

Necessary Legal Conditions to Promote Space Commerce in Asia*

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I . Introduction

Space commerce is the established part of the national space activities for at least two Asian countries: China and India. China entered into a commercial launch market around the turn of the 1990's, and China-Brazil Earth Resources Satellite (CBERS) project embarked on the commercialization of its data distribution in 2004. Tiered space cooperation frameworks such as Asia Pacific Space Cooperation Organization (APSCO) and Asia Pacific Multilateral Cooperation in Space Technology and Applications (AP-MCSTA) as well as bilateral cooperative agreements with e.g., Brazil, Nigeria and Venezuela also help China to develop its space commerce. India is a leading country in Asia in the field of remote sensing data sales, and it also started the launching business in 2007 through the commercial arms of the Indian Space Research Organization (ISRO), ANTRIX Corporation, Limited.

Not as successful as China or India, space commerce has just started in Japan as well. Following the transfer of Japan's mainstay rocket, H-IIA to the private Mitsubishi Heavy Industries (MHI) in April 2007 from Japan Aerospace Exploration Agency (JAXA), MHI became a new addition to the club of the exclusive commercial launch providers in August 2008 by putting a private communication satellite, Superbird-7, into a GSO. In that case, yet, it was a satellite owned by a Japanese company.¹⁾ In January 2009, MHI concluded a contract for the commercial launch of a Korean multi-purpose satellite, Kompsat-3. That would probably be the first foreign satellite to be launched from the territory of Japan as a launching business.²⁾

1) Superbird-7, made by Mitsubishi Electronics, is the first Japanese satellite among about 20 satellites for its owner JSAT Corporation.

2) Likewise, satellite manufacturing company, Mitsubishi Electronics made a contract in December 2008 with a multinational company in Singapore to make a communication satellite. That would be the first truly domestic satellite to be exported. Although

Korea is the first Asian country to have enacted national space legislation on commercial space activities. The first law, Space Development Promotion Act, was promulgated on 31 May 2005,³⁾ and second one, Space Liability Act was promulgated on 21 December 2007.⁴⁾ In the Asian region, Korea is also the fourth nation to have constructed a spaceport in the southern part of its country.⁵⁾

Thailand, Indonesia and Malaysia own not only GEO telecommunication satellites but also remote sensing satellites,⁶⁾ and such advanced countries in the ASEAN have been in the space telecommunication business. It is said that a spaceport for sub-orbital flights will be constructed in Singapore.⁷⁾

In sum, as a region, Asia is now heading into the space commerce. This aim of this article is to find the legal mechanisms to advance space commerce in Asian countries. First, studying the North American and European precedents, it will be concluded that a certain harmonization of national space legislation or mechanisms is a prerequisite. Then, areas for harmonization that could also be applied to the leading Asian spacefaring nations would be examined. Areas to be harmonized include the registration of space objects in line with the recent developments made at the Legal Subcommittee (LSC)

Mitsubishi Electronics exported a communication satellite to the Sing Tel Optus in Australia in 2003, important parts of the satellite were US-made, and cannot be regarded as a Japanese satellite in a strict sense.

3) Act No. 7538 of 31 May 2005. On the legislative history and the contents of the Law, see, e.g., Doo Hwan Kim, "Korea's Space Development Programme: Policy and Law", *Space Policy*, vol.22 (2006), pp.110-117.

4) Space Liability Act, Act No. 8852 of 21 Dec. 2007. Unofficial translation is found in the Office for Outer Space Affairs site. http://www.oosa.unvienna.org/oosadb/browse_country.jsp?country=ROK (last visited 12 July 2009).

5) Iran is not included in Asia for the purpose of this article. Iran successfully launched a satellite from its own territory using its own launching vehicle on 3 February 2009.

6) Indonesia was the first Asian country acquired a GEO communication satellite in 1976.

7) See, e.g., Tariq Malik, "Spaceport Singapore: On-Stop Shopping for the Future space Tourist", <http://www.space.com/news/060613_singapore_spaceport.html> (last visited 25 April 2009).

of the Committee on the Peaceful Uses of Outer Space (COPUOS), the guaranteed governmental indemnification on the third-party liability and the export control considerations.

For the purpose of this article, “space commerce”, or “commercial use of space” means the industry which uses outer space as a medium. Thus, manufacturing of space vehicles and satellites as well as the user services industry using the data obtained from outer space are not included in “space commerce”.

II. European Experience on the Harmonization of National Mechanisms

Space exploration and use has been characterized by its ultra-hazardous nature, gigantic cost, and the dual-use nature, all of which stem from the fact that space activity constitutes the aggregate of the state-of-the-art science and technology. Thus, space industrialization and commercialization has been a big challenge not only for private enterprises, but also for the most of the countries. Even today, only three kinds of space uses have been established as space commerce: the operation of telecommunications and broadcasting satellites, commercial space launching and satellite-based data distribution. Space tourism has just started and manufacturing in space, the operation of civilian navigation satellites, the space weather forecasting and other space information provision are either in its embryonic or in the experimental phase. Among the three, the operation of telecommunications and broadcasting satellites has been a matured industry. More than 50 countries have either own their own satellites or, at least lease the transponders. In contrast,

commercial space launch is still found as a challenge. Only the United States of America (USA), Europe, Russia and China have firmly established a commercial launch market. With respect to the satellite-based commercial data sales, the US, Europe (especially France), Canada, Russia and India are more important players.

North American countries and major players in the European Space Agency (ESA) have domestic space legislation to implement international space law and to promote commercialization of space activities. For the purposes of domestic application of the UN space treaties⁸⁾, at least two problems are pointed out: the first is that the important concepts such as “space objects” and “launching State” are not necessarily clearly defined. That brings about, e.g., the uncertainty in identifying the state which is responsible and/or liable for a certain accident or situations in outer space activities, which hinders a sound development of space commerce. The second is that the core of the UN space treaties is, in part, outdated, because the last of the UN treaties on outer space was adopted 3 decades ago when the commercialization and privatization of space had not yet lifted off.

As a result, the lacunae of international space law have to be taken care

8) For the purpose of this article, UN treaties on outer space include: Treaty on Principles Governing Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (hereinafter “Outer Space Treaty” or “OST”), 27 Jan.1967, 610 UNTS 205 (entered into force 10 Oct. 1967); Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space (hereinafter “Rescue Agreement”), 19 Dec.1968, 672 UNTS 119 (entered into force 22 Apr. 1968); Convention on International Liability for Damage Caused by Space Objects (hereinafter “Liability Convention”), 29 Mar.1974, 961 UNTS 187 (entered into force 1 Sept.1972); Convention on Registration of Objects Launched into Outer Space (hereinafter “Registration Convention”), 15 Jan.1975, 1023 UNTS 15 (entered into force 15 Sept.1976). Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (hereinafter “Moon Agreement”), 18 Dec.1979, 1363 UNTS 3 (entered into force 11 Jul. 1984) is excluded from that category, because the exploitation of the Moon does not seem to start for the commercial purposes not in the near future, nor has none of the major spacefaring nations ratified the Moon Agreement. In contrast, all the spacefaring nations are states parties to the 4 of the UN treaties on outer space.

of by the national space legislation based on the newly established customary international space law and emerging rules that may be included in the list of the established rules in international space law in the future.

Use of outer space is an inherently multinational activity, because the number of the countries which have launching sites and launching vehicles is considerably limited and because many companies with various nationalities are involved with manufacturing, transporting and operating a space object. Thus, it is desirable that national space laws should be harmonized so that those who are engaged in space use can rely on the standardized rules with which they are familiar. European countries have long noticed the desirability of the harmonization of national laws and made a steadfast efforts such as 'Project 2001'⁹⁾ and 'Project 2001 Plus'¹⁰⁾. Around that time, the American Astronautical Society (AAS) gathered space experts from various sectors and countries to examine how countries had recognized the present day international space law and reflected it in their domestic laws. The workshop sponsored by the AAS held in December 2001, in Arizona, USA, tried to identify gaps or barriers in international space law "that could be disincentives to future space activities and ventures; identify common State practices that could serve as models for international implementation; and ultimately to recommend international or national actions that should be taken to promote future space ventures."¹¹⁾

A series of such studies and discussions seem to be influential enough to urge individual states to adopt a national space law to reflect the recent

9) See, e.g., Karl-Heinz Beckstiegel, ed., *Project 2001'- Legal Framework for the Commercial Use of Outer Space* (2002).

10) See, e.g., Stephan Hobe, Bernhard Schmidt-Tedd & KaiUwe Schrogl, eds., *'Project 2001 Plus'-Global and European Challenges for Air and Space Law at the Edge of the 21st Century* (2006).

11) Statement by Dr. F. Schroeder at the Legal Subcommittee (LSC) of the COPUOS, 11 April 2002, COUPOS/LEGA/T.670, p.2.

developments of international law and best practices of advanced spacefaring countries. In fact, the latter half of the first decade of the 21st century saw almost as many newly introduced national laws as those adopted during the last 3 decades. Considering the rapid development of space technology and industrialization of space, yet, the number is impressive. In the 21st century, the following countries enacted a national space law: Korea, Belgium and Canada in 2005, Italy in 2006, Netherlands, Germany and Korea (second law) in 2007 and Japan¹²⁾ and France in 2008.¹³⁾ European countries applied the results of the considerations at the LSC of the OCPUOS, including a part of the GA Resolutions such as “Application of the Concept of the ‘launching State’”¹⁴⁾ and the “Recommendation on Enhancing the Practices of States and International Intergovernmental Organizations in Registering Space Objects.”¹⁵⁾ While Asian situation is different from that of Europe, in the next section, what can be conducted to help to advance space commerce in Asia will be examined.

III. First Condition: Adherence to the 4 of the UN Space Treaties

There are two aspects in considering the measures to promote space commerce: first is the international aspect, and the second is the domestic one. As an inherently multinational project, it is necessary that actors, governmental and non-governmental, be given a reasonable predictability about

12) Basic Act on Space Policy, Act No. 43 of 28 May 2008 (hereinafter “Basic Space Act” unless the formal name is required in the context).

13) French Space Operation Act, Act No. 2008-518 of 3 June 2008.

14) GA Res.59/115 (10 December 2004).

15) GA Res.62/101 (17 December 2007).

the legal consequences of their activities. For that goal, as with the case of Europe and North America, possible areas of harmonization have to be explored. For the purpose of this article, Asia means East Asia including Mongolia, ASEAN 10 countries, and South Asia including India and Pakistan. In this Area, the record on the ratification of the 4 of the UN treaties on outer space is not as satisfactory as that of Europe. Among countries which operate remote sensing satellites, Malaysia is not a party to any of the UN space treaties,¹⁶⁾ and Thailand is not a party to the Liability Convention and Registration Convention. Since international space law is unique in the international responsibility and liability regime, as a prerequisite, nations which embark on space commerce have to accede to the 4 of the UN space treaties. Because the commercial exploitation of the Moon does not seem to start in the near future, and because none of the major spacefaring nations are parties to the Moon Agreement, that Agreement is excluded from the imminent necessity of ratification for the Asian nations.¹⁷⁾ APSCO, Asia-Pacific Regional Space Agency Forum (APRSAF) and other frameworks can be used to encourage participating states to accede to the 4 of the UN space treaties.

IV. Second Condition: Harmonized Treatment of Registering Space Objects

Recent UN efforts to enhance registration practices should be applied in Asia to make it clear which country should register a private satellite launched

16) Yet, Malaysia signed the OST and the Rescue Convention. Other than Malaysia, Brunei, Cambodia and Philippines are not a party to any of the 4 UN space treaties among ASEAN countries.

17) See, *supra* note 8. Philippines is a party to the Moon Agreement, but not a party to the 4 other treaties.

from outside the territory of the state of the nationality of a satellite owner, and what the legal consequences will be in case of the on-orbit transfer of the ownership of a satellite. First, current laws and practices of major Asian countries are considered below.

4.1. Korean Preliminary and Formal Registration System

Korean Space Development Promotion Act of 2005, provides for the two types of registration systems: preliminary registration and formal registration. Korean citizens to launch a space object other than space launch vehicles have to make a preliminary registration irrespective of the launching place to the Minister of Science and Technology (MST) 180 days before the scheduled launch date.¹⁸⁾ Foreigners shall make a preliminary registration when the launching is carried out (i) in an area or facility within the Korean territory or under its jurisdiction or (ii) in a foreign country using a launch vehicle owned by the Korean government or a Korean private person.¹⁹⁾ Formal registration to the MST has to be conducted, followed by the preliminary one, within 90 days after the space object reaches its planned orbit.²⁰⁾ Items to be registered are more detailed than those required by the Art.IV of the Registration Convention.²¹⁾ MST shall register a space object to the UN by way of the Minister of Foreign Affairs and Trade,²²⁾ and the preliminary and formal registries are maintained by the MST.²³⁾ Extraterritorial jurisdiction in case of an obligatory registration by a non-Korean person with respect to

18) *Supra* note 3, Art.8 (1) of the Space Development Promotion Act.

19) *Ibid.*, Art. 8 (2).

20) *Ibid.*, Art. 8 (5).

21) *Ibid.*, Art. 8 (3) & (6).

22) *Ibid.*, Art. 9(1).

23) *Ibid.*, Art. 9(2).

the launching outside of Korea may cause some enforcement question.²⁴⁾ While such excessive jurisdiction is perhaps provided for in fear of Korea's assuming liability as a "launching State",²⁵⁾ that may have to be addressed in the future if a Korean national owns a launching vehicle outside Korea, and a foreign national launches a satellite without pre-registering it.²⁶⁾

4.2. Chinese Administrative Regulation

China does not have national space legislation. However, the contents of the two of the administrative regulations amount to national space laws to promote space commerce. First one was the "Measures for the Administration of Registration of Objects Launched into Outer Space" issued in 2001.²⁷⁾ Becoming a party to the Registration Convention in 1998, China established a national registry in 2001 by this administrative regulation. Second one is the "Interim Measures on the Administration of Licensing the Project of Launching Civil Space Objects" issued in 2002.²⁸⁾ Both regulations were published by the Commission of Science, Technology and Industry for National Defense (COSTIND) and the Ministry of Foreign Affairs (MFA).²⁹⁾

24) Art.11 (2) also provides for the extraterritorial jurisdiction by requiring non-Korean person to obtain a permission to launch a space object outside the jurisdiction of Korea.

25) Yoon Lee, "A Review of the Space Development Promotion Act of the Republic of Korea", *J. Space L.*, vol.33 (2007), p.147.

26) Art.29 (1) (a) states that any person who violates Art.8 (1) or (2) by failing to make a preliminary registration of a space object shall be sentenced to a fine not exceeding ten million won.

27) Decree 6, issued on 8 February 2001. Unofficial translation is found in 33 *J. Space Law*, vol.33, (2007), pp. 437-441.

28) Decree 12, issued on 21 November 2002. Unofficial translation is found in *ibid.*, pp. 442-457.

29) See, e.g., Yun Zhao, "Commentary: National Space Legislation in Mainland China", *J. Space L.*, vol. 33 (2007), pp.431-434; Qi Yongliang, "A Study of Aerospace Legislation of China", *ibid.*, pp. 405-410.

Arts.7 and 8 are important in terms of space commerce. Art.7 stipulates that subject to the provision of Art 8, the owner of a space object shall register the space object in the national registry and that the main owner shall register in case that the multiple owners exist. From the provision of Art.8, it is interpreted that Art. 8 provides for the registration rules for Chinese (non-foreign) satellites. Art.8 provides that in case that a foreign space object is launched from the territory of China, the “corporation which provides the international launching service of the space object shall register it at national registry.”It follows that China Great Wall Industry Corporation (CGWIC) registers a foreign satellite in the national registration booklet, which is managed by the COSTIND (Art. 11). Then, a space object shall be registered internationally by the COSTIND via MFA at the Secretariat of the UN (Art.12).

Looking into its state practices, China internationally registered Brazil Scientific Application Satellite (SAC-1) launched by LM-4B launcher from Taiyuan Satellite Launch Center, China, in 1999.³⁰⁾ Other foreign satellites internationally registered while launched from the territory of China include: Motorola Iridium No.42 and No.44 (launched in December 1997), No. 51 and No.61 (March 1998), No.69 and No.71 (in May 1998), No.76 and No.3 (August 1998), No. 88 and No.89 (December 1998), and No.92 and No.93 (June 1999).

³¹⁾ As of 15 May 2009, CGWIC conducted 29 international commercial launching, ³²⁾ among which it is only Iridium constellation cases which China becomes a state of registry. Some commercial satellites formerly belonged to Hong Kong, UK were later changed a state of registry from UK to China as the return of Hong Kong to China in July 1997.

It is rather rare that a launching state by way of a territorial position register

30) ST/SG/SER.E/365 (30 November 1999), p.2.

31) ST/SG/SER.E/356 (27 May 1999), p.2.

32) Commercial launching in total are 34 times. <http://www.cgwic.com/LaunchServices/LaunchRecord/Commercial.html> (last visited 21 April 2010).

a satellite in the UN registry. The US and Russia have different practices. They do not register a satellite launched from their own territory and owned by a foreign entity. They only furnish the information about the satellite(s) concerned to the Secretary General of the UN.³³⁾ China also seems to have relinquished the practices of the 1990's if examining carefully the practices in the 21st century and the statement made at the LSC of the UN:

“With regard to the registration of foreign space objects, our registration regulations also stipulate as a country of common launches, the Chinese Government will discuss with partner countries to decide who will be the registering country. In our practice, we follow such a principle, that is the Chinese launching company which provides launching services for foreign space objects to carry out a domestic registration for the last stage of the launching vehicle that enters the outer space, to be followed by international registration by China as the launching State of this launching vehicle. However, the operating country and owner country of this payload should carry out a registration for this effective payload. We believe when the launching country and the owner country and the operating countries of this payload are different, if there is no specific agreement on registration, it is desirable for the latter countries to make the international registration because the latter countries can carry out continuous monitoring of this payload and, therefore, is in a position to report to the United Nations Secretary-General on any future changes of the space object, including when the object is no longer in orbit.”³⁴⁾

33) See, e.g., ST/SC/SER.E/533 (12 November 2008), p.3 This shows an Russian practice of furnishing information about a foreign-owned satellite. In Annex II of ST/SC/SER.E/533, the information of UK telecommunication satellite and German remote sensing satellite is included.

34) COPUOS/LEGAL/T.742 (10 April 2006), p.3.

Art. 8 of the Chinese regulation reads that the Chinese commercial launch company should register a satellite in a domestic registration booklet launched from China but owned by a Foreign State or a company. It does not seem to be convenient nor fully reflecting the purpose of the Art. VIII of the OST and Art. II (2) of the Registration Convention if the state of registry is different over the same space object in a domestic registry and the international one. That opinion is shared by a Chinese scholar when he stated: “Since there is only one State of registry for each space object, the State of registry should be the one which is closely connected to the jurisdiction and control over the space object. Therefore, appropriately, the State that the owner or the operator of a space object belongs to should register the space object nationally and internationally.”³⁵⁾ But, again, from the statement of Chinese delegation at the COPUOS, the different practice may be currently taken and it seems that only the upper stages of a rocket is the object registered by the launch provider concerning a foreign satellite.

4.3. India and Japan

India probably takes the same position as the US and Russia, since India did not register an Agile, owned by the Italian Space Agency. Agile was registered by Italy. ³⁶⁾

Japan seems to have the same position based on the statements made at the LSC of the COPUOS:

“Japan registered satellites that are solely operated by Japan even though they are launched by foreign rockets. In the case of Japan’s

35) Ling Yan, “Comments on the Chinese Space Regulations”, *Chinese J. Int’l L*, vol.7 (2008), p.687.

36) ST/SG/SER.E/538 (29 May 2008), p.2.

Optical Inter-Orbit Communications Engineering Test Satellites, OICETS, called Kirari, for example, KIRARI was launched last August by Ukraine's Doniepr rocket and was registered by Japan."³⁷⁾

Japan continued to state that "in the case of a satellite that is operated in partnership with a foreign country, we discuss which State will register such a satellite effectively, regardless of which country launches the satellite."³⁸⁾

Japanese position on registration will be made clear by its second space legislation, Space Activities Act, currently in the making in accordance with Art. 35 of the Basic Act on Space Policy (hereinafter "Basic Space Act") that provides for the governmental obligation to formulate national laws and regulations in order to (i) implement international space treaties,³⁹⁾ (ii) increase national interests of Japan⁴⁰⁾ and (iii) improve private space business.⁴¹⁾ Space Activities Act has been considered by one of the working groups set up under the Strategic Headquarters for Space Development (SHSD) consisting of all Ministers.⁴²⁾

4.4. Conclusion

Korea and China have some specifically domestic rules in registering space objects. In Korea's case, it concerns the extraterritorial jurisdiction and can be potentially problematic, but not in the near future. In this stage, due to

37) *Supra* note 34, p.2.

38) *Ibid.*

39) *Supra* note 12. Art. 35 (1) of the Basic Space Act.

40) *Ibid.* Art. 35 (2).

41) *Ibid.* Both Houses of Representatives and Councillors requested in the Diet resolutions issued on 9 May and 20 May respectively that the Space Activities Act be completed no later than 2 years from the adoption of the Basic Space Act.

42) The working group on the study of the Space Activities Act consists of 11 members from the academics, industry and representatives of the space-related organizations.

the existence of the national laws to refer to, entities involved with space business can understand the registration rules and procedures, which is in itself a contribution to promote space commerce in the Asian region. In a few years, Japan would be able to furnish the clear and legally-binding registration rules, and in case of Japan, the rule will be made taking the duly note of the UN COPUOS recommendations on the enhancing registration practices and the discussions and proposals on registration practices made between 2004 and 2007 at the COPUOS.

Accomplishments made at the COPUOS, even if it is not a perfect solution, can be made the most of by the leading Asian spacefaring nations. Such quasi harmonization will help to build confidence and transparency necessary for promoting space commerce in this region.

V. Third Condition: Clear Ceiling of the Third Party Liability for the Private Sector

5.1. Precedents of the US, France and UK

For the development of the commercial space launch industry, one of the most important factors is that both launch providers and their customers can feel secure about the potential financial responsibility. In this section, therefore, the necessity of the clear ceiling of the sums the launch provider has to pay as compensation will be confirmed using the examples of the US, France and the UK.

While third-party liability on the damage caused by the space object was

never required in the history of commercial launching, the industry has been most concerned about the potential liability and that led to the amendment of, for instance, the US Commercial Space Launching Act (CSLA) in 1988.⁴³⁾ As widely known, by the 1988 amendment, US commercial launch providers must insure their launchings up to \$500 million for third-party claims through private insurance companies and the government will provide indemnification to the commercial space launch provider, provided that the Congress grants the approval, not in excess of the level that is \$ 150 million plus any additional sums necessary to reflect inflation.⁴⁴⁾ That was at that time thought a transitional support of 5 to 10 years ⁴⁵⁾ for the nascent domestic commercial launch industry. After that time, it was expected that the commercial industry will be fully responsible for obtaining adequate liability insurance. Also, the fact that the payments are subject to the availability of appropriations by the Congress was thought to be a further safeguard to protect government resources.

Ten years later, a representative of the Aerospace Industries Association of Americas, Inc. (AIA) made a testimony at the House of Representatives that the governmental obligation to provide indemnification had been an extremely successful program because it allowed US providers to keep the price of their launches more competitive with foreign launchers and because “the US government has never had to pay out a dime in liability claims in under these provisions, the cost to the US taxpayer has been virtually nil. This, in turn, keeps the cost of launches down to the benefit of satellite companies and users of satellite services, maintaining high quality US manufacturing jobs throughout the country.”⁴⁶⁾ As late as 2006, a certain space

43) 15 Nov. 1988, Public Law 100-657. Commercial Space Launching Act was first enacted on 30 Oct 1984, Public Law 98-575.

44) Arts.70112 & 70113 of the CSLA.

45) During the discussion at the Congress, the duration extended from 5 to 10 years. See, e.g., Congressional Record, 100th Cong. 2nd Sess. (14 October 1988), pp.8-9 & P.13.

46) See, e.g., Prepared Testimony of Bruce L. Manhoe, Director, Space Policy, Aerospace

analyst expressed his view that the governmental indemnification should be made without the duration to protect the US commercial launch. He also proposed the removal of \$1.5 billion (\$ 2.5 billion as of 2006) cap as one option. 47) AIA strongly advocated the elimination of the cap that could limit the government's flexibility "with respect to paying claims in excess of the cap should it be deemed appropriate to do so."⁴⁸⁾

French Space Operation Act (FSOA) in 2008⁴⁹⁾ limits the liability incurred by space operators up to the amount decided by the Finance Act, or by the government.⁵⁰⁾ In other words, the government cannot claim more than what the operator receives from the insurance or the financial guarantee and the sum of the damage not covered by the insurance or other financial guarantees has to be taken care of by the government. ⁵¹⁾ Since there is no cap of the amount concerning the third-party liability that the government will assume, the launch industry will probably have more sense of security than the US counterpart. The Industry in the UK is placed in the still less favorable conditions than that of the US. A space law expert in the UK stated that the long-term UK policy that the Government passing the liability in full to the private sector has harmed space industry's competitiveness by lacking in "a kind of subsidy to encourage space activity",⁵²⁾ that the French and US launch providers and/or satellite operators have been enjoying.⁵³⁾ He then

Industries Association of America, Inc., before the US House of Representatives Committee on Science Subcommittee on Space and Aeronautics (1999), p.9.

47) J.A.Vedda, Study of the Liability Risk-Sharing Regime in the United States for Commercial Space Transportation, Aerospace Report No. ATR-2006 (5266)-1 (1 August 2006), p.xii.

48) *Ibid.*, p.38.

49) *Supra* note 13.

50) *Ibid.*, Art. 13- Art. 17.

51) *Ibid.*

52) Neil, Rose, "Can You Buy an Acre on the Moon?" *The Times* (13 August 2009).

53) A view of Mr. Tony Ballard, chairman of the UK branch of the European Centre for Space Law (ECSL). *Ibid.*

added that there were finally the signs of the shifting UK policy.⁵⁴⁾

It should not be underestimated that even the successful private launch providers in the US and ESA countries often express their views that it is too difficult to be a competitive provider in the market, unless the launch providers liability is limited to what is recovered from the insurance, and the residual sum of the unlimited liability, referred to in the Liability Convention, is to be indemnified by the government. As mentioned above, the reality of the space industry today is well reflected by the assessment of a certain space analysts that the ceiling of the governmental indemnification as high as \$150 million should be removed to protect the industry, while it seems difficult to imagine the damage in excess of this amount. If the US and European launch providers are in that position, less developed Asian providers should be also given the same conditions, preferably through the clear provisions of their national laws.

5.2. Korean Law

It is only Korea that has a national law in this regard in Asia. The 2007 Space Liability Act of Korea⁵⁵⁾ provides that the launching party⁵⁶⁾ shall have the responsibility to pay compensation⁵⁷⁾ and shall insure against third party liability set by the ordinance of the Ministry of Education, Science and Technology⁵⁸⁾ within the compensation limit 200 billion won.⁵⁹⁾ Article 7

54) *Ibid.*

55) *Supra* note 4.

56) “Launching Party” means a person who makes a preliminary registration or formal registration in accordance with Art.8, or a person who obtains a launch permit in accordance with Art.11 of the Space Development Promotion Act. *Ibid.*, Art.2 (1) of the Space Liability Act.

57) *Ibid.*, Art. 4(1).

58) *Ibid.*, Art. 6 (1) &(2).

59) *Ibid.*, Art. 5

(1) of this Act provides that the government can support the launch party “in case the amount of the compensation” would exceed the insured amount “when it thinks appropriate in order to achieve the purpose of this Act” within the limit allowed by the National Congress resolution.⁶⁰⁾ The provisions seems to show that the Korean Liability Act belongs to the US CSLA type rather than the FSOA type in that the governmental undertaking of the indemnification of the residual amount of the whole damage has the ceilings.

5.3. Chinese Regulation

While China does not have a binding law on commercial launching, as mentioned above, administrative rules named “Interim Measures on the Administration of Licensing the Project of Launching Civil Space Objects” was already issued in 2002 by the COSTIND and the Ministry of Foreign Affairs.⁶¹⁾ Art.19 of this Interim Measure obligates a licensee to “insure himself against liability incurred in respect to damage or loss suffered by third parties and against other liability incurred by launching a space object”. If the government assumes the liability above the insured amounts, or if it is the responsibility of a licensee to compensate is unclear. However, it has to be remembered that a China’s launch provider, GWIC is not a private company in the sense of a capitalist country. It seems that the government will take the residual sum of the liability to promote Chinese space industrialization in case the damage exceeds the insured amounts.

5.4. Japan’s Case

In Japan’s case, Interim Guidelines concerning the Space Activities Act⁶²⁾

60) *Ibid.*, Art. 7(1), (2) & (3).

61) *Supra* note 28.

states that launch providers take strict liability for the third parties with respect to the damage caused by space object on the Earth and in the air, which is modeled by the Atomic Energy Liability Act of Japan.⁶³⁾ The Interim Guidelines also reads that the government will take necessary measures to assume the balance when the launch provider has to pay the compensation to the victim the amount in excess of the insured amount.⁶⁴⁾ The framework established in this Interim Guidelines is to be applied in a Space Activities Bill to be submitted to the Diet, or Japanese bicameral Parliament, most likely in the Fall of 2010. As shown, Japanese Act will most probably take a FSOA type liability sharing system.

5.5. Conclusion on the Third-Party Liability

In these three countries, the commonality is that the launch provider seems selected as the person to whom the liability is concentrated among the parties related to the launching. It is a reasonable channeling system that is internationally found. As a role of the government to promote space commerce, French type liability sharing between the government and the providers seems desirable in Asian countries. Except China, Asian countries are latecomers in this field, and thus, to enact laws or set up mechanisms appreciated by the established launch provider in France seems to make sense. Views by the US industry and the problem expressed about the UK Outer Space Act may indicate that the financial guarantee given by the government to the launch provider is most important to advance this industry. If it is not clear by the national legislation or if the national law itself is non-existent, the government

62) Issued in March in 2010. <http://www.kantei.go.jp/jp/singi/utyuu/katudo/houkokusho.pdf> (last visited 21 April 2010).

63) Act No. 147 of 17 June 1961 as amended.

64) *Ibid.*, pp. 20-22.

can otherwise issue the documents for the launch provider of its national in making a contract.

VI. Fourth Condition: Security Considerations

6.1. Overall Regional Situations

International transfer of space vehicles, satellites and other equipment as well as space technology constitutes one of the most important factors to promote or to discourage space commerce. China promulgated the Regulations on the administration of arms export in 1997, and revised them in 2002 to make it stricter.⁶⁵⁾ Japan introduced “Catch-All” regulation since as of on 1 April 2002 and Korea has started the system, effective 1 January 2003.⁶⁶⁾ Catch-All regulation means that governments apply existing national export control laws to goods and technology not only on national control lists, but on almost all goods and technology when it is known or reasonably suspected that such goods and technology will be used in weapons of mass destruction (WMD) programs. India’s record on non-proliferation has been impeccable.⁶⁷⁾ However, in this region, only Korea and Japan belong to all the export control regimes.⁶⁸⁾ Thus, transferring sensitive equipments, materials and technology between the two is much easier than with the rest of the countries in Asia.⁶⁹⁾

65) See, e.g., White paper on China’s non-proliferation policy and measures, <http://www.chinareview.cn> 2003-12-03 (last visited 12 Jan. 2010); Yun, *supra* note 29, p.433.

66) S/AC.37/2003/(1445)/9 (17 April 2003), p.7.

67) See, e.g., S/AC.44/2004(02)/62 (1 November 2004).

68) Export control regime means Nuclear Suppliers Group (NSG), Australia Group (AG), Missile Technology Control Regime (MTCR) and Wassenaar Arrangement (WA).

As for the regional transfer of goods and technology, a certain restraint exists.

6.2. Proposed Action for Asia

What should be done to address the situation is that the all countries in this region will make their national export control systems in line with the requirements made by the SC Resolution 1540⁷⁰⁾, which can be regarded more disinterested than export control regimes comprised of mostly by the advanced countries. SC Resolution 1540 was adopted under Chapter VII of the UN Charter, obliging member states to prohibit supporting by any means non-State actors from developing, acquiring, manufacturing, possessing, transferring and using WMD and their delivery systems. That Resolution, since extended by SC Resolutions 1673 (2006) and 1810 (2008) until 25 April 2011, imposes binding obligations states to establish domestic export control and border control systems to prevent the proliferation. In other words, SC Resolution 1540 can be a proxy to the export control regimes to which Korea and Japan are members. While the requirements under the SC Resolution 1540 is legally-binding, it is also a fact that the effective sanction is not duly established. By way of establishing national export control and enforcement systems that can duly observe and implement other SC resolutions sanctioning Iran and North-Korea, such as SC Resolution 1718 (2006), 1747 (2007) and 1874 (2009), regional export control standards would be elevated.

Naturally, it is not easy to address security consideration to promote space commerce. But to loosen it for the short-term returns should not be resorted to since the security considerations have broader purposes than just for the economic profits.

69) China is a member of the NSG, but not with other regimes.

70) On the development of 1540 Committee, see, <http://www.un.org/sc/1540/>.

VI. Conclusion

For promoting space commerce in the Asian Region, first of all, adherence to the 4 of the UN treaties on outer space has to be ensured. Then, next, the recent developments in the law-making, even if they are included in the category of “soft law”, at the COPUOS of the UN have to be applied to the national legislation of each country. Typical of the development is the enhancing registration by which who would take the responsibility and liability will be more clearly determined along with identifying the “launching State”. The difference of the contents in national legislation on registration can be overlooked for short-to mid term period, because internal arrangements can be made the most of to surmount the inconveniences. Third, while that is less for the international than the domestic consideration, the ceiling of the private launch provider to pay compensation has to be clarified by national legislation or other domestic mechanisms and the residual amount shall be borne by the government. Considering the US and ESA precedents, that seems to be the realistic way to advance one of the most important space commerce. Last, there are thorny problems of the sensitive technology transfer. There is no panacea for that, and this problem should be addressed by collectively implementing the requirements of SC Resolution 1540 standards, not relaxing the bar of export control if the long term prosperity is seriously pursued.

Abstract

In Asia, China and India are the leading countries as far as the space commerce is concerned, and Japan has just started commercialization of space. Republic of Korea is also fast reaching to the space commerce and it is the first country in this region to have enacted a national space law in 2005 to promote the space industry. This article will study the legal mechanisms to advance space commerce in Asian countries. First, the necessity of harmonization of national mechanisms will be confirmed, taking note of the North American and European precedents. Then three areas will be selected to consider the possible harmonization in Asian national space laws and/or mechanisms: registration of space objects, the third-party liability systems and export control consideration. Needless to say, before any harmonization, the necessity of all countries in Asia to adhere to the four of the UN space treaties is underscored as a prerequisite