereinafter Arms Race Letter], available at <http://www.nti.org/db/China/engdocs/cparoswp.htm>; see also, *Info. on Nat'l Legislation*, *supra* note 4.

<sup>83</sup> Arms Race Letter, *supra* note 82; see also, NTI, *China's Attitude Toward Outer Space Weapons*, <http://www.nti.org/db/China/spacepos.htm> (last visited Nov. 17, 2009).

<sup>84</sup> Verification Aspects of PAROS, U.N. Doc. CD/1781 (May 22, 2006), <http://documents-dds-ny.un.org/doc/UNDOC/GEN/G06/616/05/pdf/G0661605.pdf?OpenElement>.

<sup>85</sup> Definition Issues Regarding Legal Instruments on the Prevention of the Weaponization of Outer Space, U.N. Doc. CD/1779 (May 22, 2006), <http://documents-dds-ny.un.org/doc/UNDOC/GEN/G06/615/77/pdf/G0661577.pdf?OpenElement>.

<sup>86</sup> Existing International Legal Instruments and the Prevention of the Weaponization of Outer Space, U.N. Doc. CD/1780 (Aug. 26, 2004), <http://www.fmprc.gov.cn/ce/cegv/eng/cjkk/cjjzzdh/t199363.htm>

Treaty on the Prevention of the Placement of Weapons in Outer Space, the Threat or Use of Force against Outer Space Objects.<sup>87</sup> In this regard, China proposed that a new international legal document<sup>88</sup> should be passed through negotiation to prevent the weaponization and arms race in outer space and safeguard the peace of outer space.

These space policies and diplomatic policies play a positive role in guiding Pacific Rim countries to carry out their space activities for peaceful purposes and consider their space legislation for the same objective.<sup>89</sup> Affected by China's space policy of peaceful use of outer space, some Pacific Rim countries may reconsider their policies of the militarization and weaponization of outer space.

Secondly, space legislation of Pacific Rim countries also plays an important role for the improvement of Chinese space legislation. In the Pacific Rim, the legislation of the United States, Japan, and Canada are relatively mature. They established good space law systems. Their experiences provide vital references for China to establish a reasonable space legislation framework and space law system as well as to set up a rational management mechanism for space activities. Their mature space legislation in turn promotes the orderly development of space technologies, providing China with an incentive to establish better space legislation as soon as possible.

For example, the United States established excellent rules to regulate the mitigation of space debris. The U.S. National Aeronautics and Space Agency (NASA) put forward Procedural Requirements for Limiting Orbital Debris NPR8715.6;<sup>90</sup> and

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<sup>87</sup> Draft Treaty, *supra* note 75.

<sup>88</sup> See, e.g., Draft Treaty, *supra* note 75; see also, Ministry of Foreign Affairs, of the People's Republic of China, *China and Russia Jointly Submit a Treaty*, Feb. 12, 2008, <http://www.fmprc.gov.cn/eng/zxxx/t409610.htm>.

<sup>89</sup> See, e.g., Draft Treaty, *supra* note 75.

<sup>90</sup> OFFICE OF SAFETY AND MISSION ASSURANCE, NASA, NPR 8715.6A, NASA PROCEDURAL REQUIREMENTS FOR LIMITING ORBITAL DEBRIS (w/ Change 1 – 5/14/09) (May 14, 2009) (expiration date May 14, 2014), available at [http://nodis3.gsfc.nasa.gov/npg\\_img/N\\_PR\\_8715\\_006A/N\\_PR\\_8715\\_006A\\_.pdf](http://nodis3.gsfc.nasa.gov/npg_img/N_PR_8715_006A/N_PR_8715_006A_.pdf).

NASA Technical Standard NASA-STD-8719.14.<sup>91</sup> There are also the U.S. Government Orbital Debris Mitigation Standard Practices,<sup>92</sup> and the Federal Communications Commission's Second Report and Order of Mitigation of Orbital Debris (FCC-04-130).<sup>93</sup> These rules clarify the responsibilities of related agencies to mitigate orbital debris and also put forward the procedural rules. China's relative policies mostly focus on substantive standards and rules, while procedural rules and the coordination among departments are neglected. The U.S. system of mitigation of orbital debris can help China to establish its own system of mitigation of space debris.

Thirdly, space activities in Pacific Rim, especially activities in which China participates, will improve the Chinese space legislation. For instance, the Memorandum of Agreement on Liability for Satellite Launches Between the Government of the United States of America and the Government of the People's Republic of China,<sup>94</sup> the Memorandum of Agreement Regarding International Trade in Commercial Launch Services,<sup>95</sup> the Protocol on Research and Production of the Earth Resource Satellite between China and Brazil, and the Supplementary Protocols on the Joint Research and Manufacturing of Earth Resource Satellite<sup>96</sup> set examples for the establishment of liability sharing

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<sup>91</sup> OFFICE OF SAFETY AND MISSION ASSURANCE, NASA, NASA-STD-8719.14, PROCESS FOR LIMITING ORBITAL DEBRIS (w/ Change 4 – 9/14/09) (Aug. 28, 2007), available at <http://www.hq.nasa.gov/office/codeq/doctree/871914.pdf>.

<sup>92</sup> NASA, US DEP'T OF JUSTICE, US GOVERNMENT ORBITAL DEBRIS MITIGATION STANDARD PRACTICES (1997) available at [http://www.orbitaldebris.jsc.nasa.gov/library/USG\\_OD\\_Standard\\_Practices.pdf](http://www.orbitaldebris.jsc.nasa.gov/library/USG_OD_Standard_Practices.pdf).

<sup>93</sup> FED. COMM. COMM'N, SECOND REPORT, FCC 04-130, SECOND REPORT IN THE MATTER OF MITIGATION OF ORBITAL DEBRIS (June 9, 2004), available at [http://fjallfoss.fcc.gov/edocs\\_public/attachmatch/FCC-04-130A1.pdf](http://fjallfoss.fcc.gov/edocs_public/attachmatch/FCC-04-130A1.pdf).

<sup>94</sup> Memorandum of Agreement on Liability for Satellite Launches, U.S.-P.R.C., Dec. 17, 1988, State Dep't No. 89-114, WL 428798 ; see also, Convention on International Liability for Damages Caused by Space Objects, U.S.-P.R.C., Mar. 29, 1972, available at [http://www.faa.gov/about/office\\_org/headquarters\\_offices/ast/media/Conv\\_International\\_Liab\\_Damage.pdf](http://www.faa.gov/about/office_org/headquarters_offices/ast/media/Conv_International_Liab_Damage.pdf).

<sup>95</sup> See Launch Services Memorandum, *supra* note 33.

<sup>96</sup> See *CBERS – China-Brazil Earth Resources Satellite*, [http://www.brazil.org.cn/tecnologia/cibers\\_en.htm](http://www.brazil.org.cn/tecnologia/cibers_en.htm) (last visited Nov. 17, 2009); see also, Zi Yuan CBERS (China-Brazil Earth Resources Satellite), GlobalSecurity.org, <http://www.globalsecurity.org/space/world/china/zy-1.htm> (last visited Nov. 17, 2009); CBERS: Complementary Protocol on CBERS Application System, P.R.C.-Braz., Sept. 2004, available at [http://mtc-m18.sid.inpe.br/col/dpi.inpe.br/banon/2006/08.03.18.55/doc/appl\\_01\\_2004.pdf](http://mtc-m18.sid.inpe.br/col/dpi.inpe.br/banon/2006/08.03.18.55/doc/appl_01_2004.pdf) (last vis-

system and IPR protection system in China's international space cooperation.

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ited Nov. 17, 2009); Press Release, Chinese Nat'l Space Admin., China-Brazil Signed Protocol to Deepen the Space Coop. (May 31, 2009), <http://www.cnsa.gov.cn/n615709/n620682/n639462/168786.html>.



# CURRENT LEGAL STATUS AND RECENT DEVELOPMENTS OF APSCO AND ITS RELEVANCE TO PACIFIC RIM SPACE LAW AND ACTIVITIES

*Haifeng Zhao*<sup>\*</sup>

## I. INTRODUCTION

This article will discuss the new regional inter-governmental space cooperation organization - the Asia-Pacific Space Cooperation Organization (APSCO), along with its legal framework and its relationship with the space law and space activities of Pacific Rim.

What is the purpose of space cooperation? International cooperation in space activities is determined by their characters, i.e., high cost, high risk, and high-technology. The cooperation between space faring nations is necessary for the purpose of reducing space exploration costs of individual participants, allocating risk, and allowing nations to share benefits emanating from a more efficient allocation of resource and technological efforts. International space cooperation can promote national scientific, technological, economic, and even political interests.<sup>1</sup>

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<sup>\*</sup> Prof. Haifeng Zhao, Professor of Law, Dean, School of Law, Harbin Institute of Technology (H.I.T.), China; Director of the Space Law Institute, H.I.T. The views expressed here are entirely the author's, and do not necessarily represent those of the Harbin Institute of Technology or any other organization. The author would like to express his gratitude to Bin Li & Jingzhu Li, Researchers of the Space Law Institute, H.I.T., to Ms. Huang Furong, Associate Professor of the School of Languages, H.I.T., to Ms. Wang Jing, Master of International Law of H. I. T. and to Mr. Yonggen Cao, graduate students of the law school of H.I.T., for their views, support and help during the writing of this paper. The author would like to thank Prof. Joanne Gabrynowicz, director of the Institute of National Remote Sensing, Air and Space Law, in Mississippi University, for her kind invitation to the wonderful Asia-Pacific National Space Law Summit, held in Honolulu during 19-20 of May 2009, the author is also grateful for the participants of the Summit, during this conference, after having listened to this report, several eminent experts of space law gave their comments on the paper, which is very useful for the improvement of the paper.

<sup>1</sup> See 《外层空间法》 [OUTER SPACE LAW] 304 (He Qizhi & Huang Huikang, eds., Qingdao Press, 2000).

Therefore, from the very beginning of the space era, the international community has recognized the need for international cooperation for development, regarding space cooperation as an effective solution to some difficult problems.<sup>2</sup> As a matter of fact, international cooperation in space activities has always been increasingly strengthened on international, regional or bilateral basis, observable through the increase of cooperation channels and the extension of cooperation fields.<sup>3</sup> The parties involved in the cooperation can be governmental or non-governmental bodies. Cooperation in space activities can be of civil, commercial, and even military nature. Space cooperation has occurred among different developed countries, among developed and developing countries, and among different developing countries.<sup>4</sup> The United Nations plays a crucial role in international space cooperation, and a comprehensive space cooperation network has been formed with U.N. space cooperation mechanisms as its core.

International cooperation is a fundamental principle of space law. Since the United Nations General Assembly adopted the first resolution on outer space activities in 1958, international space cooperation as a main line has been insisted upon by all U.N. conventions, resolutions and other documents, becoming thus a guiding rule on national space activities.<sup>5</sup> As the charter for outer space activities, the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies (Outer Space Treaty) clearly provides that international cooperation is a basic principle in the exploration and use of outer space, putting emphasis on the principle in its Preamble and a number of provisions.<sup>6</sup> So the international space cooperation has a solid legal basis. A series of U.N. General Assembly reso-

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<sup>2</sup> Luo Kaiyuan, 《国际空间合作的发展态势分析》(上) [*The Trend of Development of International Space Cooperation* (part I)] 7 AEROSPACE CHINA 34 (2001).

<sup>3</sup> *Id.*

<sup>4</sup> *Id.*

<sup>5</sup> See OUTER SPACE LAW, *supra* note 1, at 203.

<sup>6</sup> Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, *opened for signature* Jan. 27, 1967, 18 U.S.T. 2410, 610 U.N.T.S. 205 [hereinafter Outer Space Treaty].

lutions, particularly the Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries adopted in 1996<sup>7</sup> (The Space Benefits Declaration), further materialize the principle of international space cooperation, raising eight principles that the international space cooperation should follow. In 1999, these principles were reaffirmed through the “The Space Millennium: the Vienna Declaration on Space to the Human Development,” during the UNISPACE III Conference.<sup>8</sup> The Space Benefits Declaration clearly states that international cooperation should be for the welfare and interests of all countries, regardless of their economic, social or scientific and technological status, and shall be for all humankind, taking particularly into consideration the needs of developing countries.<sup>9</sup> The following section will be about the APSCO, whose establishment and functioning could be regarded as a concrete measure for the implementation of the above international space legal instruments.

The development of space activities can not only bring greater authority, sense of cohesion, and pride to a State, but also stimulate the rapid development of technology, and produce great practical value in the economy and society. Thus, a growing number of Asian countries have become involved in the space applications activities. The Asia-Pacific region occupies a vast territory,<sup>10</sup> with an enormous population and the world’s

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<sup>7</sup> Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries, G.A. Res. 51/122, U.N. Doc. A/Res/51/122 (Dec. 13, 1996) [hereinafter The Space Benefits Declaration].

<sup>8</sup> Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III), July 19-30, 1999, *The Space Millennium: the Vienna Declaration on Space to the Human Development*, available at <http://www.oosa.unvienna.org/pdf/reports/unispace/viennadeclE.pdf> (last visited Nov. 2, 2009).

<sup>9</sup> The Space Benefits Declaration, *supra* note 7.

<sup>10</sup> The Asia-Pacific region, in a narrow sense, refers to countries and regions around the Asian Pacific Rim, as well as other countries and regions around Pacific Rim; in a broad sense, it refers to all the Asian countries and regions as well as all of the countries and regions around Pacific Rim. This can be seen from the members of Asia-Pacific Economic Cooperation (APEC): so far, APEC has twenty-one (21) members in all, including Australia, Brunei, Canada, Chile, China, Indonesia, Japan, Korea, Malaysia, Mexico, New Zealand, Papua New Guinea, Peru, Philippines, Russia, and the United States. See Asia-Pacific Economic Cooperation, <http://www.apec.org/> (last visited Oct. 30, 2009).

largest regional demands for commercial communications satellite. In the Asia-Pacific region disasters happen frequently, so there is an urgent need for the Asia-Pacific countries to develop space technology and apply it on disaster reduction. However, due to the magnitude of technical, financial, and human resources that are required to develop applications of space science and technology and also to the limits of economic and technical capacity, it is difficult for a single country in the region to make great achievement on its own. States in the Asia-Pacific region would benefit from pooling their technological, financial, and human resources into the development of their space activities.

In this context, since the 1990s, China, Thailand, and Pakistan have initiated the establishment of an independent APSCO to achieve those cooperative goals.<sup>11</sup>

The Asia-Pacific Space Cooperation Organization, a regional intergovernmental organization made up of Asia-Pacific Region countries, focuses on both space technology and its applications, and it is also a non-profit independent body with full international legal status. Headquartered in Beijing, APSCO is the second most comprehensive regional space cooperation organization in the world after the ESA.<sup>12</sup> As one of its outstanding characteristics, nearly all the Member States of APSCO are developing countries. Its establishment is favorable to the expansion of exchange of and cooperation in space technology and application of this technology among Asia-Pacific region countries; the promotion of space development; and the acceleration of economic and social development and the common prosperity of Asia-Pacific region.<sup>13</sup> The basic legal document of the APSCO is the Convention of the Asia-Pacific

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<sup>11</sup> See Convention of the Asia-Pacific Space Cooperation Organization, at Preamble, available at <http://tradeinservices.mofcom.gov.cn/en/b/2005-10-28/18583.shtml> [hereinafter APSCO Convention]. See also the Chinese version of the Convention, Haifeng Zhao (ed.), 1 SPACE L. REV. 254-65 (2006); and the English version of the Convention, 2-3 SPACE L. REV. 401 (2009).

<sup>12</sup> Fien Van Parys, Space Program of the People's Republic of China 38 (2003-2004) (unpublished LL.M. thesis, Leiden University) (on file with author).

<sup>13</sup> Huang Ju, "黄菊出席《亚太空间合作组织公约》签字仪式", 《国防科技工业》 [Huang Ju Attended the Signing Ceremony for APSCO Convention], 15 NAT'L DEF. INDUSTRY IN SCI. AND TECH. 14 (2005).

Space Cooperation Organization (APSCO Convention). The APSCO Convention was signed in Beijing on October 28, 2005 and entered into force on October 12, 2006. The APSCO Convention contains 35 articles, divided into 11 chapters, including: General Rules, Fields of Cooperation and Cooperative Activities, Membership, Functional Organs, Council of the Organization, Secretariat, Finances, Disputes, Supplement Provisions, Amendments, Ratification, and Entry into Force.

According to the scope of cooperation, regional space cooperation organizations can be divided into two types: one is general organizations, such as the European Space Agency; the other is specialized organizations, such as the European Meteorological Satellite Exploitation Organization<sup>14</sup> and the Arab Telecommunications Satellite Organization.<sup>15</sup> With regard to regional cooperation, ESA, set up in 1975, is a very successful and exemplary model. The cooperation between the European Union and ESA makes the regional cooperation in Europe even more powerful and comprehensive, and plays an increasingly important role on the world stage.<sup>16</sup> Concerning the establishment and the legal framework of APSCO, a number of Asian scholars have given their advice on the question of whether APSCO should learn from ESA. As a matter of fact, there are

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<sup>14</sup> The main purpose of the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT) is to deliver weather and climate-related satellite data, images and products— 24 hours a day, 365 days a year. This information is supplied to the National Meteorological Services of the organization's in Europe, as well as other users world-wide. EUMETSAT is an intergovernmental organisation and was founded in 1986. See EUMETSAT, *About EUMETSAT*, <http://www.eumetsat.int/Home/Main/AboutEUMETSAT/index.htm?l=en> (last visited Nov. 22, 2009).

<sup>15</sup> Members of the Arab League signed the Arab Space and Communications Cooperation Agreement in 1976, in Cairo, established Arab Satellite Communications Organization, and headquartered in Riyadh. Its main purpose is to establish, operate and maintain the Arab region's satellite communications system, as a supplement to the region's international satellite communications services, and provide a new way to exchange television programs among Arab countries. The organization began to operate in 1985. It is the first satellite communications organizations set up by developing countries. See Arab Satellite Communications Organization, *History*, <http://www.arabsat.com/Pages/History.aspx> (last visited Nov. 22, 2009).

<sup>16</sup> For example, the EU recently recommended a "Draft Code of Conduct for Space Activities," made proposals to a range of issues on regulating the safety of space activities. See Council of the European Union, *Council conclusions and draft Code of Conduct for outer space activities*, 17175/08, PESC 1697, CODUN 61 (Dec. 17, 2008), available at <http://register.consilium.europa.eu/pdf/en/08/st17/st17175.en08.pdf>.

many similarities between the APSCO Convention and the Convention for the establishment of a European Space Agency (ESA Convention).<sup>17</sup> This article will compare the APSCO Convention with the ESA Convention where necessary.<sup>18</sup>

This article begins with a review of the present situation of space cooperation in the Asia-Pacific region, and a brief history of the establishment of APSCO (II); the second part is followed by the examination of the main contents and the latest developments in APSCO law (III); then this article considers the problems relating to the improvement of APSCO law (IV); finally, it analyzes the relationship between APSCO law and space law in general and the relationship between APSCO and the space law and activities in Pacific Rim area (V).

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<sup>17</sup> Fien Van Parys, *supra* note 12, at 55.

<sup>18</sup> European Space Agency, referred to as "ESA", The author believes that ESA is a very integrative international space cooperation organization. It is the highest organization form and the standing body of space cooperation in Europe. The ESA Convention was passed in May 30, 1975, and came into effect on October 30, 1980. Convention for the Establishment of a European Space Agency, at Introductory Note, <http://www.esa.int/convention/> (last visited Oct. 30, 2009) [hereinafter ESA Convention]. The ESA was founded on May 30, 1975. *Id.* At that time, in Paris, the eleven (11) EC countries represented on behalf of the Government agreed to the ESA Convention, to replace the European Space Research Organization (ESRO) and the *European Launcher Development Organisation* (ELDO). See ESA, *History*, [http://www.esa.int/SPECIALS/About\\_ESA/index.html](http://www.esa.int/SPECIALS/About_ESA/index.html) (last visited Nov. 24, 2009). The purpose of ESA is to develop in space research, space technology, and application fields among European countries, exclusively for peaceful purposes. ESA Convention, *supra* note 18, at Preamble. It is headquartered in Paris, and its subsidiaries mainly include: the European Space Technology Research Center based in Netherlands, the European Space Operation Center located in the Federal Republic of Germany, and the ESA Center for Earth Observation located in Italy. See ESA, *What is ESA*, [http://www.esa.int/SPECIALS/About\\_ESA/SEM16ARR1F\\_0.html](http://www.esa.int/SPECIALS/About_ESA/SEM16ARR1F_0.html) (last visited Nov. 24, 2009). At present, ESA has the following eighteen (18) member states: Germany, Austria, Belgium, Denmark, Spain, Finland, France, Greece, Ireland, Italy, Luxembourg, Norway, the Netherlands, Portugal, United Kingdom, Sweden, Switzerland and the Czech Republic. ESA, *New Member States*, available at [http://www.esa.int/SPECIALS/About\\_ESA/SEM16LARE\\_0.html](http://www.esa.int/SPECIALS/About_ESA/SEM16LARE_0.html) (last visited Oct. 30, 2009). In addition, Canada and Hungary also participated in some of the cooperative projects. *Id.* See also Chukeat Noichim, *The Adecan Space Organization, Legal Aspects and Feasibility*, 121 (unpublished LL.M. thesis, Leiden University, 2008).

## II. REGIONAL SPACE COOPERATION IN ASIA AND THE ESTABLISHMENT OF APSCO

This section will firstly give a brief summary of Asia-Pacific space cooperation, then describe the development of Asia-Pacific Space Cooperation Organization, and finally, its succinct development history based on the Asia-Pacific space multilateral cooperation.

### *A. Regional Space Cooperation in Asia*

Recently, Space activities in Asian countries have been developing very quickly, especially in China, Japan, and India. As indicated by the classification of Professor Setsuko Aoki, the space capacity of Asian countries can be divided into three categories. China, India, and Japan as the first category for their independent space capacity. These three countries have launched national satellites into geostationary orbit with their own launch vehicles, and can create various types of satellites with quite advanced technology. As early as 1970, Japan launched an artificial satellite into space. India has launched numerous satellites, and recently China has made great progress in the field of human space flight. The second category covers those Asian countries that manufacture, possess, or utilize remote sensing technology or launch vehicles, and includes South Korea and several ASEAN members such as Indonesia, Malaysia, Thailand, and Singapore. South Korea will likely move rapidly into the first category. The third category includes those countries passively enjoying the benefits of space applications, such as Vietnam, the Philippines, Laos, Cambodia, Brunei, Sri Lanka, Myanmar, Bangladesh, Nepal, and Mongolia. The actual trend is that some countries of the third category aim to enter into the second category.<sup>19</sup>

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<sup>19</sup> Setsuko Aoki, *Regional Cooperation in Asia relating to Space Activities* (Commentary), in PROCEEDINGS OF THE SPACE LAW CONFERENCE, ASIAN COOPERATION IN SPACE ACTIVITIES A COMMON APPROACH TO LEGAL MATTERS (Ministry of Information and Communication Technology (Thailand) and the McGill Institute of Air and Space Law, Bangkok, Thailand, Aug. 2-3, 2006).

Asian countries have actively participated in numerous space cooperation activities under the framework of United Nations, and they have made contributions to various degrees. Asian countries are paralleling their space cooperation with some main countries playing a central role. Additionally, different forms of cooperation have been developed and led by some important space faring countries, such as China and Japan.

Besides the bilateral cooperation with the United States and other partners, Japan has held the Asia-Pacific Regional Space Agency Forum (APRSAF) every year since 1993. That has provided a forum for Asian countries to exchange views and discuss space development and cooperation, and to enhance regional space capacity. In addition to Asian countries, Australia, Canada, France, Germany and the United States and other countries in the region and even beyond the Asia-Pacific region and international organizations also attended the APRSAF conferences. The relevant space institutions of Japan have also organized some cooperative projects, seminars, training course on space activities etc, in the Asian region.<sup>20</sup> In 2005, Disaster Management Support System (DMSS) was established in Asia-Pacific region in the framework of the APRSAF, which requires best efforts and voluntary action by participating organizations.<sup>21</sup> The system will go through three stages, and be completed in 2010. From a legal point of view, APRSAF is an international forum, although it has gradually showed effects in some aspects of space cooperation, it is not an inter-governmental cooperation organization with legal personality.

In addition to its broader international cooperative efforts in outer space, India has been involved in Asian regional efforts. For example, India has established a Center for Space Science and Technology Education for the Asia-Pacific region that is sponsored by the U.N. India has also hosted the U.N.-ESCAP

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<sup>20</sup> Doo Hwan Kim, *The Possibility of Establishing an Asian Space Agency*, 5(1) THE SINGAPORE Y.B. OF INT'L L. 218-219 (2001).

<sup>21</sup> Setsuko Aoki, *supra* note 19.

Conference on Space Applications for Sustainable Development in Asia and the Pacific.<sup>22</sup>

China has actively participated in all kinds of international cooperation by initiating the Asia Pacific Multilateral Cooperation in Space Technology and Applications and Asia-Pacific multi-mission small satellite projects at the regional level. And on this basis, a regional intergovernmental space cooperation organization has been established – the Asia-Pacific Space Cooperation Organization. APSCO currently has seven members.

### *B. The Establishment of Asia-Pacific Space Organization*

According to Yang Mingjie, before 1977, China was isolated from the world in the field of space cooperation, but since 1977, China has entered the international space community by sending delegations to France, the United States, and Japan; since 1985, China began to give services to the international space industries by putting the *Long March (Changzheng)* rocket series into the world launch service market.<sup>23</sup>

Since then, China has always been active in all sorts of international space cooperation, on the basis of equality and mutual benefit, complementarily, and common development. China attaches much importance to space cooperation with not only developed countries, such as the United States, Russia, and European countries, but also developing countries. China has concluded intergovernmental agreements on space cooperation with many countries. China National Space Administration (CNSA) has signed inter-agency cooperation agreements with a number of space agencies of foreign countries. Chinese space industry has established cooperative relations in space technology and trade with dozens of countries, and has carried out fruitful bilateral and multilateral cooperation in the fields of

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<sup>22</sup> Haifeng Zhao, *Asia Pacific Space Cooperation Organization Convention*, in PROCEEDINGS OF THE 52<sup>ND</sup> COLLOQUIUM ON THE LAW OF OUTER SPACE 5(2007) (citing *The Possibility of Establishing an Asian Space Agency*, *supra* note 20, at 221).

<sup>23</sup> Yang Mingjie, *Chinese Role in the Regional Space Security Cooperation and APSCO* (Apr. 2007), available at <http://www.docstoc.com/docs/11738677/Chinese-Role-in-the-Regional-Space-Security-Cooperation-and-APSCO> (last visited Oct. 30, 2009).

manufacture and launching of satellites, human space flight, and space technology applications.<sup>24</sup>

The basic Chinese space cooperation policies were published in "China Space Activities in 2006," Yang Mingjie gave each of the five policies a title as follow:

- (1) Independence -- Adhering to the principle of independence and taking the initiative in its own hands, carrying out active and practical international cooperation in consideration of the overall, rational utilization of domestic and international markets and resources to meet the needs of the national modernization drive.
- (2) United Nationalism -- Supporting activities regarding the peaceful use of outer space within the framework of the United Nations. Supporting all inter-governmental activities for promoting the development of space technology, space application and space science as well as those conducted between non-governmental space organizations.
- (3) Regionalism -- Attaching importance to space cooperation in the Asia-Pacific region, and supporting other regional space cooperation around the world.
- (4) Multilateralism -- Reinforcing space cooperation with developing countries, and valuing space cooperation with developed countries.
- (5) Multi-mechanism -- Encouraging and endorsing the efforts of domestic scientific research institutes, industrial enterprises, institutions of higher learning, as well as social organizations to develop international space exchanges and cooperation in different forms and at different levels under the guidance of relevant state policies, laws and regulations.<sup>25</sup>

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<sup>24</sup> See Haifeng Zhao, *The Status Quo and the Future of Chinese Space Legislation*, 58 (1) ZEITSCHRIFT FÜR LUFT UND WELTRAUMRECHT [JOURNAL OF AIR AND SPACE LAW] 99 (2009). See also OUTER SPACE LAW, *supra* note 1, at 244.

<sup>25</sup> Yang, *supra* note 23, at 6 (citing Information Office of the State Council of the People's Republic of China, *China's Space Activities in 2006* (Oct. 12, 2006), available at <http://www.fas.org/spp/guide/china/wp2006.pdf> (last visited Oct. 30, 2009)).

In the 1990s, for the Asia-Pacific region, especially East Asian countries, their political situations were relatively stable, and their economy also continued to develop. A good opportunity appeared for the Asia-Pacific countries to develop the space industry together.<sup>26</sup> The establishment of APSCO is the result of the institutionalization of Asia-Pacific Multilateral Cooperation in Space Technology and Applications (AP-MCSTA for short).<sup>27</sup> AP-MCSTA, based on the memorandum among the space agencies of China, Pakistan, and Thailand, was established in 1992. Its purpose is to facilitate Asia-Pacific cooperation in space application, to spread small-satellite technology, and to promote space capacity-building. Starting with the flexible AP-MCSTA mechanism. The conference held in Beijing in 2001 put forward the recommendations on Asia-Pacific cooperation and conferred APSCO with legal personality, with a consensus having been reached by its sixteen members. In a sense, the establishment of APSCO regime and mechanism is accelerated to a large degree by the AP-MCSTA project.<sup>28</sup>

Under the framework of AP-MCSTA, a workshop was organized in Beijing in December 1992, with the purpose of

discussing the approach, manner, budget and legal issues related to developing APSCO. The participants have unanimously agreed to establish an AP-MCSTA Mechanism, and to increasingly accelerate the process of institutionalization of the Mechanism, namely the establishment of APSCO. For this purpose, a Liaison Committee and a Preparatory Committee for APSCO have been established, with China as the coordinator. In January 1994, the First AP-MCSTA Meeting, which was organized in Bangkok, confirmed the establishment of a Preparatory Committee, locating its Secretariat in China. Hereafter, seven AP-MCSTA conferences have been successively organized in Thailand, Pakistan, Korea, Bahrain, Iran,

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<sup>26</sup> See He Qizhi, *The Situation and Legal Framework of Asia-Pacific Space Cooperation*, 4 AEROSPACE CHINA 4 (1994).

<sup>27</sup> Asia Pacific Multilateral Cooperation in Space Technology and Applications, <http://www.apsco.int/index.aspx> (last visited Nov. 22, 2009).

<sup>28</sup> Luo Ge, 罗格: 《建立亚太空间合作组织推动区域空间合作》 [*The Review and Future of the Institutionalization of the Asia Pacific Multilateral Cooperation in Space Technology and Applications*], <http://www.cnsa.gov.cn/n615708/n620172/n677078/n751578/63001.html> (last visited Oct. 30, 2009).

China and Thailand. These Conferences have strengthened the political mutual trust among countries in the region, and have promoted regional cooperation in space technology and its applications.<sup>29</sup>

In July 2001, the Secretariat of AP-MCSTA was founded in Beijing in order to push forward the multilateral cooperation program and the institutionalization of the AP-MCSTA Mechanism. It has coordinated the Asia-Pacific Small Multi-Mission Satellite Project (SMSS) with the participation of China, Thailand, Korea and Mongolia. The Secretariat has also held Space Technology and Remote Sensing Application training courses for government officials and technical personnel of the Asia-Pacific countries.

In August 2003, the First Meeting of the Drafting Group on the APSCO Convention was organized in Bangkok. The participating representatives agreed to establish headquarters of APSCO in Beijing. In November of the same year, the Second Meeting of the Drafting Group on the [APSCO] Convention was organized in Beijing. The Meeting focused on four articles: financial arrangements, diplomatic privileges and immunities, industrial policy and space technology safeguards. The final version of the [APSCO] Convention was adopted, establishing the legal basis for APSCO.

From December 2003 to February 2004, the Secretariat submitted the final version of the [APSCO] Convention to 25 Asia-Pacific countries for approval. At the end of 2004, the Secretariat organized an experts' group meeting for financial arrangements. The delegates reached an agreement on the organizational structure of APSCO, its budget on administration and basic activities for the year 2007, and the minimum financial contribution ratio to APSCO by the member states.<sup>30</sup>

On October 28, 2005, the governmental representatives from eight states – Bangladesh, China, Indonesia, Iran, Mongolia,

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<sup>29</sup> *The Status Quo and the Future of Chinese Space Legislation*, *supra* note 24, at 5.

<sup>30</sup> Luo Ge, 罗格: 《建立亚太空间合作组织推动区域空间合作》 [*Establishing the Asia-Pacific Space Cooperation Organization to Promote the Regional Space Cooperation* ], <http://www.chinanews.com.cn/news/2005/2005-02-08/26/538877.shtml> (last visited Oct. 30, 2009).

Pakistan, Peru and Thailand – signed the APSCO Convention. Turkey signed the APSCO Convention in [sic] a later date. . . .

On October 29, 2005, the first meeting of the Interim Council of APSCO was held in Beijing, with representatives of the signatory States to the [APSCO] Convention. The meeting elected Mr. Kraison Pornsuti as Chairman of the Interim Council, Mr. Sun Laiyan, Administrator of China National Space Administration and Mr. Raza Hussain, Chairman of Pakistan Space and Upper Atmosphere Research Committee as Vice Chairmen. The Council adopted working procedures and established special committees on law, project planning and coordination, financial management, and other activities.<sup>31</sup>

According to the APSCO Convention, the entry into force of the APSCO Convention is conditioned upon the fact that at least 5 states of the Asia-Pacific Region, which are members of the U.N., have signed and deposited it with the Host Government their instruments of ratification or acceptance. On October 12, 2006, the APSCO Convention entered into force.

The Second Meeting of the Interim Council of APSCO was held on November 28-29, 2006. The Member States adopted the Draft Rules of Procedure for APSCO Council. In his working report to the Interim Council, Mr. Luo Ge, the Secretary-General of the Interim Secretariat of APSCO, introduced the activities having been carried out by the Secretariat during the year 2006 and the future plan for 2007. He also explained the efforts that the Interim Council had made for promoting the effectiveness of the APSCO Convention.

On April 25, 2007, the host Government - China, submitted the APSCO Convention to the United Nations, since then the APSCO Convention has been officially registered by the Secretariat in New York.

On December 16, 2008, after 16 years' preparation, an inter-governmental international organization - APSCO, aiming at promoting space cooperation of the Asia-Pacific region, was

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<sup>31</sup> *The Status Quo and the Future of Chinese Space Legislation*, supra note 24, at 5-6.

officially set up in Beijing. So far, the seven members of APSCO are: Bangladesh, Iran, Mongolia, Pakistan, Peru, Thailand, and the host country, China. Turkey and Indonesia have signed but not yet ratified the APSCO Convention.

On December 16-17, 2008, the first meeting of the Council of APSCO was held in Beijing, Thailand Deputy Permanent Secretary of Information and Communication Technologies Department Mr. Angsumal Sunalai was elected as President of the Council, Bangladesh National Defense Department Secretary-General, Mr. Kamrul Hasan, and the Administrator of Chinese National Space Administration Dr. Sun Laiyan were elected as Vice-Presidents. The Secretary-General of Asia-Pacific Multilateral Space Cooperation Secretariat-Chinese, Dr. Zhang Wei, was appointed as Secretary-General of APSCO.

The Council has decided to validate the decisions of Interim Council in the first and the second meeting and to modify and confirm the Rules of Procedure for the Council of APSCO, Financial Rules of APSCO, and the Regulations on staff members of APSCO. Furthermore, the Council discussed and adopted the 2009 working plan and financial arrangements, and it assessed the ratio of the financial contribution of APSCO members as well as six project proposals. The next Council meeting will be held in the second half of 2009. The APSCO headquarters' seat was decided upon, and the headquarters' building located in the Science City, Fengtai District, Beijing.<sup>32</sup>

### III. THE LEGAL FRAMEWORK AND THE LATEST DEVELOPMENTS OF APSCO

#### *A. The Legal Personality of APSCO*

##### i. The Legal Status

As mentioned above, APSCO is the second comprehensive regional intergovernmental space cooperation organization in

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<sup>32</sup> 2 AEROSPACE CHINA (2009), available at [http://www.space.cetin.net.cn/index.asp?modelname=spacechina%2Fdzqk\\_nr&FractionNo=&titleno=DZQKAN00&recno=5112](http://www.space.cetin.net.cn/index.asp?modelname=spacechina%2Fdzqk_nr&FractionNo=&titleno=DZQKAN00&recno=5112) (last visited Oct. 30, 2009).

the world. Similar to ESA, APSCO has complete international legal status, enjoying full international legal personality.<sup>33</sup> It is a legal subject of international law. Since APSCO has international legal personality, it can conclude agreements with other international organizations and related countries. Provided the relevant international space treaty permits to do so, APSCO itself can become a member to an international space treaty and be bound to it by making a special declaration for that purpose, provided that the majority of the Member States of APSCO are Member States of that treaty (sometimes also Member States of the Outer Space Treaty).<sup>34</sup> It shall, similar to the European Space Agency (ESA), have the capacity to acquire and dispose of movable and immovable property and may be a party to legal proceedings.<sup>35</sup> APSCO is a non-profit organization.

#### ii. Privileges and Immunities

According to the APSCO Convention, APSCO's staff members and experts, and representatives of the Member States shall enjoy in the territory of each Member State the privileges and immunities that are necessary for the exercise of the functions of APSCO or in connection therewith. They shall enjoy jurisdiction and execution immunities for the activities within the scope of their official duties. Unless otherwise agreed, such privileges and immunities shall be the same as those that each Member State accords to similar inter-governmental organizations and their personnel. The privileges and immunities of APSCO, its staff members and experts, and the representatives of its Member States in the territory of the Member State where the Headquarters of APSCO is located, namely China, shall be determined by the specific agreement to be concluded between APSCO and China.<sup>36</sup>

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<sup>33</sup> APSCO Convention, *supra* note 11, at art. 3.

<sup>34</sup> See OUTER SPACE LAW, *supra* note 1, at 6.

<sup>35</sup> See ESA Convention, *supra* note 18, at Annex 1(Privileges and Immunities), art. 1.

<sup>36</sup> To ESA relevant staff, experts, and representatives of Member States, the provisions of their legal capacity, privileges and immunities are in the annexes of the Convention, Annex I. *Id.* The provisions of privileges and immunities total up to 28. *Id.*

### *B. Purposes and Principles of APSCO*

In a paper on Asia-Pacific Space Cooperation, Mr. He Qizhi has once mentioned that the goal of APSCO is to promote the peaceful use of space and speed up the development of national economy.<sup>37</sup>

#### i. Purposes

The purposes of APSCO are to:

- (1) promote and strengthen the development of collaborative space programs among its Member States by establishing the basis for cooperation in peaceful applications of space science and technology;
- (2) take effective actions to assist the Member States in such areas as space technology research and development, applications and training by elaborating and implementing space development policies;
- (3) promote cooperation, joint development, and share achievements among the Member States in space technology and its applications as well as in space science research by tapping the cooperative potential of the region;
- (4) enhance cooperation among relevant enterprises and institutions of the Member States and promote the industrialization of space technology and its applications;
- (5) contribute to the peaceful uses of outer space in the international cooperative activities in space technology and its applications.<sup>38</sup>

It is easy to see from the above-mentioned purposes that APSCO has a broad scope to cooperate, to improve the space capability, and to promote socio-economic sustainable development of each Member State by developing multilateral cooperation among Member States in the application of space science and technology and by taking effective actions to assist the Member States, to promote the prosperity of the whole Asia-Pacific region, and to contribute to the peaceful use of outer

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<sup>37</sup> See OUTER SPACE LAW, *supra* note 1, at 5.

<sup>38</sup> APSCO Convention, *supra* note 11, at art. 4.

space. Although it aims also to guide and implement regional space development policies, compared with ESA, Asia-Pacific Space Organization imposes less requirements to Member States on the integration of the regional space activities. ESA shall coordinate the European space programme and national programmes and integrate the latter progressively and as completely as possible into the European space programme with regards to the development of application satellites, in particular.<sup>39</sup> But APSCO does not require its members to put their national space programs under the Asia-Pacific space plans. The Asia-Pacific Space Organization shows more respect to the relative autonomy of the Member States, as a result, there is no such clear requirement on the consistency between domestic space policy and the space policy of international organizations.

#### ii. Principles

The APSCO Convention stressed that based on the principles of “peaceful uses, mutual benefits and complementariness, equal consultations and development.” APSCO commits itself to promoting and strengthening joint development in space technology among Member States, coordinating the Member States to implement and execute space development policies, and taking effective actions in space technological research and development, applications, and training.<sup>40</sup>

### C. The Fields of Cooperation and Industry Policy

#### i. Field of Cooperation

In general, the field of cooperation of APSCO is wide-ranging. APSCO may carry out activities in the following fields, such as space technology and programs of its applications; earth observation, disaster management, environmental protection, satellite communications, and satellite navigation and position-

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<sup>39</sup> Harry H. Atkinson, *Conclusion of Meeting, in THE IMPLEMENTATION OF THE ESA CONVENTION, LESSONS FROM THE PAST 227* (European Space Agency/ European Centre for Space Law, Martinus Nijhoff Publishers, 1994).

<sup>40</sup> APSCO Convention, *supra* note 11, at Preamble.

ing; space science research; education, training, and exchange of scientists and technologists; establishment of a central data base for the development of programs and dissemination of technical and other information relating to the programs and activities; other cooperative programs agreed upon by the Member States.<sup>41</sup>

APSCO's cooperation activities include basic activities and optional activities.<sup>42</sup> The basic activities that all Member States ought to undertake shall include: establishing APSCO's plans for space activities and development; carrying out fundamental research concerning space technology and its applications; extending the applications of matured space technology; conducting education and training activities concerning space science and technology and their applications; managing and maintaining the branch offices and the relevant facilities as well as the network system of APSCO; undertaking other necessary activities to achieve the objectives of APSCO.<sup>43</sup> As can be seen from the above, basic activities cover basic research, technology extending, education and training, as well as related activities for the maintenance of the operation of APSCO. All the Member States are required to participate in the basic activities.

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<sup>41</sup> *Id.* at art. 6.

<sup>42</sup> Articles 7 – 8 of the Convention are similar to the ESA Convention in dividing three categories of space activities: the overall activities into mandatory activities (scientific nature), optional activities (strict space activities with practical nature), and operational activities (carried out by space agencies). APSCO Convention, *supra* note 11, at arts. 7 – 8. These activities are based on the principle of fair return. In 2003, 22 % of ESA's budget is for the mandatory activities, 72% is for optional activities. CONSEIL D'ETAT SECTION DU RAPPORT ET DES ETUDES, POUR UNE POLITIQUE JURIDIQUE DES ACTIVITIES SPACIALES 35 (2006). ESA's biggest success is the successful development and commercialization of the Ariane rocket, occupying half of the launch service market. Source: CONSEIL D'ETAT SECTION DU RAPPORT ET DES ETUDES, POUR UNE POLITIQUE JURIDIQUE DES ACTIVITIES SPACIALES 35 (La Documentation française, 2006).

<sup>43</sup> ESA's mandatory activities include: the activities of science nature include: education; plans to conduct a study; technical research; establishment and execution of science projects, such as the establishment of satellites and other space systems; information collection; space technology execution. ESA's optional activities are practical, which includes: the design, development, construction, launching, placing in orbit, and control of satellites and other space systems; the design, development, construction, and operation of launch facilities and space transport systems. THE IMPLEMENTATION OF THE ESA CONVENTION, LESSONS FROM THE PAST 25 (European Space Agency/ European Centre for Space Law, Martinus Nijhoff Publishers, 1994).

In terms of the optional activities, APSCO shall recommend and organize suitable space science, technology research and their applications programs for joint implementation by its Member States that choose to participate in such programs. Such a program shall be carried out following the principle of return on investment (fair return). "Fair-return" means that the return from an optional activity shall be obtained in proportion to their investment by the Member States participating in it, and is the cornerstone of APSCO's industrial policy. This principle not only promotes Member States to participate in APSCO activities by balancing investment and risk, but also rewards participants with technological capability and economic return in multilateral cooperation relating to space activities, thus promoting the general level of space activities in Asia-Pacific countries. As the practice of ESA shows, optional activities should be the key to establish the prestige of APSCO, and one of the most important criteria to measure the achievements of APSCO. The future of APSCO depends heavily on optional activities.

The practice of ESA has shown that, the distinction between mandatory activities and optional activities can give enough flexibility to Space Cooperation Organization. It can maintain the fundamental cooperation of Member States, as well as satisfy the demands of countries searching for more cooperation, in order to make all kinds of radical activities possible. This is a successful experience.

#### ii. Industrial Policy

The industrial policy shall have the following main goals, such as the development of competitive Asia-Pacific industry by resorting to free competitive bidding; the spreading of the relevant technologies among the Member States in order to create the specializations which are necessary for APSCO's programs and activities. APSCO also requires the Council to devise the industrial policy to meet the requirements of its programs and activities as well as the collaborative programs with the Member States, in a cost-effective manner; preference/opportunity shall be given, to the maximum possible extent, to the industry

in all Member States to participate in the tasks related to the implementation of APSCO's programs and activities; and, ensure all Member States participate in APSCO's programs and activities, in an equitable manner.<sup>44</sup>

As mentioned above, APSCO's principle of industrial policy is the same as the European Space Agency, i.e, the "fair return." Its expression can be understood as such, that is during the implementation of the projects and activities, and the joint development of space technology and products, APSCO should ensure that all Member States can equally participate in the projects' activities in accordance with their respective financial investment, including the technical input. ESA attaches much importance to the industrial policy and its implementation. The ESA Convention provides for its comprehensive industrial policy in a separate annex (Annex V, a total of six articles). The "fair return" principle created by ESA plays a key role in the European space industry capacity-building.<sup>45</sup>

#### *D. Membership of APSCO*

Similar to the membership of the ESA, APSCO's membership can also be divided into three categories, that is, full members, associate members, and observers.

##### *i. Full member*

In accordance with membership provisions in Article 9 of the APSCO Convention, APSCO shall be open to all U.N. members in the Asia-Pacific Region. Thus, if a country wants to be a

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<sup>44</sup> The industrial policy of the ESA is to meet the requirements of the European space programme and the coordinated national space programmes in a cost-effective manner; improve the world-wide competitiveness of European industry; making use of the existing industrial potential; ensure that all Member States participate in an equitable manner, exploit the advantages of free competitive bidding. ESA Convention, *supra* note 18, at art. VII.

<sup>45</sup> Gabriel Lafferrandrie, *The European Space Agency—Present and Future*, in PROCEEDINGS OF THE THIRTY-EIGHTH COLLOQUIUM ON THE LAW OF OUTER SPACE 195 (American Institute of Aeronautics and Astronautics, 1996). The "fair return" principle means that, in the optional activities of ESA, the geographical distribution of all the Agency's contracts shall be governed by the percentage contributions of the States in the project. *Id.*

member, first of all, it must be at the geographical scope of the Asia-Pacific region. By reference to the members of APEC, it is true that, in fact, the Asia-Pacific region covers a wide range of countries and regions around the Pacific Rim, including Asia (the whole Asian region), Oceania, the Americas, not just confined to Asian countries and regions. Secondly, a member of APSCO also must be a Member State of the United Nations,<sup>46</sup> so other entities and international organizations cannot become a member. At present, there are seven Member States in APSCO. After the entry into force of the APSCO Convention, any State, as defined in above two conditions, may accede to APSCO with the unanimous approval of the Council.<sup>47</sup>

The Member States have full voting rights. All Member States are entitled to participate in the cooperation programs and activities pursued by APSCO. Under the APSCO Convention, all Member States shall make financial contributions for the operation of APSCO. Any Member State that fails to fulfill its obligations shall be deprived of its membership in APSCO following a decision of the Council adopted by a two-thirds majority vote.<sup>48</sup> Member States can also withdraw from the APSCO Convention, in compliance with the applicable procedures provided for by the APSCO Convention.<sup>49</sup>

#### ii. Associate Members

A State outside the Asia-Pacific region or a member of the United Nations can apply for associate membership. The Council, by consensus, may decide upon its entry into APSCO. The Council may also decide, by consensus, upon its terms and conditions (financial contribution, participation in basic and cooperative activities of APSCO, etc.). The associate members do not have any voting right in the Council meetings. Brazil and

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<sup>46</sup> See APSCO Convention, *supra* note 11, at art. 9.

<sup>47</sup> *Id.* at art. 30.

<sup>48</sup> *Id.* at art. 32. This provision is similar to the provisions of ESA's Convention. See ESA Convention, *supra* note 18, at art. V.

<sup>49</sup> *Id.* at art. 33.

Ukraine have once showed interest to be an associate members / observers of APSCO.<sup>50</sup>

### iii. Observer

Any Member State of the U.N. or any international organization involved in space activities may be granted the Observer's status with the unanimous approval of the Council. The observers shall not have the right to vote in the Council's meetings. Argentina has approved the APSCO Convention, and has asked to be an observer of APSCO, as it is not located within the geographical scope of APSCO.<sup>51</sup>

APSCO encourages and facilitates itself and its members to develop international cooperation activities. As a number of countries have carried out a lot of international co-operational activities before joining APSCO, the APSCO Convention provides that participation in the activities of APSCO shall in no way affect the existing or future bilateral and multilateral cooperation engaged by the Member States. About the cooperation between APSCO and other entities, the APSCO Convention provides that APSCO shall cooperate with the agencies of the United Nations, in particular, its Committee on the Peaceful Uses of Outer Space. APSCO may establish cooperative partnerships with other countries than Member States of APSCO and other international organizations and institutions in pursuit of its objectives, with the unanimous approval of the Council. In this respect, the Council shall draw appropriate guidelines and procedure.<sup>52</sup>

### *E. The Organizational Structure of APSCO*

The organs of APSCO include the Council and the Secretariat, as well as subsidiary institutions to be established by

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<sup>50</sup> Wang Keran, *Background and Achievements with Regard to the Establishment of APSCO*, ASIA-PACIFIC SPACE OUTLOOK 15 (Sept. 2005).

<sup>51</sup> *Id.*

<sup>52</sup> See APSCO Convention, *supra* note 11, at 24.

APSCO, as it deems necessary. The institutional framework is very similar with ESA.<sup>53</sup>

#### i. The Council

The Council is the decision-making body of APSCO, and shall consist of ministers or ministerial representatives of the national space agencies of the Member States. Each Member State shall nominate one minister or ministerial representative for representation at the Council. The Council shall elect a Chairman and two Vice-Chairmen whose term of office shall be two years.<sup>54</sup> The Chairman is the head of the Council. The Council assumes a range of functions, including: defining policy, laws, and regulations; approving, depriving, and terminating the membership of the members, observers, and associate members; approving programs, budgets, and financial contribution; appointing officials, including Secretary-General; deciding to establish branch offices; and interpreting the APSCO Convention. There are 14 aspects in all.<sup>55</sup>

The Council shall meet when necessary but at least once per year. In this regard, it is different from ESA. The Council of the ESA did not hold an annual meeting, therefore, it often holds a meeting every several years.<sup>56</sup> The meetings shall be held at APSCO's headquarters. The participation of the official delegates from two-thirds Member States is necessary to form a quorum at any meeting of the Council.<sup>57</sup> Each Member State in the Council has one vote. Unless otherwise unanimously decided upon by the Council, the Council shall make every effort to adopt decisions upon matters by consensus.<sup>58</sup> In other words, the Council has established the principle of adopting decisions by consensus, but in some cases it needs to take a qualified majority for decision-making. Firstly, there are two cases in which

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<sup>53</sup> Fien Van Parys, *supra* note 12, at 60.

<sup>54</sup> See APSCO Convention, *supra* note 11, at 11.

<sup>55</sup> *Id.* at art. 12. These provisions are very similar to Article 11, paragraph 5 and other relevant provisions of the ESA Convention. ESA Convention, *supra* note 18, at art. 11, para. 5.

<sup>56</sup> *The European Space Agency—Present and Future*, *supra* note 45, at 192.

<sup>57</sup> APSCO Convention, *supra* note 11, at 13.

<sup>58</sup> *Id.* at art. 14.

a two-thirds majority is required: one concerns the minimum financial contribution that each Member State is required to make; the other is the decision on the deprivation of membership. Secondly, the Council may, by a three-fourths majority vote of the Member States attending the Council meeting, terminate the office of the Secretary-General. Finally, the decisions on the following matters can only be adopted by unanimity: to allow any Member State of the United Nations or any international organization to be granted Observer's status; to allow a State outside the Asia-Pacific Region and member of the United Nations to apply for the status of Associate Member; to establish cooperative partnerships with countries other than Member States of APSCO and other international organizations and institutions; the proportion of the financial contribution of the Member States; to allow a State to accede to the APSCO Convention; and the dissolution of the APSCO.<sup>59</sup>

Resorting to consensus is a rather unique feature of the United Nations Committee on Peaceful Use of Outer Space (COPUOS) in drafting relevant international treaties on outer space and making other decisions. The merit of this decision-making method consists in the full respect for national sovereignty and its will. This process has promoted the formation of the international space law system while ensuring the sovereignty of each country. However, there is a negative aspect: when one State insists on opposing a decision in a particular case, the decision will be delayed or cannot be made, which causes inefficiency in the decision-making process. In this respect, the approach of ESA Council is worth of noting. In principle, decisions of the Council of the ESA shall be taken by simple majority, and in the following cases by qualified majority. Firstly, the decision concerning following matters should be adopted by the two-thirds majority of all Member States: to change activities and programmes of ESA recommendations addressed to Member States; to adopt the annual financial budget; to adopt the financial regulations; to adopt the person-

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<sup>59</sup> Xiong Zheting, A Comparative Study of Asia-Pacific Space Cooperation Organization and the European Space Agency (unpublished PowerPoint report, Beijing Institute of Technology, School of Law, on file with author).

nel regulations; and the permission for the transfer of technology outside the territories of the Member States, There are also a number of cases in which the decisions should be unanimously adopted, including the level of resources to be made available to the Agency for the coming five-year period; towards the end of the third year of each five-year period and after a review of the situation, the level of resources to be made available to the Agency for the next five years.<sup>60</sup> Through a simple majority decision-making, the effective functioning of the institutions is maintained with greater flexibility.

## ii. The Secretariat

The Secretariat is the executive organ of [APSCO], and it consists of the Secretary-General and Secretariat staff members. The Secretary-General is the leader of the Secretariat and the chief executive officer of [APSCO] and its legal representative, similar to the ESA Director General. The Council appoints a Secretary-General for a period of five years, which may be extended for an additional five-year term. The Secretary-General participates in the meetings of the Council without voting right. The Secretary-General shall report to the Council, and in accordance with the directives issued by the Council, the Secretary-General is responsible for executing and implementing all the policies of [APSCO], as required by the Council; achieving the objectives of [APSCO]; managing and functioning of [APSCO]; drawing up annual reports, working plans and financial budgets of [APSCO] for approval by the Council; adopting and implementing the internal rules of the Secretariat; submitting proposals to the Council concerning programs and activities as well as measures designed to achieve the objectives of the programs and activities of [APSCO]; recruiting and administering the staff members of internal divi-

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<sup>60</sup> See ESA Convention, *supra* note 18, at art. 11. See also Gabriel Lafferranderie, *Reflexions sur l'evolution institutionnelle de l'Agency spatiale europeenne (ESA)* [*Reflections on the Institutional Evolution of the European Space Agency (ESA)*] 165, 171 (ECSL Summer Course, Sept. 1999). In the functioning of ESA, the practice of its voting system is different than what is stated in the ESA Convention articles, as the decisions adopt a unanimous voting system or seek a consensus. See Xiong Zheting, *supra* note 59A *Comparative Study of Asia-Pacific Space Cooperation Organization and the European Space Agency*, PPT report, BIT School of Law.

sions from the Member States according to the Service Regulations set by the Council; designating on contract basis scientists, technologists and other experts who are not regular staff members for carrying out the assigned jobs of [APSCO]; negotiating and signing international cooperative agreements with the approval of the Council.<sup>61</sup>

As can be seen from above analysis, the Council is the decision-making authority, and the Secretary-General is the head of executive authority. From the practice of ESA, a balance of powers should be struck between the Council and the Secretary-General. It is a problem that shall be further considered and examined in practice.

The APSCO Convention pays much attention to the independence of APSCO staff members, vis-à-vis the governments of the Member States. According to the APSCO Convention, the duties of the Secretary-General and the staff, whether regular or on contract, with regard to APSCO shall be exclusively international in character. During the fulfillment of their duties with APSCO, they shall neither seek nor receive instructions from any government or from any authority external to APSCO. Each Member State shall also respect the international character of the status of the Secretary-General and the staff members, and shall not exert any influence on them in any manner or form during the fulfillment of their duties with APSCO.<sup>62</sup> At present, the recruitment of the main staff members of the Secretariat is ongoing, and we can expect that the Secretariat of APSCO will soon be a team made up of elites coming from different Member States.

After consultations with the host State or the Member States, APSCO can set up branches and related facilities in the corresponding countries.<sup>63</sup>

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<sup>61</sup> *The Status Quo and the Future of Chinese Space Legislation*, *supra* note 24, at 9-10. See APSCO Convention, *supra* note 11, at art. 17.

<sup>62</sup> See APSCO Convention, *supra* note 11, at art. 17(2). This provision is very similar to art. 12(4) of the ESA Convention. See ESA Convention, *supra* note 18, at art 12(4).

<sup>63</sup> See APSCO Convention, *supra* note 11, at art. 1.

*F. Financial Arrangements of APSCO*

The financial arrangement is very important for ensuring the normal running of each international organization. Each State pays much attention to its financial contribution to international organizations, and the standards for determining the contribution. Those factors even influence a country's decision on whether or not to join APSCO. The funds for APSCO originate from firstly, the contributions of the Member States; secondly, voluntary grants from the Host Government (China) and other Member States, donations/subsidies received from other organizations; and, thirdly, the income resulting from the services provided to others.<sup>64</sup>

Each Member State shall contribute to the budget of APSCO in accordance with the financial arrangements decided upon by the Council. The Council decides by consensus the sharing part of financial contribution of each Member State. It shall be reviewed every three years. The sharing part of the financial contribution of each Member State is calculated corresponding to the level of its economic development and average gross domestic product (GDP) per habitant. And each Member State is required to make a minimum financial contribution, the so-called "floor" contribution to APSCO, which is decided upon by the Council by a two-thirds majority. In addition, no Member State shall be required to make financial contribution of more than 18% of the approved budget of APSCO.<sup>65</sup> The 2008 APSCO Council meeting has decided that the contribution of China is up to 18% of the total budget. The sharing parts of contributions of ESA are based on the average national income of each Member State. Nevertheless, each of its optional activities provides for different methods of calculation on contribution according to different activities.

There are also some provisions relating to donations. Subject to any directions given by the Council, the Secretary-General may accept donations, gifts or legacies to [APSCO] provided

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<sup>64</sup> *Id.* at art. 18.

<sup>65</sup> *Id.* For ESA, the similar percentage is 25%. ESA Convention, *supra* note 18, at art. XIII(2).

that they do not entail any conditions contrary to the objectives of APSCO.<sup>66</sup>

### *G. Intellectual Property and Technology Safeguard*

#### i. Intellectual Property Rights

In international space cooperation, the protection of the intellectual property is of significant importance. Art. 2 of the Space Benefits Declaration also mentioned this issue.<sup>67</sup> According to the APSCO Convention, intellectual property rights are those inventions, products, technical data, or techniques as well as other intellectual properties resulting from any programs and activities that are carried out by APSCO or through use of the resources owned by APSCO shall be owned by APSCO. APSCO shall abide by international conventions concerning protection of intellectual properties.<sup>68</sup>

#### ii. Technology Safeguard and Export Control

APSCO shall not allow any unauthorized access to protected information, items, and related technologies or measures in order to ensure the fulfillment of the duties by the representatives and the personnel of the Member States who are competent to handle such protected items or products, and it shall take appropriate measures for the protection and monitoring of such items as well as for the elaboration and implementation of specific technology security plans. With a view to implementing cooperative activities, programs, and projects of APSCO, the Member States shall conclude agreements on technology safeguard measures, and in necessary cases, promote the conclusion of such agreements by competent organizations and other designated organizations in order to elaborate and implement specific technology security plans. The Member States shall act in accordance with their respective national regulations and export

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<sup>66</sup> *The Status Quo and the Future of Chinese Space Legislation*, *supra* note 24, at 10. See also APSCO Convention, *supra* note 11, at art. 18.

<sup>67</sup> The Space Benefits Declaration, *supra* note 7, at art. 2.

<sup>68</sup> *Id.* at art. 22.

control legislation concerning the goods and services covered by the export control list.<sup>69</sup>

#### *H. Settlement of Disputes*<sup>70</sup>

Any dispute between two or more member states or between any of them and APSCO concerning the interpretation or application of the [APSCO] Convention shall be resolved through two methods. Consultation is one the available options. It is often involved in the dispute settlement through diplomatic channels. Its advantage resides in retaining more freedom for the disputing parties; furthermore, when an agreement is reached by consultation, it is relatively easy to execute. The second option for dispute resolution is arbitration. In case of non-settlement of the dispute by consultation, arbitration shall be used in accordance with the rules adopted by the Council by consensus. The advantage of arbitration is that it keeps to a large extent the autonomy of the parties of the dispute, whereas the tribunal handles the case in strict accordance with legal rules. For example, there is more flexibility in selecting arbitrators than what is done in an international judicial procedure. Furthermore, the arbitral award is legally binding, then the parties must comply with it.<sup>71</sup>

In the process of acceding to international organizations, China generally prefers political solutions to legal procedures in dispute settlements.<sup>72</sup> The [APSCO] Convention has introduced some features of dispute settlement mechanisms of other international organizations, such as ESA.<sup>73</sup> However, there are two differences between the [APSCO] Convention and the ESA Convention. First, the ESA Convention insists that the dispute shall

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<sup>69</sup> *Id.* at art. 23.

<sup>70</sup> The following section quoted from, *The Status Quo and the Future of Chinese Space Legislation*, *supra* note 24, at 11-12.

<sup>71</sup> *Id.* at art. 19.

<sup>72</sup> See Haifeng Zhao, 中国与国际司法机构关系的演进”, 《法学评论》 [*The evolution of the relations between China and the international judicial institutions*] 6 LAW REVIEW 3-12 (2008).

<sup>73</sup> Any dispute between two or more Member States, or between any of them and the Agency, which is not settled by or through the Council, shall be submitted to arbitration (Article 19 of the ESA Convention).

initially be settled by the Council, and [APSCO] emphasizes amicable consultations, reflecting the usual position of Asian countries (e.g., China) in resolving international disputes through political or diplomatic channels. Second, although there are arbitration provisions in both Conventions, the corresponding rules of ESA are more detailed. The ESA emphasizes that the arbitral award shall be final and binding on all parties of the dispute and no appeal can be made. The parties shall comply with the award without delay.

Furthermore, under the [APSCO] Convention, [APSCO] shall cooperate with the agencies of United Nations system, in particular, COPUOS.<sup>74</sup> As a typical treaty of public international law, the amendments to the [APSCO] Convention shall be adopted by the Council by consensus pursuant to the [APSCO] Convention;<sup>75</sup> after [this APSCO Convention] has entered into force for a period of five years, any member state can apply for withdrawal;<sup>76</sup> [APSCO] shall be dissolved either by an agreement among all its member states or when there are less than four member states.<sup>77</sup>

#### IV. IMPROVEMENT TO BE MADE BY APSCO

At present, although the APSCO Convention has entered into force and APSCO has officially operated, there are still some problems in the development of APSCO. In order to improve its development, due attention shall be paid to the following points.

##### A. APSCO Needs More Comprehensive Membership

Although there are seven Member States of APSCO, which is a good starting point, the current Organization is still in its early stage and fails to fully represent the Asia-Pacific region. Moreover, all the seven Member States are not Asian countries.

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<sup>74</sup> See APSCO Convention, *supra* note 7, at art. 24.

<sup>75</sup> *Id.* at art. 27.

<sup>76</sup> *Id.* at art. 33.

<sup>77</sup> *Id.* at art. 34. In contrast, the ESA shall be dissolved if the number of Member States becomes less than five. ESA Convention, *supra* note 18, at art. XXV.

As a result of “political bias, geographical strategy, international competition,”<sup>78</sup> the double application (both military and civilian) of the space technology and the technological gap,<sup>79</sup> there are some difficulties regarding cooperation in space activities. Currently, a number of space-faring countries in the Asia-Pacific region, such as the United States, Russia, India, and Japan have not acceded to APSCO. And it is unpredictable whether these countries would accede to APSCO in the future. Except China, the other Member States have limited space activity capacity,<sup>80</sup> APSCO being a space cooperation organization among developing countries now. Since Chinese space capacity is relatively advanced, the other Member States will probably benefit more than China from the cooperation with China. It not only contributes to the realization of the right of exploration and use of outer space freely which is mentioned in international instruments including Outer Space Treaty, but also allow more nations, especially developing nations to have access to outer space.

In the future, APSCO must enlarge its membership. Only if more States join APSCO, especially space-faring States, can APSCO be worthy of its name and be more successful in cooperation. During the founding process of APSCO and drafting of the APSCO Convention, a lot of nations showed their interests and participated in the process. In 2005, although not being the signatories, Russia, Argentina, Brazil, Malaysia, Philippines, and some other non-member countries attended the signing ceremony of APSCO Convention.<sup>81</sup> Their participation indicates

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<sup>78</sup> *The Status Quo and the Future of Chinese Space Legislation*, *supra* note 24, at 12.

<sup>79</sup> Ling Shang, et al., 《我国航天国际合作制约因素分析与对策研究》, 《自然辩证法研究》, [An Analysis on the Restrictive Factors of Chinese International Cooperation and the Tactics Study] 19 (12) STUDIES IN DIALECTICS OF NATURE 47-50 (Dec. 2003).

<sup>80</sup> As the host state of APSCO, China promotes space technology of the country in this region which includes remote sensing. In 2006, China donated Reception Stations of Fengyu Satellite Data Broadcasting System to the Seven Signatory States of APSCO, namely Bangladesh, Indonesia, Iran, Mongolia, Pakistan, Peru, Thailand, demonstrated the strong support of the Chinese Government to APSCO. See PEOPLE'S DAILY ONLINE, <http://scitech.people.com.cn/GB/25509/55912/71407/71436/4869859.html> (last visited Nov. 25, 2009).

<sup>81</sup> Setsuko Aoki, *supra* note 19.

the possibility of expansion for APSCO. Meanwhile, APSCO itself is expecting to have more Member States.<sup>82</sup> Surely, the enlargement depends on a lot of factors, especially the operation and development of cooperation projects and programs in APSCO.

When deciding whether or not to accede to APSCO, nations take a number of factors into consideration, for example, relations with certain nations and international mechanism, sharing of cost, protection of intellectual property, transfer of technology, and so on.

Currently, some mechanisms, such as MCTR, which is an exportation control regime, aims at restricting proliferation of delivery systems for weapons of mass destruction, including delivery systems for ballistic missiles and pilotless aircraft. However, this practice can actually hamper international space cooperation, because missile launching technology is similar to space launching technology. Hence, restriction on missile delivery technology will lead to the restrictions on space launching technology. This is unfavorable for many nations, especially the developing countries to obtain space technology. Although China's legal regulations also have a similar list like that of MCTR, China is not a Member State of MCTR, and some nations like Korea still hesitate in joining APSCO after many invitations.<sup>83</sup> MCTR therefore has hindered the expansion of APSCO.

Other reasons hindering the enlargement of the membership include the huge difference among Asian countries and the geopolitical considerations, etc. "Due to the vastness of the Asia-Pacific region and the myriad" of political, economical, religious, and cultural differences among the nations in this region, apparently it is "difficult to establish a space cooperation organiza-

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<sup>82</sup> *New space body welcomes all*, CHINA ECONOMIC NET, Dec. 17, 2008, [http://en.ce.cn/World/Asia-Pacific/200812/17/t20081217\\_17695627.shtml](http://en.ce.cn/World/Asia-Pacific/200812/17/t20081217_17695627.shtml).

<sup>83</sup> Sang-Myon Rhee, *Regional Cooperation in Asia Relating to Space Activities, Northeast Asian Issues*, in PROCEEDINGS OF THE SPACE LAW CONFERENCE, ASIAN COOPERATION IN SPACE ACTIVITIES A COMMON APPROACH TO LEGAL MATTERS (Ministry of Information and Communication Technology (Thailand) and the McGill Institute of Air and Space Law, Bangkok, Thailand, Aug. 2-3, 2006).

tion as large as APEC.”<sup>84</sup> It is very difficult to establish an Asian Space Agency (ASA) which was proposed by Korean scholar Professor Doo Hwan Kim in 2001. He deems that,

the necessity of establishing the ASA has arisen from the competition among the Asian countries and the developed countries, such as the USA, Russia, Canada, and EU countries, in the growing Asian space market. It is necessary for the Asian countries to work collaboratively to strengthen cooperation in research of the benefit for all the people in Asia.<sup>85</sup>

However, historically and realistically speaking, due to differences among Asian nations and geographical political situation, “it is extremely difficult to establish a closely cooperative regional organization to include all or the majority of countries in Asia.”<sup>86</sup> At present, the global economy is becoming more regionalized and human rights are becoming more universal. Without more regional economic integrative organizations and regional human rights protection mechanisms, Asia falls behind highly integrated Europe and even Africa and Latin America. Hence, although the idea of establishing a universal ASA with all or the majority of Asian countries as its Member States presents advantages, it is difficult to realize the idea in the foreseeable future.

*B. APSCO Should Develop Practical and Successful  
Space Cooperation Programs as soon as possible*

An international organization can be a successful one only if its cooperation is in concrete programs and the results are satisfactory. After years of efforts, small satellites were launched successfully in 2008 under the framework of the Small

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<sup>84</sup> *The Status Quo and the Future of Chinese Space Legislation*, *supra* note 24, at 12.

<sup>85</sup> *The Status Quo and the Future of Chinese Space Legislation*, *supra* note 24, at 12 (citing Doo Hwan Kim, *The Possibility of Establishing an Asian Space Agency*, SINGAPORE J. INT'L & COMP. L. 214-226 (2001). See also Doo Hwan Kim, *The National Space Program, Policy and Legislation in Korea*, 2004 SPACE LAW CONFERENCE PAPER ASSEMBLE 91 (Beijing, China, Apr. 25-27, 2004). In this paper, Professor Kim has already changed ASA's name to Asian Space Development Agency.

<sup>86</sup> *The Status Quo and the Future of Chinese Space Legislation*, *supra* note 24, at 12.

Multi-Mission Satellite Project.<sup>87</sup> This successful cooperation is a solid basis for the development of APSCO.

The development and cooperation program of APSCO is crucial both to the economic development of Member States and to the future of APSCO.<sup>88</sup> So, in line with the goal of APSCO, strategic planning, which includes selecting projects, developing a plan for each Member State, and then enforcing the plan, is of great significance. Since there are huge political, economic, and technological differences among Member States, and space technology and its application needs huge investments and high technology, the plan and scheme should adapt to the Member States' need in developing space technology.<sup>89</sup> In December 2008, the first council meeting of APSCO adopted 6 project suggestions. These 6 suggestions were initiated by APSCO Project Planning Commission that was organized by APSCO's Interim Secretariat. These projects are divided into four categories, i.e., space science research project, space technology cooperation project, space technology application project, and education project. In these 6 projects, the first two are: (i) Spatial Data Sharing Platform and Its Application Pilot Project and (ii) APSCO Applied High-Resolution Satellite Project.<sup>90</sup>

### *C. APSCO Should Enhance Cooperation with Other Asia-Pacific Space Cooperation Fora*

Apart from developing international cooperation in accordance with the APSCO Convention, we think that APSCO should make greater efforts to enhance cooperation with other Asian space cooperation fora. Although establishing ASA or a space cooperation organization as large as APEC is very difficult, APSCO should still promote Asian regional space cooperation, especially with APRSAF in which Japan plays a leading role. This will strengthen Asian countries' capacity to deal with

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<sup>87</sup> *New space body welcomes all*, *supra* note 82.

<sup>88</sup> Yang Weiyuan, *APSCO Strategic Planning*, ASIA-PACIFIC SPACE OUTLOOK 17 (Sept., 2005).

<sup>89</sup> *Id.*

<sup>90</sup> *The Interim Secretariat of APSCO Holds the Second Meeting of the Ad Hoc Committee for Program Planning for APSCO 4*, ASIA-PACIFIC SPACE OUTLOOK (Dec. 2008).

natural disasters and develop national economy through space technology and this will also enhance peace and safety in Asia. As Professor Aoki said, Europe has already set a good example for us in this area.<sup>91</sup> In Asia, on the present basis of cooperation under U.N. and other frameworks (they are mainly about remote sensing data of disaster diminution and environmental surveillance.), it is necessary to harmonize the two existing regional platforms: APSCO and APRSAF. Each of them could participate in the other's activities<sup>92</sup> and then consider the possibility of further and deeper cooperation.

*D. An Asia-Pacific Center for Space Law Should be Established*

One of the most successful achievements of the European Space Agency is the establishment of the European Center for Space Law (ECSL). This Center makes great contributions in providing legal services on space law, through providing discussion forums and teaching support (summer school for space law training), constructing communication sites for Member States and a database of space law.<sup>93</sup> The author shares a common view with Professor Doo Hwan Kim about establishing an Asian Center for Space Law, i.e., it is necessary to reinforce the education and training of outer space law in the space cooperation organization framework. Prof. Kim proposed the idea in 2001: Asia must establish an Asia Center for Space Law, which is responsible for the education, training and research of space law in Asia. He believed that the establishment of the Center was a starting point of the future ASA.<sup>94</sup> The author considers that it seems to be more practical and feasible to establish an Asia-Pacific Center for Space Law (APCSL) in the framework of

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<sup>91</sup> Setsuko Aoki, *supra* note 19.

<sup>92</sup> *Id.* We can not consider that APSCO and APRSAF are of a competing nature, because the two forms of cooperation are of a different nature, and as one of the leading countries of the APSCO, the China National Space Administration has been participating in the conferences and activities of the APRSAF.

<sup>93</sup> *The European Space Agency—Present and Future*, *supra* note 45, at 198.

<sup>94</sup> *The National Space Program, Policy and Legislation in Korea*, *supra* note 85, at 91.

APSCO in the near future.<sup>95</sup> With regard to its mission, Asia-Pacific Center for Space Law could learn from both ECSL and International Institute of Space Law,<sup>96</sup> it can not only hold Space Law Summer Training Courses and other space law training courses, promoting the research and understanding of space law in Asia-Pacific region, but also become legal consultant to APSCO. This will promote the further development of APSCO Law. However, the establishment of the APCSL depends on a common political agreement from all APSCO Member States, which will take time.

#### V. THE RELATIONSHIP BETWEEN THE LAW OF APSCO AND THE GENERAL SPACE LAW AND PACIFIC RIM SPACE LAW AND ACTIVITIES

Pacific Rim includes the countries and regions in the Pacific Ocean and alongside the Pacific coast, which is similar to the Asia-Pacific region according to the geographical concept. However, the geographical scope of the Asia-Pacific region is even larger, that is, it includes not only the Pacific Rim countries and regions, but also the Asian land-locked countries and regions. For example, among the 7 States Parties of APSCO, it is hard to say that Bangladesh, Iran, Mongolia, and Pakistan are Pacific Rim countries. Pacific Rim is a region with some of the world's fastest-growing economies and biggest booming space industries.

##### A. *The Law of APSCO has Its Own Characteristics*

The law of APSCO, which acts as the rules of the space cooperation of the Asia-Pacific developing countries, is not only different from the legal framework of international space station led by U.S., but also different from the legal regulations of

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<sup>95</sup> See Haifeng Zhao, ed., *The Current Situation and Future of the Teaching and Research of Outer Space Law in China*, 1 CHINESE SPACE LAW REVIEW 55 (Harbin Institute of Technology Press, 2006).

<sup>96</sup> European Center for Space Law was established in 1989 by ESA, and the International Institute of Space Law was established in 1960 within the framework of International Astronautical Federation. ESA, [http://www.esa.int/SPECIALS/ECSL/SEMPZMGHZTD\\_0.html](http://www.esa.int/SPECIALS/ECSL/SEMPZMGHZTD_0.html); <http://www.iislweb.org/> (last visited Nov. 23, 2009).

co-operation between developed countries of the European Space Agency (ESA). It is a law for implementing the principles of international cooperation of the Outer Space Treaty and the Declaration on International Cooperation of the UNGA, and for promoting the building of space capacity and the right of accessing to the space equally for developing countries. It is inspired by the useful provisions of the ESA Convention. At the same time, it has its own distinct characteristics, for example, respecting the equal sovereignty of States and seeking consensus in decision-making mechanisms, and so on.

*B. The Law of APSCO Complies with and  
Enriches General Space Law*

The relationship between the law of APSCO and the general space law is the same as between special law and general law. First of all, the law of APSCO should comply with the basic principles of the general space law, especially the five Treaties of international space law and the relevant principles of the U.N. General Assembly, in particular, the principles which have become the international customary rules. At the same time, the practice of APSCO will also enrich the contents of general space law. If APSCO declares its acceptance of the rights and obligations provided for in some space treaties, it should also comply with the relevant provisions of the treaties.<sup>97</sup> In particular, under specific circumstances, through its Member States, some articles of the space treaties can also apply to APSCO. For example, according to Article 13 of the Outer Space Treaty, the provisions of this treaty shall apply to the activities of States Parties to the treaty in the exploration and use of outer space, whether such activities are carried on by a single State Party to the treaty or jointly with other States, including cases where they are carried on within the framework of international inter-

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<sup>97</sup> ESA had declared its acceptance of the rights and obligations provided for in some international space treaties. *See e.g.*, Outer Space Treaty, *supra* note 6; and Convention on Registration of Objects Launched into Outer Space, *opened for signature* Nov. 12, 1974, 28 U.S.T. 695, 1023 U.N.T.S. 15. It is likely that APSCO might become a party to some international space treaties when its activities have developed to a certain extent.

governmental organizations (IIGO).<sup>98</sup> Any practical question arisen in connection with activities carried on by IIGO in the exploration and use of outer space shall be solved by the State Parties to the treaty either with the appropriate international organization or with one or more Member States of that international organization, which are parties to this treaty. Thus, the Outer Space Treaty will apply to APSCO through its State Parties.<sup>99</sup> Article 12 of the Convention on International Liability for Damage Caused by Space Objects also stipulates the problem of damages and compensations in cases where damages are caused by the IIGOs or the IIGOs are damaged.<sup>100</sup> If any IIGO pursuing space activities accepts the rights and duties of the Liability Convention and half of its Member States are the States Parties of the Liability Convention and the Outer Space Treaty, the Liability Convention will apply to the IIGO except for some exceptional articles. If the IIGO is damaged, the States Parties of the IIGO, who are also Member States of the Liability Convention, can claim the compensation in accordance with the provisions of the Liability Convention. If an IIGO is responsible for the damage under the provisions of the Liability Convention, The IIGO and its Member States to the Liability Convention shall be jointly and severally liable, but (1) any compensation for such damage shall be firstly claimed to the IIGO; (2) only when IIGO does not pay for the damages stipulated by the agreement or the decision, can the damaged States claim for the compensation from the Member States of the Liability Convention.

*C. APSCO Will Promote the Development of Space Law  
and Activities in the Pacific Rim*

The establishment of APSCO and the space cooperation among the APSCO Member States will promote the development of space activities and space capacities of Member States. Some Member States are located in the Pacific Rim, and will

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<sup>98</sup> Outer Space Treaty, *supra* note 6, at art. 13.

<sup>99</sup> Just as it can apply to ESA. See NANDASIRI JASENTULIYANA, ET AL., 1 MANUAL ON SPACE LAW 433, (Oceana Publication Inc., 1979).

<sup>100</sup> Convention on International Liability for Damage Caused by Space Objects, art. 12, *opened for signature* Mar. 29 1972, 24 U.S.T. 2389, 961 U.N.T.S. 187.

also contribute directly to the space activities of Pacific Rim. As the international law between the Member States, the law of APSCO will play an active role in promoting the cooperation in space and the development of space law among its Member States. During the process of the establishment of APSCO and the elaboration of the APSCO Convention, we have seen that a lot of countries of the Pacific Rim like Russia and Korea and so on, paid much attention to APSCO and took part in the activities of its establishment. Moreover, APSCO also attaches much importance to the establishment of external relations of cooperation, thus, further space cooperation among APSCO, countries in Pacific Rim and other space cooperation forum in Asia-Pacific region can be expected, and will be a stimulus to the development of space activities in Pacific Rim.

## VI. CONCLUSION

Until recently, China has seldom been designated as a host state of international organization. Apart from a few international organizations not widely known, The Shanghai Cooperation Organization is the first China-based international organization with wide influence on international relations. APSCO is an important inter-governmental international organization, which was initiated and promoted by China and other nations. We look forward to the rapid development of APSCO and to the prospects of China in becoming the host state of more international organizations, which will allow China to assume even more responsibilities as the world's largest developing country.<sup>101</sup>

As the second multi-regional inter-governmental space cooperation organization in the world, APSCO is a unique new framework, its development depends on the smooth implementation of the space cooperation project among Member States, and on the continuous enlargement of its Member States. To some extent it also depends on the relationship among China, the United States, Russia, Japan, India, and other space-faring countries. Finally, it also depends on its own legal practice. The

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<sup>101</sup> *The Status Quo and the Future of Chinese Space Legislation*, *supra* note 24, at 13.

experience of ESA shows that the practice of law can usually develop the rules of law. The role of space law in APSCO lies in setting up a framework for cooperation and regulating the relationship among its members. It can be envisaged that, with the development of APSCO, the establishment of the Asia-Pacific Center for Space Law or other framework will improve the law of APSCO and will help in promoting the knowledge and education of space law in the Asia-Pacific countries, thus, reinforcing the impact of space law. Since some of the Member States are in the Pacific Rim, APSCO and the space activities of its Member States together with the development of its own laws constitute not only a composing part of the development of the space activities and space law in Pacific Rim, but also a platform of space cooperation and space law knowledge sharing for the other Pacific Rim countries and fora.

# CURRENT LEGAL STATUS AND RECENT DEVELOPMENTS IN HONG KONG LAW AND ITS RELEVANCE TO PACIFIC RIM SPACE LAW AND ACTIVITIES

*Yun Zhao*\*

## I. INTRODUCTION

Often claimed as the best example of “East meets West,” Hong Kong is a city of marked contrasts. After Hong Kong was transferred from Great Britain to the People’s Republic of China (PRC) in 1997, the Hong Kong Special Administrative Region (HKSAR) was established. This change allowed Hong Kong to enjoy a high degree of autonomy without any anticipated changes in lifestyle, except defense and foreign affairs.<sup>1</sup> The Basic Law of the Hong Kong Special Administrative Region of the People’s Republic of China (Basic Law), enacted by the National People’s Congress of China in 1990, functions as the current constitutional basis for Hong Kong’s Government and legal system.<sup>2</sup> This Law clearly provides that Hong Kong will maintain its current legal, social, and economic systems and lifestyle.<sup>3</sup> Article 8 states “[t]he common law, rules of equity, ordinances, subordinate legislation and customary law shall be maintained, except for any that contravene this Law, and subject to any amendment by the legislature of the Hong Kong Special Administrative Region.”<sup>4</sup> Furthermore, Annex III lists several na-

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\* Associate Professor, Faculty of Law, The University of Hong Kong. Ph.D., Erasmus University Rotterdam, the Netherlands; LL.M, Leiden University, the Netherlands; LL.M, LL.B, China University of Political Science and Law, Beijing. The work described in this article was fully supported by Seed Funding for Basic Research from the University of Hong Kong.

<sup>1</sup> Detroit College of Law at Michigan State University, *Sino-U.S. Relations in the 21<sup>st</sup> Century*, 6 J. INT’L L & PRAC. 229, 240-41 (1997).

<sup>2</sup> See The Basic Law of the Hong Kong Special Administrative Region of the People’s Republic of China (promulgated by the Seventh Nat’l People’s Con., Apr. 4, 1990, effective July 1, 1997), art. 8, *reprinted in* 29 I.L.M. 1511 (1990) [hereinafter Basic Law].

<sup>3</sup> *Id.*

<sup>4</sup> *Id.* at art. 8.

tional laws of the PRC that apply in the HKSAR.<sup>5</sup> Laws related to space activities, obviously, do not belong to the above list of exceptions. However, because space laws find their basis in traditional sources of international law, we must not neglect the Central Government's relation to space activities carried out in Hong Kong.

Hong Kong, as a relatively small geographical area, has to a certain extent restricted the scope of its space activities. The Hong Kong Government has limited resources to devote to regional economic development and the improvement of people's livelihood. Thus, economic considerations take up an important role in deciding what space activities will be carried out. In essence, space activities should directly serve the economic end and lead to the betterment of people's well-being. Accordingly, telecommunication services have become the most important space activities to Hong Kong leading to the development of rules and regulations governing both public and commercial space activities.

This paper examines Hong Kong's space law framework and in particular two important pieces of legislation. Part II of this paper offers a general discussion on the current space law framework in Hong Kong. Parts III and IV evaluate the Outer Space Ordinance (Cap. 523) and the Import and Export (Strategic Commodities) Regulations (Cap. 60G). Lastly, Part V explores ideas on further development of space laws in Hong Kong.

## II. LEGAL FRAMEWORK IN HONG KONG

Prior to Great Britain's sovereign transfer of Hong Kong to China in 1997, the Outer Space Act 1986 (Hong Kong) Order 1990 applied.<sup>6</sup> This Order made four international space treaties

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<sup>5</sup> Such laws include the Resolution on the Capital, Calendar, National Anthem and National Flag of the PRC; Resolution on the National Day of the PRC; Order on the National Emblem of the PRC Proclaimed by the Central People's Government (Attached: Design of the national emblem, notes of explanation and instruction for use); Declaration of the Government of the PRC on the Territorial Sea; Nationality Law of the PRC; Regulations of the PRC Concerning Diplomatic Privileges and Immunities.

<sup>6</sup> The Outer Space Act 1986 (Hong Kong) Order 1990, (1990) S.I. 591 (H.K.), available at [http://www.uk-legislation.hmso.gov.uk/si/si1990/Uksi\\_19900591\\_en\\_1.htm#end](http://www.uk-legislation.hmso.gov.uk/si/si1990/Uksi_19900591_en_1.htm#end).

previously ratified by Great Britain applicable to Hong Kong, namely, the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies (Outer Space Treaty);<sup>7</sup> the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space (Rescue and Return Agreement);<sup>8</sup> Convention on International Liability for Damage caused by Space Objects (Liability Convention);<sup>9</sup> Convention on the Registration of Objects Launched into Outer Space (Registration Convention).<sup>10</sup>

The situation did not change much after the transfer of Hong Kong to China in 1997. As defined in the Basic Law,

The application to the Hong Kong Special Administrative Region of international agreements to which the People's Republic of China is or becomes a party shall be decided by the Central People's Government, in accordance with the circumstances and needs of the Region, and after seeking the views of the government of the Region.<sup>11</sup>

China, having also ratified the above four treaties,<sup>12</sup> continued to apply the treaties to Hong Kong after June 30, 1997. The continued application of the above space treaties and other international agreements has secured a stable legal environment for Hong Kong during and after the transfer period.

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<sup>7</sup> Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, *opened for signature* Jan. 27, 1967, 18 U.S.T. 2410, 610 U.N.T.S. 205 [hereinafter Outer Space Treaty].

<sup>8</sup> Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space, *opened for signature* Apr. 22, 1968, 19 U.S.T. 7570, 672 U.N.T.S. 119 [hereinafter Rescue and Return Agreement].

<sup>9</sup> Convention on International Liability for Damage Caused by Space Objects, *opened for signature* Mar. 29 1972, 24 U.S.T. 2389, 961 U.N.T.S. 187 [hereinafter Liability Convention].

<sup>10</sup> Convention on Registration of Objects Launched into Outer Space, *opened for signature* Nov. 12, 1974, 28 U.S.T. 695, 1023 U.N.T.S. 15 [hereinafter Registration Convention].

<sup>11</sup> Basic Law, *supra* note 2, at art. 153.

<sup>12</sup> China acceded to the Outer Space Treaty on 30 December 1983; the Rescue and Return Agreement on 14 December 1988; and both the Liability Convention and the Registration Convention on 12 December 1988.

China has advocated a localization policy for legal development in Hong Kong. Accordingly, China has agreed to localize the Outer Space Act 1986 (Hong Kong) Order 1990, which forms the basis of the current Outer Space Ordinance (Cap. 523)<sup>13</sup> in Hong Kong.<sup>14</sup> This Ordinance operates as a constitutional like document concerning the launching and operation of space objects and the carrying on of other activities in outer space.<sup>15</sup> No substantial changes were made to the original Order. However, certain terminology was changed, such as replacing “Governor” and “Governor in Council” with “Chief Executive” and “Chief Executive in Council” respectively. Consequently, the sovereign transfer exerted no real effect on the outer space policies and laws in Hong Kong.

While the Outer Space Ordinance serves as a major piece of legislation guiding space activities in Hong Kong, several other Ordinances are also relevant to satellite applications. The Telecommunication Ordinance (Cap. 106)<sup>16</sup> stands out as the major one in this aspect. It provides detailed rules on the licensing and control of telecommunications, telecommunications services, and telecommunications apparatus and equipment.<sup>17</sup> The Broadcasting Ordinance (Cap. 562)<sup>18</sup>, another space-related legislation, regulates broadcasting services, which are constantly transmitted by satellites. Similarly, the Submarine Telegraph Ordinance (Cap. 497)<sup>19</sup> also touches on matters related to satellite applications. However, among the above three ordinances, only the Outer Space Ordinance functions as the fundamental legal document in Hong Kong dealing directly with general legal matters in outer space. The other two ordinances primarily deal with certain aspects of specific space activities. For this reason, this paper focuses on the Outer Space Ordinance as the major document for discussion.

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<sup>13</sup> Outer Space Ordinance, (1997) Cap. 523. (H.K.)

<sup>14</sup> Localization of Laws, <http://www.legco.gov.hk/yr96-97/english/panels/ca/papers/xx1612x3.htm> (last visited Nov. 4, 2009).

<sup>15</sup> See Outer Space Ordinance, *supra* note 13.

<sup>16</sup> Telecommunications Ordinance, (2000) Cap. 106. (H.K.)

<sup>17</sup> *Id.* § 7.

<sup>18</sup> Broadcasting Ordinance, (2000,) Cap. 562. (H.K.)

<sup>19</sup> Submarine Telegraph Ordinance, (1997) Cap. 497. (H.K.)

Since the Outer Space Ordinance regulates public space activities, in order to completely understand space legislation in Hong Kong, it is necessary to look at those laws governing the private aspects of space activities. In this regard, the Import and Export (Strategic Commodities) Regulations (Cap. 60G)<sup>20</sup> serve as an important source for discussion.

### III. OUTER SPACE ORDINANCE (CAP. 523)

As Hong Kong's basic document on space law, the Outer Space Ordinance applies to a broad scope of space activities. Section 3 describing the application of the Ordinance states that the "Ordinance applies to the following activities whether carried on in Hong Kong or elsewhere- (a) launching or procuring the launch of a space object; (b) operating a space object; (c) any activity in outer space."<sup>21</sup> The terms "launching, procuring, and operating" are broad and include all relevant space activities. The law's geographic scope is also broad enough to cover those "in Hong Kong or elsewhere."<sup>22</sup> Whether such a broad applicable scope is viable remains to be tested. Fortunately, except for telecommunications services, which are to be governed directly by the Telecommunications Ordinance, there are not many other opportunities to test the application of the Outer Space Ordinance. Even if some space activities were carried out on the Hong Kong side, the Central Government would have been the first body to undertake responsibilities on the international level.

The Ordinance, as a "Basic Law" for outer space, provides clear guidance on several important issues related to space activities: licensing of space activities, registration of space objects, power of the Chief Executive, indemnification of private parties, and space-related offences.

#### A. Definition

Section 2 on Interpretation is relatively short and simple. Of the four terms listed ("licence," "offence," "outer space," and

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<sup>20</sup> Import and Export (Strategic Commodities) Regulations, (1997) Cap. 60G. (H.K.)

<sup>21</sup> Outer Space Ordinance, *supra* note 13, § 3.

<sup>22</sup> *Id.*

“space object”), no detailed interpretation is provided. Concerning the third term “outer space,” the law rightly escapes from clear definition, simply stating that outer space includes the moon and other celestial bodies. So far space scientists and lawyers have failed to reach agreement on acceptable geographical limits for outer space. The item on delimitation of airspace and outer space has been debated within the United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS) for over half a century.<sup>23</sup> A pragmatic approach would be to provide a non-exhaustive list of objects that are generally accepted to be located in outer space.

The fourth term, “space object,” borrows its definition from the Liability Convention and Registration Convention, by including the component parts of a space object, its launch vehicle, and the component part of such launch vehicle.<sup>24</sup> Earlier discussions have been carried out among international space lawyers concerning the scope of space objects.<sup>25</sup> Some space lawyers believe that the definition is not adequate for the needs of the two Conventions.<sup>26</sup>

It would be interesting to examine the Ordinance’s counterpart legislation in mainland China in this regard. Article 2 of the Measures for the Administration of Registration of Objects Launched into Outer Space (Registration Measures)<sup>27</sup> provides that “[f]or the purpose of these measures, the term ‘space object’

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<sup>23</sup> The UNCOPUOS has been formally considering the definition and delimitation of outer space since 1967. U.N. Comm. on the Peaceful Uses of Outer Space, Legal Subcomm., *Historical Summary on the Consideration of the Question on the Definition and Delimitation of Outer Space*, ¶ 3, U.N.Doc A/AC.105/769 (Jan. 18, 2002); see also Dean N. Reinhardt, *The Vertical Limit of State Sovereignty*, 72 J. AIR L. & COM. 65, 113 (2007).

<sup>24</sup> Liability Convention, *supra* note 9, at art. 1(d); Registration Convention, *supra* note 10, at art. 1(b).

<sup>25</sup> See STEPHEN GOROVE, *STUDIES IN SPACE LAW: ITS CHALLENGES AND PROSPECTS* 105 (Leyden: Sijhoff, 1977); see also HOWARD A. BAKER, *SPACE DEBRIS: LEGAL AND POLICY IMPLICATIONS* 62 (Martinus Nijhoff, 1989).

<sup>26</sup> See I.H.PH. DIEDERIKS-VERSCHOOR & V. KOPAL, *AN INTRODUCTION TO SPACE LAW* 37 (3d. 2008) (noting that the Liability Convention’s definition of “space object” is not adequate for the needs of the Convention).

<sup>27</sup> Order No. 6, Measures for the Administration of Registration of Objects Launched into Outer Space (promulgated by the Comm’n of Sci., Tech., & Indus. for Nat. Def. & the Ministry of Foreign Affairs, Feb. 8, 2001), *translated in* 33 J. SPACE L. 437-41 (P.R.C.) [hereinafter Registration Measures].

refers to an artificial satellite, crewed spacecraft, space probe, space station, launch vehicle and parts of thereof, and other human-made objects launched into outer space.”<sup>28</sup> Furthermore, “[t]he Sounding Rocket and Ballistic Missile that temporarily crosses outer space shall not be regarded as a ‘space object’.”<sup>29</sup> These two laws take different approaches, but basically share the same in essence. Moreover, the Registration Measures has clearly stated that one of its purposes is to effectively fulfill the obligations of a contracting State of the Registration Convention.<sup>30</sup> Thus, an interpretation of the term as defined in the Outer Space Ordinance and the Registration Measures shall be consistent with the Registration Convention as much as possible.

#### B. Licensing of Space Activities

As suggested by the UNCOPUOS, the current task is to ensure the universal acceptance and implementation of existing space treaties.<sup>31</sup> The issue of space licensing stands as one major and appropriate activity needing national space regulations. The Outer Space Ordinance requires a license for all space activities. The Ordinance further defines two exceptions:

[a] license is not required- a) by a person acting as employee or agent of another; or b) for activities in respect of which it is certified by the Chief Executive that arrangements have been made between the People’s Republic of China and another country, state or territory to secure compliance with the international obligations of the People’s Republic of China.<sup>32</sup>

The licensing process ensures that space activities “will not jeopardize public health or safety of persons or property,” and “will not impair the national security of the People’s Republic of China or the security of Hong Kong.”<sup>33</sup> Furthermore, space activities should be carried out in such a way as to “prevent the

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<sup>28</sup> *Id.* at art. 2.

<sup>29</sup> *Id.*

<sup>30</sup> *Id.* at art. 1.

<sup>31</sup> See United Nations Office for Outer Space Affairs (UNOOSA), <http://www.unoosa.org> (last visited Oct. 4, 2009).

<sup>32</sup> Outer Space Ordinance, *supra* note 13, §§ 4(2)(a)-(b).

<sup>33</sup> *Id.* §§ 5(2)(a), 5(2)(c).

contamination of outer space or adverse changes in the environment of the earth,” and “avoid interference with the activities of others in the peaceful exploration and use of outer space.

. . .<sup>34</sup>

This is in line with its counterpart legislation in mainland China. The Interim Measures on the Administration of Licensing the Project of Launching Civil Space Objects (Licensing Measures)<sup>35</sup> provides several requirements for a license, including (a) abiding by the laws and regulations of China and maintaining the national secrets; (b) not endangering the national security, damaging the national interests, or violating the national diplomatic policies or the international conventions to which China is a State Party; (c) not causing irremediable danger to public health, safety, or properties due to major negligence or intentional acts.<sup>36</sup>

As a member of the International Telecommunications Union (ITU) actively involved in launching activities, Hong Kong must comply with the ITU's allocation scheme for Member States.<sup>37</sup> The ITU limits Hong Kong to only launching satellites in certain allocated areas; for example, four broadcasting satellite service (BSS) channels for use by Hong Kong at the orbital position 122 degrees East.<sup>38</sup> However, Hong Kong has also made agreements to launch satellites into areas allocated to other countries.<sup>39</sup>

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<sup>34</sup> *Id.* §§ 6(2)(e)(i)-(ii).

<sup>35</sup> Order No. 12, The Interim Measures on the Administration of Licensing the Project of Launching Civil Space Objects (promulgated by the Comm'n of Sci. Tech. & Indus. For Nat. Def. & the Ministry of Foreign Affairs, Nov. 21, 2002), translated in 33 J. SPACE L. 437, 442-58 (P.R.C.) [hereinafter Licensing Measures].

<sup>36</sup> *Id.* at art. 5.

<sup>37</sup> Francis Lyall, *Paralysis by Phantom: Problems of the ITU Filing Procedures*, in INTERNATIONAL INSTITUTE OF SPACE LAW, PROCEEDINGS OF THE THIRTY-NINTH COLLOQUIUM ON THE LAW OF OUTER SPACE 188 (1996); Jannat C. Thompson, *Space for Rent: The International Telecommunications Union, Space Law, and Orbit/Spectrum Leasing*, 62 J. AIR L. & COM. 279, 286-88 (1996).

<sup>38</sup> Hong Kong, Information Technology and Broadcasting Bureau, Legislative Council Brief, The Licensing of Broadcasting Satellite Service (June 28, 2000), <http://www.ofta.gov.hk/en/itbb/legb-20000628.html> (last visited Oct. 5, 2009).

<sup>39</sup> S. Cahill, *Give me My Space: Implications for Permitting National Appropriation of the Geostationary Orbit*, 19 WIS. INT'L L.J. 231, 247 (2001).

A healthy and competitive environment for launching activities is in place in Hong Kong. Two companies incorporated in Hong Kong have been granted licenses under the Outer Space Ordinance: APT Satellite Company Limited (APT) and Asia Satellite Telecommunications Company Limited.<sup>40</sup> When launching services are needed, the Office of the Telecommunications Authority (OFTA)<sup>41</sup> shall issue a guidance note to invite applications enabling the above two companies to bid for launching services.<sup>42</sup>

Several licenses may be needed for a specific space activity. The details and requirements for these licenses are defined in relevant laws. For example, normally at least two types of licenses are required to launch a satellite. First, an Outer Space License should be granted by the Chief Executive under section 5 of the Outer Space Ordinance for procuring the launch and the operation of the satellite. The Chief Executive shall have the power to issue an appropriate license and to specify appropriate conditions respectively.<sup>43</sup> “The license may be transferred with the written consent of the Chief Executive. . . .”<sup>44</sup> A license may be revoked, varied, or suspended with the consent of the licensee or where the Chief Executive considers the public interests so requires or that a condition of the license or any regulation made under the Ordinance had not been complied with.<sup>45</sup> “Where the Chief Executive intends to grant or revoke a license. . . he shall give notice of such intention to the Central

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<sup>40</sup> See GlobalSecurity.org, Space, APStar, <http://www.globalsecurity.org/space/world/china/apstar.htm> (last visited Oct. 5, 2009).

<sup>41</sup> The Office of the Telecommunications Authority is the executive arm of the Telecommunications Authority, who is the statutory body responsible for regulating the telecommunications industry in Hong Kong. Office of the Telecommunications Authority of the Hong Kong Special Administrative Region, <http://www.ofa.gov.hk> (last visited Oct. 5, 2009).

<sup>42</sup> See Hong Kong, Commerce, Industry and Technology Bureau, Communications and Technology Branch, Guidance Note for the Satellite Facility Provider and Those Interested in Making Use of Broadcasting Services in Hong Kong (Dec. 20, 2001), [http://www.ofa.gov.hk:80/en/report-paper-guide/guidance-notes/gn\\_20040308.pdf](http://www.ofa.gov.hk:80/en/report-paper-guide/guidance-notes/gn_20040308.pdf) (last visited Oct. 5, 2009).

<sup>43</sup> Outer Space Ordinance, *supra* note 13, § 5(3).

<sup>44</sup> *Id.* § 7(1).

<sup>45</sup> “The public interests” refer to the interests of public health or the national security of China or the security of Hong Kong or any international obligation of China. *Id.* §§ 7(2)(a)-(b).

People's Government."<sup>46</sup> When the Central Government issues an instruction with regard to the license above, the Chief Executive should comply with that instruction.<sup>47</sup>

The second type of license refers to the Telemetry, Tracking, Control, and Monitoring (TTC & M) License granted by the Chief Executive in Council under Sections 7 and 34 of the Telecommunications Ordinance. This license grants the licensee the right to establish, maintain, possess, use, and operate the space stations on the satellite and an earth station in Hong Kong for telemetry, tracking, control, and monitoring of the satellite.<sup>48</sup> Generally the term of the license aligns with the expected lifespan of the satellite. While granting a license, the Chief Executive in Council will take into account several factors including: the decision to grant a license shall not conflict with the provisions of the Basic Law, including those with human rights implications, and the proper and adequate measures should be taken to safeguard the public against any electrical or radiation hazard.<sup>49</sup>

### C. Registration of Space Objects

Section 9 of the Outer Space Ordinance is devoted to the registration of space objects, requiring the Chief Executive to maintain a register of space objects.<sup>50</sup> No clear guidance has been provided concerning the particulars of space objects to be registered. The Ordinance simply leaves the issue to the Chief Executive to decide "such particulars . . . as the Chief Executive considers appropriate to comply with the international obligations of the People's Republic of China."<sup>51</sup>

It is important to look at the three levels of provisions to decide which matters need to be registered. First, the Registra-

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<sup>46</sup> *Id.* § 8(1).

<sup>47</sup> *Id.* § 8(2).

<sup>48</sup> See Hong Kong, Information Technology and Broadcasting Bureau, Legislative Council Brief, Telecommunications Ordinance (Cap. 106) Grant of Licences for ASIASAT 3S (Feb. 12, 1999), <http://www.cedb.gov.hk/ctb/eng/new/pr120299.htm> (last visited Oct. 5, 2009).

<sup>49</sup> Hong Kong, Information Technology and Broadcasting Bureau, Legislative Council Brief, The Licensing of Broadcasting Satellite Service (June 28, 2000), <http://www.cedb.gov.hk/ctb/eng/legco/doc/bss-28.6.00.doc> (last visited Oct. 5, 2009).

<sup>50</sup> Outer Space Ordinance, *supra* note 13, § 9(1).

<sup>51</sup> *Id.* § 9(2).

tion Convention, to which China is a member, requires the registration of certain information.<sup>52</sup>

Second, in order to implement its international obligations under the Registration Convention, the Registration Measures in China requires a National Register for space objects and provides for a separate section for Hong Kong in the National Register. The Registration Measures states,

[t]he information in the National Register shall mainly include: registration number, registrant, owner of the space object, an appropriate designator of the space object, basic characters of the space object, launching enterprise of the space object, name of the launch vehicle, date and territory or location of launch, basic orbital parameters of the space object, and the status of the launching and orbiting of the space object.<sup>53</sup>

The registration requirement above is intended satisfy with a state's requirement under the Registration Convention. Furthermore, some have even argued that China has set a higher standard requiring more information than that required by the Registration Convention.<sup>54</sup>

Third, the Outer Space Ordinance provides that the licensee is required

to provide the Chief Executive as soon as possible with information as to- (i) the date and place or location of the launch of any space object to which the licence relates; and (ii) the basic orbital parameters, including nodal period, inclination apogee and perigee of any such space object, and with such other informa-

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<sup>52</sup> This information includes the "[n]ame of the launching State or States; [a]n appropriate designator of the space object or its registration number; [d]ate and territory or location of launch; [b]asic orbital parameters, including: [n]odal period, [i]nclination, [a]pogee, [p]erigee; [g]eneral function of the space object." Registration Convention, *supra* note 10, at art. 4(1).

<sup>53</sup> Registration Measures, *supra* note 27, at art. 6.

<sup>54</sup> For example, the information about registration number, registrant, owner of the space object, and the status of the launching and orbiting of the space object needs to be included in the national registry but does not need to be furnished to the Secretary-General of the United Nations. *See id.*

tion as the Chief Executive thinks fit concerning the nature, conduct, location and results of the licensee's activities. . .<sup>55</sup>

These requirements could supplement Section 9(2) of the Outer Space Ordinance on the registration particulars of space objects in the Ordinance.

Generally speaking, the registration information as required by the above three laws are largely similar. Chinese law says the Chief Executive shall maintain a National Register with the Commission of Science, Technology, and Industry for National Defense (COSTIND).<sup>56</sup> Furthermore, the Ministry of Foreign Affairs shall be responsible for international registration of space objects.<sup>57</sup>

#### D. Liability and Indemnification

A launching State shall be held liable to pay compensation for damage caused by its space object, no matter it is launched by a private entity or not.<sup>58</sup> If the damage was the result of activities by a private entity, the State can turn to this party for indemnification. The Outer Space Ordinance clearly provides "a person who carries on an activity shall indemnify the [Hong Kong] Government and the Central People's Government against any claims brought against either government in respect of damage or loss arising out of such activity carried on by him."<sup>59</sup> Similar to the arrangement in other jurisdictions, the Ordinance requires that the licensee should "insure himself against liability incurred in respect of damage or loss suffered by third parties, in Hong Kong or elsewhere, as a result of the activities authorized by the licence."<sup>60</sup>

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<sup>55</sup> Outer Space Ordinance, *supra* note 13, § 6(2)(b).

<sup>56</sup> Registration Measures, *supra* note 27, at art. 11; Commission of Science, Technology, and Industry for National Defense, *available at* <http://www.nti.org/db/china/costind.htm> (last visited Oct. 28, 2009).

<sup>57</sup> See Registration Measures, *supra* note 27, at art. 12.

<sup>58</sup> Liability Convention, *supra* note 9, at arts. 2-3.

<sup>59</sup> Outer Space Ordinance, *supra* note 13, § 12(1).

<sup>60</sup> *Id.* § 6(2)(f).

IV. IMPORT AND EXPORT (STRATEGIC COMMODITIES)  
REGULATIONS (CAP. 60G)

Hong Kong, as a special administrative region of China, remains a separate customs territory and maintains an autonomous export control regime. As such, Hong Kong continues to be part of various international non-proliferation regimes, including the Wassenaar Arrangement,<sup>61</sup> the Australia Group,<sup>62</sup> the Missile Technology Control Regime,<sup>63</sup> and the Nuclear Suppliers Group.<sup>64</sup> Hong Kong has been responsible and cooperative in working with other countries in trying to prevent the spread of nuclear, chemical, and biological weapons and missile delivery systems. The strategic control policies in Hong Kong are designed to ensure effective control of sensitive military technology and maintain high-tech competitiveness. The strategic control regime consists of four pillars: a comprehensive legal framework, an efficient licensing system, an effective enforcement system, and international co-operation.<sup>65</sup>

The legal basis for the control regime is the Import and Export (Strategic Commodities) Regulations, a subsidiary legislation made under the Import and Export Ordinance (Cap. 60).

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<sup>61</sup> Wassenaar Arrangement on Export Controls for Conventional Arms and Dual-Use Goods and Technologies was established “to contribute to regional and international security and stability, by promoting transparency and greater responsibility in transfers of conventional arms and dual-use goods and technologies, thus preventing destabilizing accumulations.” The Wassenaar Arrangement, <http://www.wassenaar.org/introduction/index.html> (last visited Oct. 11, 2009).

<sup>62</sup> “The Australia Group (AG) is an informal forum of countries which, through the harmonisation of export controls, seeks to ensure that exports do not contribute to the development of chemical or biological weapons.” The Australia Group, <http://www.australiagroup.net/en/index.html> (last visited Oct. 11, 2009).

<sup>63</sup> “The Missile Technology Control Regime is an informal and voluntary association of countries which share the goals of non-proliferation of unmanned delivery systems capable of delivering weapons of mass destruction, and which seek to coordinate national export licensing efforts aimed at preventing their proliferation.” Missile Technology Control Regime, <http://www.mtcr.info/english/index.html> (last visited Oct. 11, 2009).

<sup>64</sup> “The Nuclear Suppliers Group (NSG) is a group of nuclear supplier countries which seeks to contribute to the non-proliferation of nuclear weapons through the implementation of Guidelines for nuclear exports and nuclear related exports.” Nuclear Suppliers Group, <http://www.nuclearsuppliersgroup.org/Leng/default.htm> (last visited Oct. 11, 2009).

<sup>65</sup> The American Chamber of Commerce in Hong Kong, Position Paper: Hong Kong’s Strategic Trade Controls, April 2002, [http://www.amcham.org.hk/pr/position\\_papers/hong-kong-strategic.pdf](http://www.amcham.org.hk/pr/position_papers/hong-kong-strategic.pdf) (last visited Nov. 4, 2009).

While not directly targeting transactions on space objects, the Regulations do have a close relationship with the exporting regime for space commodities.

Under the Regulations, no person should import or export certain strategic commodities into or from Hong Kong except under and in accordance with import and export licenses granted by the Director-General of Trade and Industry.<sup>66</sup> Re-export and transshipment of certain commodities are treated as import and export and therefore are subject to the licensing requirement. Strict liability is adopted in the enforcement of the Regulations: the knowledge of the existence of strategic commodities in the import and export does not affect the determination of relevant offences.<sup>67</sup>

Strategic commodities are specified in the Schedules to the said Regulations.<sup>68</sup> This control list for strategic commodities, as set out in Schedule 1 to the Regulations, mirrors the above international non-proliferation regimes. "The control list is under constant review and where appropriate, is amended to reflect the latest revisions adopted by the regimes in their respective control lists."<sup>69</sup> The amendments normally include "additions, expansions and relaxation of many detailed controls on munitions, nuclear processing equipment, materials, chemicals, micro-organisms, toxins, manufacturing equipment, electronics, telecommunications, information security, sensors, lasers, navigation, avionics, submarines, and aerospace."<sup>70</sup>

Two main administrative bodies are involved in the export control regime. First, the Trade and Industry Department ad-

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<sup>66</sup> Import and Export (Strategic Commodities) Regulations, *supra* note 20, at reg. 2(1).

<sup>67</sup> HKTDC.com, Strategic Commodities, <http://www.hktdc.com/info/mi/a/st/en/1X00IH2J/1/Shippers-Today/Vol-27-5-Strategic-Commodities.htm> (last visited Oct. 12, 2009).

<sup>68</sup> Import and Export (Strategic Commodities) Regulations, *supra* note 20, at scheds. 1-3.

<sup>69</sup> Trade and Industry Department, The Government of the Hong Kong Special Administrative Region, *Strategic Trade Controls Circular No. 14/2008: Amendment of Schedule 1 to the Import & Export (Strategic Commodities) Regulations*, Dec. 5, 2008, [http://www.stc.tid.gov.hk/english/circular\\_pub/2008\\_stc14.html](http://www.stc.tid.gov.hk/english/circular_pub/2008_stc14.html).

<sup>70</sup> Yui Kee.com, *Hong Kong to Relax Strategic Commodities Import and Export Regulations*, <http://articles.yuikee.com.hk/newsletter/2008/12/a.html> (last visited Oct. 11, 2009).

ministers the import and export licensing system. The second main body is the Customs and Excise Department, which serves as the sole enforcement agency for strategic trade controls.<sup>71</sup> Enforcement measures for the implementation of strategic trade controls include “physical examination of inbound and outbound cargoes, checking of import and export licences to verify the authenticity of information given therein, collection and collation of information and intelligence, and investigation and prosecution of contravention of controls.”<sup>72</sup>

#### V. THE WAY AHEAD

Previously, when States were the sole or primary players in outer space, Hong Kong, as part of China, did not play much of a role in outer space activities. As a member of the Chinese delegation, the most important function for Hong Kong is to represent China at conferences and meetings convened by relevant international space organizations. Current space activities, or more specifically, private activities, are developing rapidly. Hong Kong, concentrating on national economic considerations, should try to actively participate in more space activities under this international background. This shall serve as a platform providing Hong Kong with not only opportunities to go beyond limited geographical resources, but also proper grounds for a more balanced strategic structure.

Space commercialization is an irreversible trend, and space-faring States are in a rush to exploit valuable space resources. One way to accomplish this is to encourage private entities to get involved in the promising space industry. Hong Kong should take advantage of this precious opportunity to get in this space market. In this regard, it would be important to develop, in the first place, regulatory rules on private aspects of space activities, complementing the Outer Space Ordinance, which

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<sup>71</sup> See Customs and Excise Department, The Government of the Hong Kong Special Administrative Region, [http://www.customs.gov.hk/eng/content\\_e.html](http://www.customs.gov.hk/eng/content_e.html) (last visited Oct. 11, 2009).

<sup>72</sup> Customs and Excise Department, The Government of the Hong Kong Special Administrative Region, Enforcement of Strategic Controls, [http://www.customs.gov.hk/eng/notice\\_strategic\\_e.html](http://www.customs.gov.hk/eng/notice_strategic_e.html) (last visited Oct. 11, 2009).

generally touches on the public aspects of space activities. An Ordinance similar to the Commercial Space Act<sup>73</sup> or the Commercial Space Launch Act<sup>74</sup> in the United States (US) would be ideal model documents to guide private space activities in Hong Kong. One scholar has made it clear that “[i]nternational law may set the framework for outer space law, but when it comes to governing a large number of individuals in space, with manufacturing and mining occurring in remote areas, a different set of laws for regulating relationships will be needed.”<sup>75</sup> Before this general commercial space law comes true, specific rules could be drafted to deal with specialized areas such as space insurance.

As part of China, Hong Kong does not have much flexibility in making laws on public aspects of space activities; however, space commercialization provides an excellent chance to draft its own laws to deal with private space issues. As a region with an advanced economy, Hong Kong could have an important role to play in the process of space commercialization. By creating a stable and predictable commercial space legal environment, Hong Kong would be able to make the most out of the new era of space competition, which shall in turn serve its ultimate goal—devoting to regional economic development and the improvement of the people’s livelihood.

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<sup>73</sup> Commercial Space Act of 2003, H.R. 3245, 108<sup>th</sup> Cong. (2003), available at <http://thomas.loc.gov/cgi-bin/query/z?c108:H.R.3245>.

<sup>74</sup> Commercial Space Launch Amendments Act of 2004, H.R. 5382, Pub. L. No. 108-492, 108<sup>th</sup> Cong., 2d Sess.

<sup>75</sup> J.J. Hurtak, *Existing Space Law Concepts and Legislation Proposals*, THE ACADEMY FOR FUTURE SCIENCE, [http://www.affsafrica.org/html/existing\\_space\\_law\\_concepts.html](http://www.affsafrica.org/html/existing_space_law_concepts.html).

## COMMENTARY

### SPACE POLICY AND LAW IN INDIA AND ITS RELEVANCE TO THE PACIFIC RIM

V. S. Mani\*

This paper encompasses three aspects of space policy and law in India: (1) the status of current law and policy in India; (2) Indian laws relevant to space activities; (3) the need for specific national space law in India; and (4) how India's State practice relates to overall space law and activities in the Pacific Rim. This it proposes to do against the general perspective of international space law and technology.

#### I. SPACE LAW: AN INDIAN PERSPECTIVE

At least three background points may be made in an attempt to portray an Indian perspective on space law. One is a developing country's perception of space activities and the development of space research in India. The second is the relationship between space law and space science and technology and the expectations of developing countries from space technology, and, hence, from space law. Then, finally, an Indian perception of international space law.

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\* Professor Dr. V. S. Mani is currently Director, School of Law and Governance, Jaipur, National University, Jaipur. He is formerly from the Gujarat National Law University, Gandhinagar, Gujarat, & Professor of International Space Law, International Legal Studies, School of International Studies, Jawaharlal Nehru University, New Delhi-110 067. He is one of the editors of *Recent Trends in International Space Law and Policy in India*, Lancers Books, New Delhi, 1997. E-mail: vsmani2002@gmail.com.

*A. Nature of Space Activities, the International Milieu, and India*

Arthur C. Clarke did not expect in 1945 that his fiction of humans venturing into the deep, vast outer space would begin to materialize into reality in just twelve years. Had he done so, he would have readily patented the various theories that he propounded (including satellite communication) while spinning his yarns. The revolutionary developments in science and technology soon opened up seemingly limitless avenues for utilization of outer space and harnessing its resources for the benefit of humankind. Driven by the unquenchable human thirst for scientific research and the resultant development of technology, outer space now holds out the promise of a wide range of peaceful uses for immense benefit to the human race: satellite communications, remote sensing, navigational guidance, meteorology, protection of the environment, disaster management, space transportation, and space industrialization, among others. The spin-off benefits of space activities are equally staggering: space medicine, metallurgy and alloy manufacturing, space electronics, innovations in computer technology, energy efficiency, optical fibre technology, food and recycling technology, and so on.

Space activities are essentially high technology, which is capital intensive and high risk (ultra-hazardous), yet “international” activities, which, as a general rule, the developed nations are readily best placed to engage in, because they are endowed with both high technology and capital, and can well afford to employ them without seriously distorting their national economies. In contrast, there are but a few developing countries that have the minimum technical know-how and infrastructure adequate to take them to the take off point in a high technology field like the space. Yet, diversion of a large chunk of scarce national resources to support space activities would call for a strong policy justification for a developing country in terms of the immediate and tangible benefits to be accrued to the nation. Vikram Sarabhai, the Architect of Indian Space Research, observed the following in his address as the Scientific Chairman of the UNISPACE I, at Vienna on 14 August 1968, “I believe that several uses of outer space can be of immense benefit to developing nations wishing to advance economically and socially. In-

deed without them it is difficult to see how they can hold their own in a shrinking world.”

Underscoring the close relationship between the benefits of space technology and the pressing need for economic development of the developing countries, Sarabhai emphasized:

It is necessary for them [i.e., the developing countries] to develop competence in advanced technologies and to deploy them for the solution of their own particular problems, not for prestige, but based on sound technical and economic evaluation involving commitment of real resources . . . Indeed they would discover that there is a totality about the process of development which involves not only advanced technology and hardware but imaginative planning of supply and consumption centres, of social organization and management to leap-frog from a state of backwardness and poverty.

Small wonder, therefore, that developing countries emphasize the need to develop international cooperation for equitable sharing of benefits from space technologies.

However, the experience of developing countries in the equitable access to benefits from space technologies has left much to be desired. The development of space law since the 1960s, if anything, reveals that the process has been seriously inhibited by the problems concerning reservation of outer space exclusively for peaceful purposes (an issue that resurfaces rather frequently); promotion (or the lack of it) of international cooperation in good faith sharing of benefits of space activities, including transfer of space technology; protection of permanent sovereignty over the natural resources of the developing countries; and ensuring of access for the developing countries to geostationary orbit.

These problems principally relate to tendencies on the part of some of the developed nations to adhere to doctrines of national security that seek to negate the non-militarisation principle, or to promote commercial monopolies or other discriminatory regimes aimed at selective non-proliferation of “weapons of mass destruction” (such as the Missile Technology Control Regime); or at global control of transfer of much of the useful technologies on the grounds of their being “dual use” technologies (such as the Wassenaar group and The Hague group). They also

bear upon the keenness on the part of some of the developed nations to overexploit the limited resource of the geostationary orbit to the detriment of the principle of equitable access.

#### i. Development of Space Research in India

Space research took roots and gathered momentum in India mainly thanks to the visionary leadership of Vikram Sarabhai. With active support from Homi Bhabha (the Father of India's nuclear research), Sarabhai set up the first rocket launching station, Thumba Equatorial Rocket Launching Station (TERLS), in the country at Thumba near Thiruvananthapuram, in Kerala on the Arabian Coast, close to the equator. The first rocket with sodium vapour payload was launched on November 21, 1963. It involved tremendous work such as recruitment of personnel, setting up of roads and buildings, communication links, and launch pads. After the inaugural flight, range facilities were expanded. In 1962, the Department of Atomic Energy established the Indian National Committee for Space Research (INCOSPR) specifically to supervise TERLS. (INCOSPAR was the forerunner of Indian Space research Organisation (ISRO) that was established in 1969.)

To implement the space programme, Sarabhai took the following steps from 1961 to 1966: expansion of the Physical Research Laboratory at Ahmedabad, Gujarat (established in 1947) to develop a focus on Space activities, setting up the Space Science and Technology Center at Thumba for fabrication, testing, and other auxiliary facilities and establishment of an Experimental Satellite Communication Earth Station at Ahmedabad. In 1965, the U.N. General Assembly gave recognition to TERLS as an international facility. Sarabhai wanted the practical application of science to reach the common person. Thus he saw a golden opportunity to harness space science to the development of the country in the fields of communication, meteorology, remote sensing, and education. In his view, the traditional approach of planning in areas like power systems, or telecommunications based on projection of growth from past experience often led to a dead end in a cash-starved economy of a developing country like India. So, as noted earlier, he favoured "leap-frogging" the process of

development for developing countries by acquiring and developing competence in advanced technology for the solution of their particular problems. He was indeed lucky to receive unstinted support from then Prime Minister Indira Gandhi.

Sarabhai was greatly impressed by the benefits of space technology as developed by the U.S. National Aeronautics and Space Administration (NASA) under its *Landsat* programme. This led to two developments in India. The first was the Satellite Instructional Television Experiment (SITE) from July 1975 to July 1976, which was the result of negotiation between Sarabhai and NASA. SITE was the first ever nation-wide experiment involving some 2,500 remote villages spread all over India for satellite telecast of live educational programmes concerning health, hygiene, environment, better agricultural practices, and family planning. This proved to be a grand success, and now many universities and other educational institutions in the country regularly telecast lessons and instruction for the benefit of students of all ages in their outreach programmes. There are also programmes telecast for the benefit of farmers, and other village folk. The second development was the promotion of remote sensing, and it has also proved of great benefit to the nation, in a number of respects: the search for natural resources; locating schools of fish; identification of areas under deforestation or afforestation; making crop estimates; surveying the spread of crop and plant diseases; disaster survey and disaster relief; mapping; archaeological studies; and so on. National Remote Sensing Data constitute a significant input to national economic planning. These two developments put together have justified the claim of "space for sustainable development."<sup>1</sup>

Sarabhai then boldly initiated a space project, now a reality, of fabricating and launching an Indian Satellite. Thus, *Aryabhata I* was put into orbit in 1975 from the Soviet Cosmodrome. This also contributed to development of an indigenous capability for satellite launching from low-orbits to synchronous levels. The strides that India made in the field space to the de-

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<sup>1</sup> See U. R. Rao, *Space for Sustainable Development*, in V.S. MANI, ET AL. (EDS.), *RECENT TRENDS IN INTERNATIONAL LAW AND POLICY* 27-54, at note 128 (New Delhi: Lancers, 1996).

velopment and launching of *Chandrayaan* are too well known to be detailed here.<sup>2</sup>

*B. Space Science and Technology and Space Law*

i. The Tenuous Relationship between Law and Science and Technology

Law has always been notoriously slow to catch up with the developments in science and technology. Law is usually developed slower than the pace of scientific and technological developments, which is incredibly fast, as is the case with space science and technology. This is true of both national law as well as international law. What then happens is the adoption of some “emergency” legislation – at both the international as well as the national level – to deal with a few immediate problems that loom large at the moment. Such exercises in law making are bound to be *ad hoc* and lacking in a holistic approach. Added to this is the general refrain that the fewer number of laws, the better in order to tackle problems of society.

On the contrary, it is often desirable to put in place a well-thought out legal framework acceptable to the community, laying down some commonly shared basic objectives, and requiring community institutions to pursue those objectives. This is to harness and channel the benefits of science and technology to serve those community objectives and to ensure that the members of the community have equitable access to those benefits. Science and technology, like the razor blade, is value-neutral. What is scientifically and technologically feasible, need not be socially acceptable. There are often ethical questions and diverse applications of scientific and technological innovations. It is essential to orient the law’s applicational prowess to socially relevant purposes, and to prevent its use for a dysfunctional, socially unacceptable role. This then is the rationale for a role for law in respect of science and technology at both national and international levels.

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<sup>2</sup> Indian Space Research Organisation, <http://www.isro.org> (last visited Nov. 10, 2009).

ii. Special Features of Space Science and Technology

Three special features of space science and technology must be underscored. One, it owes much to military research, as is highlighted by not only its origins in the pre-World War II, and post-World War II developments in rocketry, but also its continuing close linkage with military uses and military involvement. Two, as seen already, science and technology is highly capital intensive, and it presupposes the existence of a nucleus of highly trained manpower. Three, space science and technology also illustrate the inevitable linkages among the diverse fields of science and technology as a whole, and to whose development it contributes, and from which it in turn derives further impetus. In other words, the developments in space science and technology, and those in other fields of science and technology have a mutually beneficial multiplier effect in catalysing each other's pace, range, and content.

*C. Areas of Concern for Developing Countries*

The Statement of the Group of 77 and China (to which India has been a party) at the UNISPACE III in Vienna in July 1999, reaffirmed that "outer space is a common heritage of humankind," highlighted the issues of current concern of these countries. These are the following:

1. Use of space for arms race or any related military activities by States, especially those most advanced in space technologies;
2. Increased use of radioisotopes for power generation in space objects, which calls for a comprehensive overview of the management of incidents or emergencies that may result from accidental re-entry of such objects into the Earth's atmosphere or impact on the Earth's surface (The 1992 Nuclear Power Sources (NPS) Principles<sup>3</sup> permit

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<sup>3</sup> Principles Relevant to the Use of Nuclear Power Sources in Outer Space, G.A. Res. 47/68, U.N. GAOR, 47th Sess., 85th plen. mtg., U.N. Doc. A/Res/47/68 (Dec. 14, 1992) [hereinafter NPS Principles].

- only highly restricted use of nuclear power sources in space objects);
3. The problem of space debris endangering the sustainable development of space activities (including the problem of possible collision of space objects with NPS and space debris);
  4. Need for adequate international funding of various programmes for international cooperation, including those for education and training;
  5. "Public service" applications of remote sensing and the need for education and training scientists and staff therefore in developing countries ("certain areas such as weather forecasting are indeed public service areas . . . and these be treated as such and not as a commercial venture." In such areas "there must be easy access [to] and assurance of continuity [of supply of technology assistance]");
  6. Rationalization of remote sensing data; its pricing; access; and standardization of acquisition, processing, and handling of data;
  7. International cooperation aimed at developing the country's potentialities on human, technological and economic resources, and facilitating "the timely use of information resulting from space technologies in the decision-making processes, both in public and private sectors";
  8. Need to develop an integrated strategy for the use of space technology in the assessment, prevention, mitigation, and reduction of natural disasters;
  9. Need for a forum for free exchange of ideas and information on space science and technology for eventually evolving strategies to help "in revitalising the developing world";
  10. Assistance to developing countries in the utilization of space technology to meet their information and communication needs;

11. Special funds within the UN Office of Outer Space Affairs to assist the implementation of the UNISPACE III recommendations;
12. Principles and modalities of technology transfer from the space fairing nations to developing countries as well as among the developing countries themselves;
13. Need to evolve a consensus on the issues of commercial exploitation of space resources by private entities as against the Outer Space Treaty Article II non-appropriation principle.<sup>4</sup> (Wither Article 11(7) of the Moon Agreement<sup>5</sup>? International regulations versus national regulations by the national state of the entity?).

Most of these concerns (save no. 13) have found place in the Vienna Declaration and Recommendations of UNISPACE III, 1999.

Currently, among the topics, which the U.N. COPUOS is deliberating upon, are the following:

1. Orbital debris;
2. Remote sensing of the Earth, including applications for developing countries;
3. Use of NPS;
4. Space transportation systems and their implications for future activities in space;
5. Physical nature and technical attributes of the geostationary orbit and its utilization and applications;
6. Matters relating to life sciences, including space medicine; and
7. Matters relating to planetary exploration.

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<sup>4</sup> Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, *opened for signature* Jan. 27, 1967, 18 U.S.T. 2410, 610 U.N.T.S. 205 [hereinafter Outer Space Treaty].

<sup>5</sup> Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, *opened for signature* Dec. 18, 1979, 1363 U.N.T.S. 21 [hereinafter Moon Agreement].

*D. The Corpus of International Space Law*

International law - and hence international space law – is found in mainly three categories of materials used in international relations (i.e. inter-State conduct), namely,

1. Primary sources and evidences of international space law:
  - (a) treaties – multilateral, regional, and bilateral;
  - (b) international customary law emanating from the practice of states accepted (by them) as law; and
  - (c) General principles of law derived from the diverse national legal systems
2. Subsidiary means of finding the law:
  - Judicial decisions, national and international;
  - writings of eminent jurists (including codifications by non-governmental agencies like International Institute of Space Law (IISL), International Law Association (ILA), Institute of International Law (IIL) – as a subsidiary means finding and interpreting the legal rules.<sup>6</sup>

While international space law making is primarily the business of States on the international plane, the role of domestic law and institutions in incorporating international norms into domestic law and enforcing them as expressed in the domestic law, is important as it gives rise to a considerable quantity of State practice which ultimately determines the efficacy of international norms. Further, judicial decisions (both international and national) and teachings of eminent writers seek to clarify the law. They tend to identify and examine the bases and purport of international law rules and principles and thus States are greatly assisted by them in finding, establishing, and applying these rules and principles in a given situation. The role of international jurists, like the late Manfred Lachs, Phillip C. Jessup, C. W. Jenks, and Eilene M. Galloway in the shaping of space law has been substantial. Indeed, Dr. Jenks described the contribution of jurists as “creative jurisprudence” and deemed it

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<sup>6</sup> See Statute of the International Court of Justice, at art. 38(1).

their special responsibility to develop space law either drawing analogous principles from other branches of international law, postulating entirely new principles, or both in response to foreseeable problems of space science and technology in respect of which no rules of law currently exist.

There are also other media helpful in law making and implementation. They include a number of intergovernmental and non-governmental organizations engaged in activities in various fields. The United Nations, e.g., the UN Committee on the Peaceful Uses of Outer Space (COPUOS); the International Telecommunications Union (ITU); the International Civil Aviation Organization (ICAO); and INMARSAT are some of the international intergovernmental organizations directly relevant to space law. The end-product of the work of the intergovernmental organisations is either a treaty or a set of “standards and recommended practices” (to use the ICAO language) and falls under the category of either the treaty law, or the emerging international customary law.

Non-governmental organizations, which work in the field of space law, include the IISL, the International Astronautical Federation (IAF), the ILA, and the IIL. Many experts in the field transcend many of these organizations, both governmental and non-governmental. As a result, international law making is quite a complex exercise with output from a wide variety of entities, institutions, and individuals.

States seem to give a higher “political” – but not necessarily “legal” – status to treaties. Yet, when they feel that some principles of State conduct should be readily and urgently developed, they may choose the medium of an international organization like the United Nations. Thus some of the legal instruments embodying some of the space law principles were adopted in the form of the U.N. General Assembly resolutions, sometimes labelling them as “declarations” in view of the significance of the principles they embody. Some of these declarations, over time, secure consensus among States to be transformed into treaties. Legal significance of a declaration depends on the nature of the principles it embodies, the consensus (acceptance by States as legal principles) on which these principles are based, and the generality of conduct of States in conformity with these princi-

ples.<sup>7</sup> Some principles, like those on the use of nuclear power sources, are best embodied in a resolution as they currently are; they are then easier to be continually reviewed, in terms of the state-of-the-art technology existing at any particular point of time. Thus the medium of a resolution of an international organization rather than that of a painstakingly concluded, and then ratified, treaty has the advantage of built-in flexibility in responding to developments of science and technology.

The basic principles of international space law chiefly derive from the treaties applicable to outer space (such as the 1967 Outer Space Treaty,<sup>8</sup> the 1979 Moon Treaty,<sup>9</sup> the 1968 Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space (Rescue and Return Agreement),<sup>10</sup> the 1972 Convention on International Liability for Damage Caused by Space Objects (Liability Convention),<sup>11</sup> and the 1975 Convention on Registration of Objects Launched into Outer Space (Registration Convention).<sup>12</sup>

They also derive from general principles of international law (Article III of the Space Treaty applies to space activities the whole of "international law including the Charter of the United Nations"<sup>13</sup>). Thus where the above special treaties do not provide for specific rules and principles, the general international law principles – those emanating from the general treaty law, international customary law, and general principles of law generally shared by the national legal systems – shall apply, if situations permit such application. Some of these principles have been specifically referred to in some of the space treaties themselves. For instance, the Moon Treaty anticipates the ap-

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<sup>7</sup> Military and Paramilitary Activities (Nicar. V. U.S.), 1986 I.C.J. 14 (June 14).

<sup>8</sup> Outer Space Treaty, *supra* note 4.

<sup>9</sup> Moon Agreement, *supra* note 5.

<sup>10</sup> Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space, *opened for signature* Apr. 22, 1968, 19 U.S.T. 7570, 672 U.N.T.S. 119 [hereinafter Rescue and Return Agreement].

<sup>11</sup> Convention on International Liability for Damage Caused by Space Objects, *opened for signature* Mar. 29 1972, 24 U.S.T. 2389, 961 U.N.T.S. 187 [hereinafter Liability Convention].

<sup>12</sup> Convention on Registration of Objects Launched into Outer Space, *opened for signature* Nov. 12, 1974, 28 U.S.T. 695, 1023 U.N.T.S. 15 [hereinafter Registration Convention].

<sup>13</sup> Outer Space Treaty, *supra* note 4, Art. III.

plication of the basic principles of international law as formulated in the 1970 Declaration on Friendly Relations<sup>14</sup> adopted by the UN General Assembly. This declaration embodies consensual formulations of seven basic principles of international law namely, prohibition of force, non-intervention, peaceful settlement of disputes, sovereign equality, good faith fulfilment of international obligations, international cooperation and self-determination. The International Court has held in the *Nicaragua*<sup>15</sup> case in 1986 that legal principles formulated in the consensually adopted resolutions of international organizations are part of international customary law if they manifest an intention and commitment of States to comply with them.

Also, the U.N. General Assembly has over the years adopted at least five important space-related resolutions mostly on the basis of consensus among States. They are, 1963 Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space,<sup>16</sup> the 1982 Principles Governing the Use by States of Artificial Earth Satellites for International Direct Television Broadcasting,<sup>17</sup> the 1986 Principles Relating to Remote Sensing of the Earth from Outer Space,<sup>18</sup> the 1992 Principles Relevant to the Use of Nuclear Power Sources in Outer Space,<sup>19</sup> and the 1996 Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries.<sup>20</sup>

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<sup>14</sup> Declaration on Principles of International Law Concerning Friendly Relations and Cooperation among States, G.A. Res. 2625 (XXV), U.N. GAOR 25<sup>th</sup> Sess., 1883d Plen. Mtg., U.N. Doc. A/RES/2625 (XXV) (Oct. 24, 1970).

<sup>15</sup> Military and Paramilitary Activities (Nicar. V. U.S.), *supra* note 7.

<sup>16</sup> Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space, G.A. Res. 1962 (XVIII), U.N. GAOR, 18th Sess., 1280th plen. mtg., U.N. Doc. A/RES/1962(XVIII) (Dec. 13, 1963).

<sup>17</sup> Principles Governing the Use by States of Artificial Earth Satellites for International Direct Television Broadcasting, G.A. Res. 37/92, U.N. GAOR, 37th Sess., 100th plen. mtg., U.N. Doc. A/RES/37/92 (Dec. 10, 1982).

<sup>18</sup> Principles Relating to Remote Sensing of the Earth from Outer Space, G.A. Res. 41/65, U.N. GAOR, 41st Sess., 95th plen. mtg., U.N. Doc. A/Res/41/65 (Dec. 3, 1986).

<sup>19</sup> NPS Principles, *supra* note 3.

<sup>20</sup> Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries, G.A. Res. 51/122, U.N. GAOR, 51st Sess., 83d plen. mtg., U.N. Doc. A/Res/51/122 (Dec. 13, 1996).

## II. INDIAN LAWS RELEVANT TO SPACE

Although India has been a “Space Power” having been initiated into space technology, as early as 1961, the legal matrix relevant to space and space activities are as varied as the laws themselves. The following is the scenario of Indian laws applicable to the field of space activities.

1. Constitution of India, 1950 – Articles 51 (to implement international obligations), 73 (executive power to exercise jurisdiction resulting from a treaty), 246 (Items 10 (foreign relations), 12 (UN), 13 (participation in international conferences), 14 (entering into treaties and implementing treaties), 16 (foreign jurisdiction), 21 (piracies and crimes in the air – should this include outer space?), 97 (residuary item) of List I (Union List) of the 7<sup>th</sup> Schedule, and 253 (Parliament’s power to make law to implement “any treaty, agreement or convention with any other country or any decision made at any international conference, association or other body.”).<sup>21</sup>
2. Arbitration and Conciliation Act 1996<sup>22</sup>
3. Atomic Energy Act 1962<sup>23</sup> and the Atomic Energy (Control of Irradiation of Food) Rules of 1996<sup>24</sup>
4. Cable Television Network (Regulation) Act 1995<sup>25</sup>
5. Cinematograph Act 1952<sup>26</sup>
6. Civil laws relating to property, torts, and litigation, such as the Civil Procedure Code,<sup>27</sup> and the Hire Purchase Act<sup>28</sup>

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<sup>21</sup> INDIA CONST. art. 51, 73, 246, 12, 13, 14, 16, 21, 97, & 253.

<sup>22</sup> Arbitration and Conciliation Act, No. 26 of 1996, *available at* <http://www.ficci-arbitration.com/htm/acts.pdf>.

<sup>23</sup> Atomic Energy Act, No. 33 of 1962, *available at* <http://www.aerb.gov.in/t/actsrules/atomicenergyact.pdf>.

<sup>24</sup> Atomic Energy (Control of Irradiation of Food) Rules, *available at* <http://www.dae.gov.in/rules/irrad.htm>.

<sup>25</sup> Cable Television Networks (Regulation) Act, No. 07 of 1995, *available at* [http://www.commonlii.org/in/legis/num\\_act/ctna1995388/](http://www.commonlii.org/in/legis/num_act/ctna1995388/).

<sup>26</sup> Cinematography Act, No. 37 of 1952, *available at* <http://nrcw.nic.in/shared/sublinkimages/20.htm>.

<sup>27</sup> INDIA CODE CIV. PROC., Act No. 5 of 1908, *available at* <http://www.legalhelpindia.com/bareacts/THE%20CODE%20OF%20CIVIL%20PROCEDURE,%201908.doc>.

<sup>28</sup> Hire-Purchase Act, Act No. 26 of 1972, *available at* [http://www.commonlii.org/in/legis/num\\_act/ha1972140/](http://www.commonlii.org/in/legis/num_act/ha1972140/).

7. Commercial laws such as those relating to contracts, sale of goods, partnership, companies banking, and trusts, such as the Export Act,<sup>29</sup> the Foreign Trade (Development & Regulation) Act,<sup>30</sup> and the Banking Regulations Act<sup>31</sup>
8. Consumer Protection Act 1986<sup>32</sup>
9. Copyright Act 1957<sup>33</sup>
10. Criminal laws, substantive and procedural, such as the Indian Penal Code<sup>34</sup> and the Criminal Procedure Code<sup>35</sup>
11. Customs Act<sup>36</sup>
12. Cyber Regulations Appellate Tribunal (Procedure) Rules 2000<sup>37</sup>
13. Environment (Protection) Act 1986<sup>38</sup>
14. Information Technology Act 2000<sup>39</sup>
15. Insurance Act 1938<sup>40</sup>
16. Insurance Regulatory and Development Authority Act 1999<sup>41</sup>
17. Patents Act 1970 (Amendment 1999)<sup>42</sup>

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<sup>29</sup> Export (Quality Control And Inspection) Act, No. 22 of 1963, *available at* [http://commerce.nic.in/export\\_quality\\_control.htm](http://commerce.nic.in/export_quality_control.htm).

<sup>30</sup> Foreign Trade (Development & Regulation) Act, No. 22 of 1992, *available at* <http://www.vakilno1.com/bareacts/foreigntradeact/foreigntradeact.htm>.

<sup>31</sup> Banking Regulations Act, No. 10 of 1949, *available at* <http://www.legalhelpindia.com/bareacts/BANKING%20REGULATION%20ACT%201949.doc>.

<sup>32</sup> Consumer Protection Act, No. 68 of 1986, *available at* <http://delhigovt.nic.in/dept/food/18C.P.Act.doc>.

<sup>33</sup> Copyright Act, No. 14 of 1957, *available at* <http://www.education.nic.in/CprAct.pdf>.

<sup>34</sup> INDIA PEN. CODE, Act No. 45 of 1860, *available at* <http://www.vakilno1.com/bareacts/IndianPenalCode/indianpenalcode.htm>.

<sup>35</sup> CODE OF CRIMINAL PROCEDURE, Act No. 2 of 1974, *available at* <http://www.vakilno1.com/bareacts/CrPc/Criminal-Procedure-Code-1973.htm>.

<sup>36</sup> Customs Act, No. 52 of 1962, *available at* <http://indiacode.nic.in/>.

<sup>37</sup> 11. Cyber Regulations Appellate Tribunal (Procedure) Rules, *available at* [http://www.legalhelpindia.com/bareacts/CYBER%20REGULATIONS%20APPELLATE%20TRIBUNAL%20\(PROCEDURE\)%20RULES,%202000.doc](http://www.legalhelpindia.com/bareacts/CYBER%20REGULATIONS%20APPELLATE%20TRIBUNAL%20(PROCEDURE)%20RULES,%202000.doc).

<sup>38</sup> Environment Protection Act, No. 29 of 1986, *available at* <http://www.envfor.nic.in/legis/env/env1.html>.

<sup>39</sup> Information Technology Act, No. 21 of 2000, *available at* <http://indiacode.nic.in/>.

<sup>40</sup> Insurance Act, No. 04 of 1938, *available at* <http://indiacode.nic.in/>.

<sup>41</sup> Insurance Regulatory and Development Authority Act, No. 41 of 1999, *available at* <http://indiacode.nic.in/>.

<sup>42</sup> Patents Act, No. 39 of 1970 (Amended 1999), *available at* <http://indiacode.nic.in/>.

18. Revenue laws relating to investment and taxation, such as the Securities and Exchange Board of India Act,<sup>43</sup> the Income Tax Act,<sup>44</sup> and the Companies Act<sup>45</sup>
19. Technology Development Board Act 1995<sup>46</sup>
20. Telecom Regulatory Authority of India Act, 1997<sup>47</sup>
21. Telecommunications Convergence Bill 2001<sup>48</sup>
22. Telegraph Act, 1885<sup>49</sup>
23. Trade Marks Act 1999<sup>50</sup>
24. Wireless Telegraphy Act, 1933<sup>51</sup>

Except in the field of telecommunications, India has not enacted space-specific laws. Despite the fact that India has been a party to many of the space treaties, and despite the enabling provision in Article 253 of the Constitution of India,<sup>52</sup> no attempt has been made so far to enact any law to implement the obligations undertaken by India under the various treaties.

Further, set up in early 1960s, the Space Commission and the Department of Space have been making significant contributions to India's strides into space and space technology, there is no broad-based legal framework to formalise their existence and operations. Should any litigation arise within India, this situation will perhaps leave the Courts to look for a legal basis, ultimately in the State's Sovereignty. This is certainly not a desirable situation.

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<sup>43</sup> Securities and Exchange Board of India Act, No.15 of 1992, *available at* <http://www.sebi.gov.in/acts/act15ac.html>.

<sup>44</sup> Income Tax Act 1961, as amended by the Finance Act 2009, *available at* <http://law.incometaxindia.gov.in/TaxmannDit/DisplayPage/dpage1.aspx>.

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<sup>52</sup> INDIA CONST., at art. 51.

## III. NEED FOR A SPACE POLICY AND A SPACE LAW FOR INDIA

Although many of the basic policy norms underlying India's space activities are by and large well known, and policies have been declared on various space segments – such as telecom policy and broadband policy – the Government of India is yet to declare formally a coherently formulated space policy. A well-formulated and proclaimed policy is important for a number of reasons. First, it would formally commit the government of the day and the future governments to its goals and principles, until further review. Second, it would ensure government commitment and support to the national space programme on a continuous and stable basis. Third, it would also support endeavours in furtherance of its goals and principles in international negotiations. It would equally provide an often-necessary diplomatic shield to ward off possible influences towards any drastic deviation. Fourth, it would help educate the legislators, all arms of government and of course the people of the country, of the contributions and potentials of the national space programme. Fifth, it would facilitate better coordination among various government departments in promoting better utilization of the benefits of space science and technology in planning national developmental strategies. (It is submitted that at present there is a discernible underutilization of the national achievements in space in this sphere). Finally, a formally proclaimed space policy is likely to contribute greatly towards dispelling the suspicion entertained in some countries of the diversion of peaceful use technology to military purposes in India and in reaffirming India's commitment to the principles of peaceful uses of outer space. From this point of view, a proclamation of a space policy is more essential now than ever before.

Equally, India needs some space-specific legislation as well, again for a number of reasons. First and foremost, the role of law is not merely to regulate rights and obligations of subjects, it also provides for norms and institutional mechanisms to promote the policy goals of the community. Thus a well thought out space law would go hand in hand with a well thought out space policy. Second, the fact that there has so far been no situation requiring a special law to tackle it is no guarantee that such a

position will continue *ad infinitum*. We have just been lucky not to face the problem of no-law yet. “Murphy’s Law” that is, whatever can go wrong, will go wrong, cannot, however, be ignored. In the area of liability involving use of high technology, the time lag for problems to “break out” may be mainly due to the delay in discovery of evidence of damage and, more importantly, due to the time lag in the spread of information about the technology and about the availability of grounds of legal claims. Third, Indian space activities have become vastly diversified and have come of age. Having successfully demonstrated its applicational capabilities (the latest example being *Chandrayaan I*), India now needs to define and formalize, if necessary, the existing set up of institutional mechanism and to facilitate inter-departmental coordination, making it a legal obligation. Fourth, in view of this expansion and diversification of space activities and increasing involvement of private industry with the onset of commercialization and liberalization, there is an urgent need to clarify applicable legal norms and rules of both public and private law, as demonstrated by the experiences of other space faring nations. Often the general law is ill-equipped to address special problems of space industry. Complex legal issues such as those of legal competence of authorities; exercise of control over space related activities and industries; issues relating to quality standards; security aspects; unfair trade practices; private law ramifications of space activities such as intellectual property rights, trade secrets, insurance, and indemnity; secured transactions and security of international interest (UNIDROIT) has evolved an international convention and operational protocols on this, keeping in view space objects as well); liability limits in case of damage caused to private individuals; and so on may need to be addressed. Fifth, it is desirable to have a domestic law, rather than leave matter to be decided by the Judiciary.<sup>53</sup> Finally, and most importantly, Article 51 of the Constitution of India mandates and directs the State to respect international law including

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<sup>53</sup> The Supreme Court of India drew rules from certain maritime law treaties to which India was not a party, transported them into the Indian common law and readily applied them to a situation which was not adequately covered by the Indian Merchant Shipping Act. Should similar fate befall space situations under Indian domestic law?.

treaty obligations undertaken by it.<sup>54</sup> Many of the treaty obligations require implementation through domestic law. Article 253 of the Constitution specifically empowers Parliament to make law for domestic implementation of treaties to which India is a party and decisions of international conferences that India accepts.<sup>55</sup> Given the facts that India is a party to many of the above-mentioned space-related treaties some of which (such as the Liability Convention<sup>56</sup> and Registration Convention<sup>57</sup>) require domestic legislation for implementation, and an expanding framework of legal relationships is in the making for space-related activities involving the government agencies and non-governmental entities, both Indian and foreign. Sagacity demands that a suitable legislative framework is put in place. Indeed, in many countries, domestic legislation is also pressed into service to promote the cause of the national entrepreneurs in international trade and commerce.

#### IV. RELEVANCE OF INDIA'S EXPERIENCE TO THE PACIFIC RIM

The Pacific is a vast ocean area – the largest of the oceans – dotted with innumerable islands and island States whose lives and existence are so closely intertwined with the marine areas around, that a Papua New Guinean poet called it “the aquatic continent of the Pacific.” This alone is a good enough justification for the peoples of these islands to utilize the benefits of space technologies to conquer the vast distances of waters between them. Further, the Pacific Rim has the unique presence of some of the most developed countries, and numerous developing countries. The very reasons why India decided to harvest the benefits of space technology would equally apply to most of these developing countries.

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<sup>54</sup> INDIA CONST., at art. 51.

<sup>55</sup> *Id.* at art. 253.

<sup>56</sup> Liability Convention, *supra* note 11.

<sup>57</sup> Registration Convention, *supra* note 12.



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\* P.J. Blount is Research Counsel and Instructor of Law at the National Center for Remote Sensing, Air, and Space Law, University of Mississippi School of Law.

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