

The possibility of South Korea to become a member state of APSCO: an analysis from Legal and political perspectives

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I. Introduction

Asia-Pacific Space Cooperation Organization (APSCO) which was initially sponsored by the People's Republic of China in 1992,¹⁾ is now the only inter-governmental space cooperation organization in Asia. After the APSCO Convention was opened for signature in 2005 to date, 8 countries have signed the Convention and become member states.²⁾ South Korea, who has participated actively in the preparatory phase of creating the APSCO, namely the Asia-Pacific Multilateral Cooperation in Space Technology and Applications (AP-MCSTA),³⁾ finally determined not to sign the convention. On the basis of the rapid development of space technology as well as space commercialization, the competition of space affairs is not only relevant to the creation of massive space missions for the country's strategical objective, but also concerns the competition of occupying the increasing market scale of space affairs for the purpose of developing domestic space commercialization. And it is evident that the space market in Asia is attractive to many space faring countries and groups; meanwhile, it is impossible for any single Asian country to confront the powerful American and European competitors once the political barriers to access Asian space market are removed.⁴⁾ Given this, the discussion of the participation in APSCO by South Korea is proposed.

1) History of APSCO: Initialization Stage of APSCO, available at: <http://www.apSCO.int/AboutApscosS.asp?LinkNameW1=History_of_APSCO&LinkNameW2=Initialization_Stage_of_APSCO&LinkCodeN3=11171&LinkCodeN=17> last accessed 29 November 2016.

2) APSCO Member States, available at: <http://www.apSCO.int/AboutApsco.asp?LinkNameW1=APSCO_Member_States&LinkCodeN=11> last accessed 29 November 2016.

3) With respect to the specific introduction of the AP-MCSTA, See: Initialization Stage of APSCO, a available at: <http://www.apSCO.int/AboutApscosS.asp?LinkNameW1=History_of_APSCO&LinkNameW2=Initialization_Stage_of_APSCO&LinkCodeN3=11171&LinkCodeN=17> last accessed 29 November 2016.

4) To create a comprehensive regional cooperation framework in space affairs in Asia was proposed by scholars as early as 2001. Considering the rapid development of space commercialization and privatization, the proposal 15 years ago is at present more likely to be achieved. For more details, see: Doo Hwan Kim, *Possibility of Establishing an Asian Space Agency*, in German Journal of Air and Space Law, Carl Heymann Verlag, 2001, pp. 397-408.

However, it has to admit the fact that even if space commercialization is commonly accepted by most Asian countries and in many fields of space activities the political benefits are not the most pressing concerns, the political barriers are still existing for the cooperation between South Korea and China in space affairs. For discussing the possibility of South Korea to participate in APSCO, in addition to analyzing the development of space commercialization and the legal measures of APSCO that will attract participants as the promoting factors, the political factors which will block the regional cooperation in Asia are considered. As a result, the modifications of regulations of the APSCO Convention are proposed for the purpose of overcoming the negative influence of the political factors and meanwhile providing a platform for the further development of space cooperation in Asia.

II . The background of promoting the participation of South Korea in APSCO

1. The gradual change of space activities: from military race to commercial Competition

It is difficult to assert that the two superpowers the United States (US) and Union of Soviet Socialist Republics (USSR) were intending to make outer space an arena of war to develop space technologies in the Cold War time, but it has to realize the fact that space activity was initiated by the arms race between the US and USSR.

The first human-made satellite-Sputnik I launched by USSR in the year 1957 caused a crisis in Western military thinking.⁵⁾ The possibility of a surprise attack

from outer space became apparent.⁶⁾ Fortunately, the 1967 “Outer Space Treaty” confirmed the fundamental legal principle of exploration and utilization of outer space as peaceful purposes and cooperation,⁷⁾ space war was finally avoided. However, for a long time, space-faring countries launched a lot of space payloads that are directly for military purposes.

According to one account, in the 1970s an estimated 60% Soviet payloads served direct military missions; by the early 1980s, 75% were of the same nature.⁸⁾ By 1985, reportedly the US and the Soviet Union together had put over 2,000 military payloads into orbits.⁹⁾ However, the situation started to be changed in the 1990s. In 1997, for the first time, private sector space revenues exceeded governmental space expenditures, and the number of commercial payloads launched into outer space exceeded the number of government payloads.¹⁰⁾

A statistic in 2015 shows that the estimated revenues from the 23 commercial orbit launch events in 2014 amounted to approximately 2.36 billion USD, which are a half billion dollars higher than in 2013.¹¹⁾ And among all the 23 commercial launches, multinational (sea launch) revenues from the single 2014 launch were estimated at 95 million USD.¹²⁾

This statistics only refers the benefits of the commercial orbit launch, the scale

5) D.R. Terrill, *The Air Force Role in Developing International Outer Space Law*, available at: <<http://aupress.maxwell.af.mil/Books/Terrill/terrill.pdf>> last accessed 29 November 2016.

6) Francis Lyall, Paul B. Larsen, *Space Law: a Treatise*, Ashgate, 2009, p. 507.

7) See Preamble, Art. 3 and Art. 4 of 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).

8) Stephen M. Meyer, *Space and Soviet Military Planning*, in William Durch (ed.), *National Interests and Military Use of Space*, Ballinger Publishing company, 1984, pp.61-62. See also: Elizabeth Seebode Waldrop, *Integration of Military and Civilian Space Assets: Legal and National Security Implications*, in *Air Force Law Review*, 2004, vol. 55, p. 159.

9) Paul B. Stares, *The Militarization of Space: US Policy 1945-1984*, Cornell University Press, 1985, p.13. See also: Elizabeth Seebode Waldrop, *Integration of Military and Civilian Space Assets: Legal and National Security Implications*, in *Air Force Law Review*, 2004, vol. 55, p. 160.

10) James A. Vedda, *Space Commerce*, in Eligar Sadeh (ed.), *Space Politics and Policy: an Evolutionary Perspective*, Kluwer Academic Publishers, 2002, p. 215.

11) Federal Aviation Administration (U.S.), *Commercial Space Transportation 2014 Year in Review*, Federal 2015, p.4.

12) *Ibid.*, p. 8.

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of commercial space market should be much larger. Moreover, the Asia-pacific market is shown as the fastest growing region for satellite manufacturing and launching, and it is predicted to reach a market size of close to 10 billion USD by 2019.¹³⁾ It has to recognize the fact that the rapid development of space commercialization and the enormous potential economic benefits created by the space industry bring both opportunities and challenges to space cooperation between different countries. On the one hand, every space state desires to develop competitive space capacity to earn the international market shares of space industry as much as possible, on the other hand, bilateral/ multilateral cooperation has been proved to be an effective measure to support for creating the competence to occupy the market shares.

In 2014, European commercial launch revenues were approximately 920 million USD¹⁴⁾ which can not be achieved by any single European country. When it refers to Asia, the fastest growing commercial space market provides an opportunity for Asian space countries to cooperate with each other at least in some fields. Thereby, to participate in the existing cooperation framework (e.g., the APSCO) by the Asian space countries (e.g., South Korea) could be a proper choice.

2. The increasing common needs of Asia providing possible fields for cooperation at the first steps

Although commercial benefits of space commercialization will motivate different countries to cooperate with each other in relevant fields, one can find that the popular conception of space programs having been pursued by

13) Global satellite Manufacturing and Launch Market 2015-2019, June 17, 2015, available at: <<http://www.technavio.com/report/global-satellite-manufacturing-and-launch-market-2015-2019>> last accessed 29 November 2016.

14) Federal Aviation Administration (U.S), Commercial Space Transportation 2014 Year in Review, Federal 2015, p.8.

nation-states in the benefit of exploration and peaceful cooperation is always challenged by the strong consideration of the national security interest in space.¹⁵⁾ And this characteristic is especially noticeable in Asia. Given this, for promoting space cooperation between South Korea and the APSCO, new measures have to be found to overcome the parochial thinking of national interests as well as national security.

The idea of considering the common interests/needs of a region as a whole in the exploration and exploitation of outer space can be a starting point for further discussions.¹⁶⁾

One prominent common event at present in Asia is the management of natural disasters. According to a statistics, from 1985 to 2014, Asia is ranked the highest in disaster occurrences, the number of affected people and economic damage.¹⁷⁾ If this common event can be accepted as the motivation for the cooperation in relevant space fields (e.g., satellites data sharing) by South Korea and APSCO at the first steps, a friendly atmosphere for the further cooperation which is characterized by mutual understanding is probably to be created.

To sum up, the huge economic interest that can be earned from the space market is a motivating factor encouraging the central Asian space countries to cooperate with each other under the framework of a regional space cooperation organization. Even if the high serious consideration of national security can not be entirely overcome to provide a favorable environment of cooperation, the fields concerning the common events which are believed readily to conclude cooperation are recommended to be taken into consideration at the first steps.

15) Robert C. Harding, *Space Policy in Developing Countries: the Search for Security and Development on the Final Frontier*, Routledge, Taylor&Francis Group, 2013, p. 17.

16) Mingyan Nie, *Legal Framework and Basis for the Establishment of space cooperation in Asia*, Lit, 2016, p. 44.

17) Asian Disaster Reduction Center, *Natural Disaster Data Book 2014 an Analytical Overview*, p.2.

III. Legal measures created by APSCO for ensuring the benefits of member states: introduced as promoting factors for the Participation of South Korea in APSCO

As the only inter-governmental space cooperation organization in Asia, one key objective of APSCO is 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 [...].¹⁸⁾ Accordingly, many legal measures which have been proven to be effective by the most successful regional space cooperation organization in the world, namely the European Space Agency (ESA) are accepted by the APSCO Convention for ensuring the achievement of these objectives. And the implementation of these legal measures by APSCO is for the benefit of balancing the interests of its different member states. That should also be positive factors contributing to the participation of South Korea.

1. Industrial policy and the “fair return” principle

Industrial policy is an important part of the APSCO Convention, and the principle of “fair return” is cited as “cornerstone” of APSCO’s industrial policy.¹⁹⁾ The industrial policy of APSCO pursues the development of competitive Asia-Pacific industry by resorting to free tender bidding; as well as the spreading of the relevant technologies among the member states to create the specializations necessary for the Organization’s programs and activities.²⁰⁾ As the “cornerstone”

18) Art. 4(3), Convention of the Asia-Pacific Space Cooperation Organization (APSCO Convention).

19) Art. 5, APSCO Convention.

20) Art. 5 (5), APSCO Convention.

of the APSCO industrial policy, the “fair return principle” is learned from the experience of ESA.²¹⁾

The definition of “fair return (also known as *juste retour* or geographic return)” is basically summarized to be: “the proportion of contracts under a particular program awarded to firms from a given country is in proportion to the funding that this country has contributed to the program, whether it is an optional or a mandatory program.”²²⁾

In this regard, the financial investment of the member states/participating states of APSCO’s mandatory programs or optional programs is required to be returned to the relevant countries in the form of contracts awarded to their space industries.

According to the successful practice of ESA, the “fair return” principle contributes the achievement of industrial policy in the form of subsidizing the national space infrastructure of the states that have participated in the relevant programs. Generally speaking, this principle can meet the development of the cooperation space programs of the APSCO as well as space industry of the relevant member states.

In other words, if the principle of “fair return” that has already recognized by the APSCO Convention can be implemented efficiently, it will be enough to ensure the benefits of South Korea for its participation. On the one hand, several more ambitious space projects could be created through cooperation, and on the contrary, something will be received in return by the participating members of the programs from their contributions.²³⁾ Meanwhile, the amount of return is in proportion to their contributions. It has to realize the fact that “fair return” is a legal principle that is qualified to ensure an appropriate ratio between investment and return.

21) With respect to the regulations of “industrial policy” and the “fair return” principle of ESA, see respectively Art. V of the Convention for the Establishment of a European Space Agency (ESA Convention) and Art. IV of Annex V of ESA Convention.

22) Jean-Louis Van de Wouwer, Francois Lambert, *European Trajectories in Space Law*, Office for Official Publications of the European Communities, 2008, p. 51.

23) Stephan Hobe, Mahulena Hofmannova, Jan Wouters (eds.), *A Coherent European Procurement Law and Policy for the Space Sector: Towards a Third Way*, Lit Verlag, 2011, p.75.

2. A distinguish between basic activities and optional activities

Similar to the regulation in the ESA Convention, APSCO accepts the distinguish between the basic activities and optional activities. The basic activities, including carrying out fundamental research of space technology and its applications; extending the application 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 the Organization etc. are demanded to be participated in by all member states.²⁴⁾

The optional activities which include space science, technology and their application programs are free to be chosen by the member states to participate.²⁵⁾

The basic activities are established mainly for ensuring the regular operation of the organization. Meanwhile, several fields which are easy to be promoted as cooperation programs are regulated into basic activities. For example, the fundamental research, space education and training, etc. The separation of basic activities and optional programs allows the member states to choose the involvement of the programs that are high investment demanded (the optional programs). For the new participants of the APSCO, they are possible to get familiar with the programs of the Organization by invest in the basic activities at the beginning. If the “return coefficient”²⁶⁾ of the optional programs is believed to be satisfied, the member states can then determine whether to participate in or not. The distinguish between basic and optional activities leaves space for member states. It is a legal measure to protect the interest of the members.

24) Art. 7, APSCO Convention.

25) Art. 8, APSCO Convention.

26) More information regarding the definition and calculation of “return coefficient”, see: Art. V (1)-(3) of Annex V ESA Convention, as well as: Stephan Hobe, Mahulena Hofmannova, Jan Wouters (eds.), *A Coherent European Procurement Law and Policy for the Space Sector: Towards a Third Way*, Lit Verlag, 2011, p.75.

3. The membership of APSCO excludes not the application of national regulations and export control legislation

APSCO Convention stipulates that “the member states shall act by their respective national regulations and export control law concerning the goods and services included in the export control list.”²⁷⁾ In other words, to be a member state of the APSCO or to participate in the programs of the APSCO does not exclude the application of national regulations and export control legislation.

Take South Korea as an example; it is a member of the main international export control regimes, for instance, the Missile Technology Control Regime (MTCR)²⁸⁾ and the “Wassenaar Agreement” (WA).²⁹⁾

The MTCR shares the goals of non-proliferation of unmanned delivery systems capable of delivering weapons of mass destruction and seeks to coordinate national export licensing efforts aimed at preventing their proliferation.³⁰⁾ And the WA is 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.³¹⁾ Under these international frameworks regarding export control, space technologies such as the items related to any Space Launch Vehicle (SLV) which plays an essential role in space cooperation are virtually identical to those used in a ballistic missile, which represents a genuine potential risk of missile proliferation.³²⁾ Thereby, if South Korea intends to participate in

27) Art. 23 (3), APSCO Convention.

28) South Korea became a partner of MTCR in 2001, see: MTCR partners, available at: <http://mtrc.info/partners/> last accessed 29 November 2016.

29) Regarding the participating states of the WA, see: <http://www.wassenaar.org/participating-states/> last accessed 29 November 2016.

30) The Missile Technology Control Regime, available at: <http://www.mtrc.info/english/> last accessed 29 November 2016.

31) Introduction of WA, available at: <http://www.wassenaar.org/introduction/index.html> last accessed 29 November 2016.

the cooperation programs of the APSCO, its national regulations for implementing the requirements of the international export regimes³³⁾ must be respected, and the confirmation of such interest in APSCO Convention is an attractive factor.

4. To achieve consensus for making decisions by the council

For voting rules, the Convention of APSCO regulates that “unless otherwise unanimously provided for by the Council,³⁴⁾ the Council shall make every effort to reach decisions upon matters by consensus”.³⁵⁾ Compared with ESA which chosen simple majority and 2/3 majority as the main votes calculating measure,³⁶⁾ under the legal framework of APSCO, only in very rare cases, the council can make decisions by a 2/3 majority vote.³⁷⁾

Making decisions through consensus is a unique feature of the United Nations Committee on Peaceful Uses of Outer Space (UNCOPUOS) in drafting relevant international treaties on outer space and making other decisions.³⁸⁾ The consensus is a factor that has been credited for the success of law-making in the UN. Its

32) MTCR Guidelines and the Equipment, Software and Technology Annex, available at: <<http://www.mtc.info/english/guidelines.html>> last accessed 29 November 2016.

33) The South Korean Foreign Trade Act is the main regulation dealing with export control issues. Beyond that there are three other acts (the three Acts are respectively: the Defense Acquisition Program Act, the Nuclear Safety Act, and the Act on the Control of the Manufacture, Export and Import of Specific Chemicals and Chemical Agents for the Prohibition of Chemical and Biological Weapons) to deal with different items. For more details, see: Jaewon Lee, *South Korea Export Control System*, SIPRI Background Paper, November 2013, available at: <<http://books.sipri.org/files/misc/SIPRIBP1311.pdf>> last accessed 29 November 2016.

34) With respect to the responsibility of the council, see Art. 12 APSCO Convention. In general, the council is qualified to determine nearly all important events of the Organization.

35) Art. 14 (2), APSCO Convention.

36) Art. XI, ESA Convention.

37) For example, the minimum financial contribution of APSCO member states has to be decided by the council by a 2/3 majority vote. See: Art. 18 (5), APSCO Convention.

38) Haifeng Zhao, *Asia-Pacific Space Cooperation Organization Convention*, in Proceedings of the Fiftieth Colloquium on the Law of Outer Space, 24-28 , September 2007, Hyderabad, India, p. 9.

introduction into the committee's working methods in 1962 was due to a political compromise, influenced by the cold war tension then existing between the former USSR and the USA which were the only two space powers at that time.³⁹⁾ Accepting the consensus procedure in the APSCO Convention means that when one state insists on opposing a particular case, a decision is delayed or cannot be made. Although it is believed that the procedure is causing inefficiency in the decision-making process,⁴⁰⁾ it is an effective measure to protect the benefits of the member states. In other words, this decision-making procedure should be a decisive factor to promote the participation of the other non-member states in the Organization (e.g., South Korea). Summarized in one sentence, the legal mechanism established for ensuring the cooperation of APSCO is in favor of protecting the interests of the member States. From this point of view, the APSCO should be attractive to the other non-member states. However, it is also necessary to consider the political factors that construct potential barriers for the regional cooperation.

IV. Factors will block the participation of South Korea in APSCO

Against the background of the so-called globalization, it is so difficult to separate the political benefits of different countries from each other. When dealing with the topic of APSCO and South Korea, it has to recognize that, from the political perspective, it is, in essence, a discussing of the relationship between China, South Korea and the United States of America.

39) Nandasiri Jasentuliyana, *International Space Law and the United Nations*, Kluwer Law International, 1999, pp. 27-28.

40) Haifeng Zhao, *Asia-Pacific Space Cooperation Organization Convention*, in Proceedings of the Fiftieth Colloquium on the Law of Outer Space, 24-28, September 2007, Hyderabad, India, p. 9.

1. The deployment of the THAAD in South Korea: conflict opinions between China and South Korea

The “Terminal High Altitude Area Defense (THAAD)”, a U.S missile defense system, was formally announced to be deployed in South Korea in July 2016.⁴¹⁾ The installment of the THAAD is expected to help counter North Korea’s missile and nuclear threats.⁴²⁾ Yoo Jeh-Seung, South Korea’s deputy defense minister for policy, claimed that the installment of the THAAD would help “more firmly secure the safety of our people living in two-thirds of South Korea’s territory while dramatically increasing the capacity to defend key state facilities like nuclear power plants and oil storages as well as the South Korea-U.S. alliance forces.”⁴³⁾ And this could seem like the main motivation of deploying THAAD by South Korea.

China insists its stance of opposing the deployment of the THAAD system since it believes that the missile shield will pose a serious threat to the strategic security balance of regional nations including China instead of easing regional tension.⁴⁴⁾ However, some South Korean researchers believe that: firstly, the THAAD system would only be used in defense against North Korean ballistic missiles,⁴⁵⁾ and it has never been battle tested.⁴⁶⁾

41) South Korea, U.S. Pick Southern County of Seongju for Deploying THAAD, available at: <<http://english.yonhapnews.co.kr/national/2016/07/13/49/0301000000AEN20160713007351315F.html>> last accessed 29 November 2016.

42) Kukil Bora, *US THAAD Anti-Missile System To Be Deployed In South Korea’s Seongju County*, a vailable at: <<http://www.ibtimes.com/us-thaad-anti-missile-system-be-deployed-south-koreas-seongju-county-2391075>> last accessed 29 November 2016.

43) South Korea, U.S. Pick Southern County of Seongju for Deploying THAAD, available at: <<http://english.yonhapnews.co.kr/national/2016/07/13/49/0301000000AEN20160713007351315F.html>> last accessed 29 November 2016.

44) Sheng Zhong, *Directed against China: New Site for U.S. THAAD Missile Deployment in South Korea*, available at: <<http://www.globalresearch.ca/directed-against-china-new-site-for-u-s-thaad-missile-deployment-in-south-korea/5549275>> last accessed 29 November 2016.

45) Kukil Bora, *US THAAD Anti-Missile System To Be Deployed In South Korea’s Seongju County*, a vailable at: <<http://www.ibtimes.com/us-thaad-anti-missile-system-be-deployed-south-koreas-seongju-co>>

Secondly, the THAAD changes almost nothing geopolitically.⁴⁷⁾ Taking into account the fact that the U.S. other systems can already determine a Chinese missile launch, the X-band radar of the THAAD that may ostensibly reach into China adds nothing.

Moreover, the well developed South Korean current missile defense capacities, namely the Patriot PAC-2 (soon to be PAC-3), reach up to an altitude of 40 Km, while THAAD can reach around 150 Km, adding an extra 110 Km of middle defense range causes nothing to bring down East Asian stability.⁴⁸⁾

It has to recognize the fact that the deployment of the THAAD does cause a misunderstanding between China and South Korea from the political perspective, and this will hinder the cooperation between China and South Korea in many fields. Especially the affairs regarding outer space which are considering to be sensitive to national security.

It hoped that there should be a solution of the THAAD problem between China, South Korea and other related countries, but before this, the cooperation activities in space between China as well as the APSCO and South Korea will be influenced.

2. Non-MTCR member of China: one reason for the U.S to prevent South Korea from participating in the APSCO

As described above, several international mechanisms for regulating the issues of export control have been established, for example, the MTCR. MTCR was originally established in 1987 by seven states,⁴⁹⁾ up to date, the partners of

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46) Robert E. Kelly, Can THAAD Save South Korea? available at: <<http://nationalinterest.org/feature/can-thaad-save-south-korea-18047?page=2>> last accessed 29 November 2016.

47) Ibid.

48) Ibid.

MTCR have increased to a total of thirty-five countries which include the most important Asian space countries Japan (1987 as a founding nation), Republic of Korea (2001) and India (2016).⁵⁰⁾ As the most prominent sponsor and participant of the MTCR, the U.S intends to ensure the implementation of the mechanisms created under the framework of MTCR by creating national rules and policies.⁵¹⁾ Moreover, the U.S also intervenes its ally's cooperation in fields that are relevant to export control by considering the situation of participation in MTCR.

For example, in 2001, South Korea concluded a contract with China regarding a launch of a multipurpose satellite but was canceled in 2002. Because the US indicated that it would no longer supply any parts of satellites in the future if South Korea transferred to China, a country with proliferation potential, as it is not a partner of the MTCR.⁵²⁾ Then in 2007, China was about to launch a small multi-mission satellite program with South Korea as a partner, but South Korea had to withdraw from participation for the same reason.⁵³⁾

Concerning the participation to APSCO, China has made reasonable efforts to persuade South Korea, but it did not yet dare to do so for the reason that her participation may trigger a suspicion to the US that she would not follow the guidelines of the MTCR faithfully by collaborating with China, a non-MTCR member.⁵⁴⁾

The factors that will block the participation of South Korea in APSCO

49) The seven MTCR founding countries include: Canada, France, Germany, Japan, Italy, The UK and the USA. More information is available at: <<http://www.mtcr.info/english/>> last accessed 29 November 2016.

50) MTCR partners, available at: <<http://mtcr.info/partners/>> last accessed 29 November 2016.

51) Mallory S. *Are Treaties Always Necessary? How US Domestic Law Can Give Teeth to Non-Binding International Commitments*, in Proceedings of the 104th Annual Meeting, American Society of International Law, 2010, Vol. 104, p.191.see also: Bin Li, *A Legal Analysis of the Effectiveness of the Missile and Technology control Regime*, in Journal of Beijing Institute of Technology (social Science Edition), 2016, vol. 4, p. 114. (the original language of this paper is Chinese).

52) Sang-Myon Rhee, *Regional Cooperation in Asia Relating to Space Activities Northeast Asian Issues*, in Proceeding of the Space Law Conference 2006: Asian Cooperation in Space Activities a Common Approach to Legal Matters, 2-3 August 2006, Bangkok, Thailand, p. 145.

53) Id.

54) Id. P.146.

analyzed above are both relevant to political reasons. And there will be no adequate measures can be taken for excluding the negative influences of those factors. However, from the perspective of law, appropriate measures are probably to be taken.

V. Legal measures recommended being taken by APSCO

The political factors will block the cooperation between South Korea and APSCO are not easy to be removed soon, since very complicated reasons cause both of them. However, it does not mean that no measures can be taken to reduce their negative influence. Against the background of the rapid development of space commercialization and the increasing of regional common needs, APSCO can make itself more attractive to the other non-members by improving the relevant provisions of its Convention to ensure the achievement of the fair return ratio. Meanwhile, APSCO can also consider sharing the satellite data in Asia region for reducing major disasters to support the management of the common events. Also, by coordinating the regulation of the Convention, there is a possibility for the Organization to avoid the negative political influence as much as possible.

1. To ensure the achievement of commercial interests by cooperation

As described above, the rapid development of space commercialization and the benefits can be grasped from the vast space market is motivation for Asian

countries to cooperate with each other in space affairs. As the primary legal approach to maintaining a fair distribution of interests among cooperation partners, the “fair return” principle of APSCO is demanded to be improved.

For the purpose of ensuring that all member states or participants can get their investments returned reasonably, under the legal framework of ESA, the definition of “return coefficient” is proposed. More specifically, “return coefficient” is calculated as “the ratio between its percentage share of the total value of all contracts awarded to all member states and its total percentage contributions.”⁵⁵⁾ The ideal target for each nation’s return coefficient is 1.⁵⁶⁾

This definition applies both at the overall level and at the program level and implies that the return is not a number, but a ratio which is obtained by dividing a country’s share of the contracts placed by its share of the total contributions.⁵⁷⁾ The application of “return coefficient” is not always a perfect measure to ensure achieving the target of “fair return”, so ESA, as well as its member states, also take preventive and corrective measures to ensure the achievement of the return coefficient.⁵⁸⁾ Generally speaking, the principle of “fair return” has provided the fruitful cooperation of ESA for more than 35 years.⁵⁹⁾ APSCO takes “fair return” as an important legal principle in its Convention, but at present, the difficulty to achieve the target of the return coefficient is seen in the limitation of

55) Specific regulations can be found in Art. IV, Annex V of ESA Convention.

56) Ibid.

57) Stephan Hobe, Mahulena Hofmannova, Jan Wouters (eds.), *A Coherent European Procurement Law and Policy for the Space Sector: Towards a Third Way*, Lit Verlag, 2011, p.71.

58) More details of the preventive and corrective measures, see: Stephan Hobe, Mahulena Hofmannova, Jan Wouters (eds.), *A Coherent European Procurement Law and Policy for the Space Sector: Towards a Third Way*, Lit Verlag, 2011, pp.74-76.

59) As the predecessor of ESA, the Convention of European Space Research Organization (ESRO) lacks any specific provisions relating to industrial policy or geographic distributing contract which led to tensions in 1968. Italy felt it was not seeing sufficient industrial returns for its participation in the Thor Delta program, from this point forward in the ESRO/ESA program, the idea of creating a formal criterion for the geographical distribution of contracts was accepted. (see: Stephan Hobe, Mahulena Hofmannova, Jan Wouters (eds.), *A Coherent European Procurement Law and Policy for the Space Sector: Towards a Third Way*, Lit Verlag, 2011, p. 43.). After the ESA Convention entered into force in 1980, ESA started to act as a role to ensure the independent and rapid development of space activities in Europe, so far, it is already 36 years.

participation in cooperation programs by the corporations in the relevant member states that have invested. For example, in the implementation stage of APSCO's first basic activity, namely the Data Sharing Service Platform and its Application Pilot Projects (DSSP),⁶⁰⁾ seven companies from four member states (China, Iran, Thailand and Bangladesh) were recommended as bidders, but only two Chinese companies submitted bids by the due date.⁶¹⁾ It has to say that without the active participation of enterprises from the investor-states of the programs, it is impossible to achieve an ideal return coefficient. So for the APSCO, the corrective measures to ensure achieving the return coefficient target should focus on encouraging the participation of relevant companies in cooperation programs. Suggestions are proposed as the following:

Firstly, before the implementation stage of relevant programs, it is recommended to divide the affairs of the programs into different types according to the technological interest. By implementing this measure, it is possible for the small members who have a low level of space capacities to get involved in relevant activities.

Secondly, it is recommended that the member states authorize more than one domestic company as potential bidders according to the technological level of them and that they register these companies with APSCO. By taking this measure, it is possible to ensure the quantity of potential bidders from different member states.

Thirdly, from the perspective of APSCO, when calling for proposals, all companies mentioned above should be informed.

Art. 5 of the APSCO Convention states that "industrial policy" should be in accordance with the directives of the Council; thus the proposals regarding the corrective measures of the return coefficient can be included in the directives.

60) More details of the DSSP program, see: Data Sharing Service Platform and Its Applications Pilot, available at: <<http://www.apsco.int/sitesearchOne.asp?ID=174>> last accessed 29 November 2016.

61) Bidding Evaluation for APSCO Data Sharing Service Platform and Its Applications Pilot, available at: <<http://www.apsco.int/sitesearchOne.asp?ID=194>> last accessed 29 November 2016.

By taking these legal measures to ensure the achievement of commercial interest of the cooperation programs under the framework of APSCO, it is possible to attract the participation of the other non-member states, for example, South Korea.

2. To contribute to the management of common events in Asia by sharing satellite data

Concerning the cooperative program of data sharing of APSCO, currently the data is provided by the Asia-Pacific Small Multi-Mission Satellite (SMMS), and the SMMS was conceived and jointly developed by the Thai and the Chinese governments for disaster monitoring and natural resource exploration including a Ka-band experimental subsystem for communication.⁶²⁾ Moreover, the DSSP program was created for the purpose of making efficient use of the data among the APSCO member states.⁶³⁾ As regulated in the “Data Policy and Data Sharing Regulation”, one can observe that data sharing is limited among the APSCO member states.⁶⁴⁾ Thereby, if discussing the sharing of APSCO satellite data to the other non-member states in Asia, the possibility has to be discussed.

On the “Regional Workshop on the Geo-referenced Disaster Risk Management Information System for South-East Asia and East Asia and the Pacific” organized by the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) in 2013,⁶⁵⁾ the representative of APSCO pointed out on behalf of APSCO that in the process of disaster management, the benefits of the relevant programs of APSCO will be accrued at large by all humanity being affected by

62) Data Sharing Service Platform and Its Applications Pilot, available at: <<http://www.apsco.int/sitesearchOne.asp?ID=174>> last accessed 29 November 2016.

63) Ibid.

64) Art. A(1), Data Policy and Data Sharing Regulation of APSCO.

65) Post Visit Report on Regional Workshop on Geo-referenced Disaster Risk Management Information System for South-east Asia and East Asia and the Pacific, available at: <<http://www.apsco.int/sitesearchOne.asp?ID=271>> last accessed 29 November 2016.

such disasters.⁶⁶⁾ In other words, although there is a legal limitation to data sharing under the legal framework of APSCO, it is possible to provide data to the other non-member states in case of managing common events, for example, major disasters. And in reality, APSCO has donated satellite data to Chile, which is a non-member, for the purpose of earthquake relief in 2014.⁶⁷⁾

Taking the measure to contribute to dealing with the common events by sharing satellite data of APSCO focuses on creating an atmosphere of mutual understanding and communication, which will provide a platform for the further cooperation. However, it has to recognize that, proper legal mechanism for sharing data to non-members has to be negotiated by APSCO, the present method of determining case by case is unqualified to serve as a stable regime to attract the other ones to participate in the Organization.

3. To modify the regulations of APSCO Convention to reduce the political influences

As discussed above, it's hard to remove the political influence to the cooperation between APSCO and South Korea, but legal measures can be taken to make the political influences get reduced.

(1) To clarify the rights and responsibilities of the host state

APSCO is sponsored by the People's Republic of China,⁶⁸⁾ and in the APSCO

66) Maqbool Ahmad Chaudry, *Role of Asia Pacific Space Cooperation Organization in Developing Tools and Applications Using Geo-referenced Disaster Risk Management Information System in the Asia-Pacific Region*, available at: <<http://www.apsco.int/apsco-ad/imapic/201322614473165284.pdf>> last accessed 29 November 2016.

67) APSCO Donated Satellite Data to Chile for Earthquake Relief, available at: <<http://www.apsco.int/NewsOne.?ID=327>> last accessed 29 November 2016.

68) More information see: Initialization Stage of APSCO, available at: <http://www.apsco.int/AboutApscosS.asp?LinkNameW1=History_of_APSCO&LinkNameW2=Initialization_Stage_of_APSCO&LinkCodeN3=11171&LinkCodeN=17> last accessed 29 November 2016.

Convention, the definition of “host government” is created.⁶⁹⁾ Comparing the background of creating ESA,⁷⁰⁾ the establishment of APSCO is considered more as a measure of the host state (China) to compete with the other Asian countries in the space field.⁷¹⁾ And researchers have realized that in the 21st century, the world is more complicated than just seeing cooperation, competition and conflict. There is the competition about cooperation. If your state can show that you cooperate more than other states, then you have a leg up in the prestige race, which may be the moral equivalent of war.⁷²⁾ It is an accurate illustration of the creation of APSCO, especially considering the fact that another Asian space cooperation entity was sponsored and created nearly at the same time by Japan.⁷³⁾

Accordingly, the APSCO is considered as an organization led by China, and China controls the major programs of it, most achievements of it are for the benefit of China, as the host state of this Organization. The prominent status of China in APSCO is a factor to make the other country to consider their political interests when determining to cooperate with the Organization or not. Since becoming an APSCO member state or participating in APSCO programs means cooperate with China in space affairs, and this can not be accepted by some Asian countries for political reasons, for example, South Korea.

For releasing the worries, it is recommended to clarify the rights and responsibilities of the host state in the Convention. More specifically, against the background of space commercialization as well as the increasing of common

69) Art. 2 (b), APSCO Convention.

70) More information about the creation of ESA, see: Marco Ferrazzani, Alexander Soucek, *Experiences from and Prospects for the ESA Convention*, in German Journal of Air and Space Law, 2015, vol. 2, p. 289.

71) Regarding the space competition among different Asian countries, more detailed analysis can be found in: Michael Sheehan, *The International Politics of Space*, Routledge: Taylors & Francis Group, 2007, pp. 181-182.

72) Jonathan F. Galloway, *International Implications of National Space Legislation*, available at: <http://www.iislweb.org/docs/2011_galloway/Galloway.pdf> last accessed 29 November 2016.

73) Japan sponsored Asia-Pacific Regional Space Agency Forum (APRSAF) nearly at the same time of when APSCO was sponsored. More information of APRSAF, see: <<http://www.aprsaf.org/about>> last accessed 29 November 2016.

needs, APSCO should be a platform provided to all countries in Asia-Pacific instead of an instrument for earning more allies in the regional space race. By illustrating clearly the rights and responsibilities of the host state, it is beneficial to offer clear rules for the other members/non-members. Meanwhile, it is recommended to regulate the rights and responsibilities of the host states as providing assistance, coordination and services, etc. Given that every member decides all substantial events of the Organization through voting, once the rights and responsibilities of the host state are clarified further, it will release the worries of the non-members when determining relevant cooperation affairs with APSCO.

(2) To underline the peaceful purpose of space cooperation in APSCO

APSCO Convention indicates that one objective of the Organization is “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.”⁷⁴⁾ Considering the fact that ESA declares in its Convention that “the states parties to the Convention desire to pursue and strengthen European cooperation, for exclusively peaceful purpose, in space research and technology and their space application,”⁷⁵⁾ the application of the term “peaceful purpose” in the APSCO Convention needs to be discussed.

It is commonly accepted the interpretation of “peaceful uses of outer space” to be the utilization of outer space for the non-aggressive purpose,⁷⁶⁾ while the meaning of “exclusively peaceful uses of outer space” should be understood as to use outer space for “non-military” objectives.⁷⁷⁾ European collaboration in space

74) Art. 4, APSCO Convention.

75) Paragraph 3, Preamble, ESA Convention.

76) With respect to more discussion about the understanding of “peaceful uses of outer space”, see: Bruce A. Hurwitz, *The Legality of Space Militarization*, North-Holland, 1986, pp. 59-67.

77) Kai-Uwe Schrogl, Julia Neumann, *Art. IV of Outer Space Treaty*, in Hobe, Schmidt-Tedd, Schrogl (eds.), *Cologne Commentary on Space Law, (Volume I): Outer Space Treaty*, Carl Heymanns

field was initially proposed by European space scientists who have realized the technical weakness of Europeans to improve European space technology, and scientific research implemented mainly by scientists, however, would be exclusively for peaceful purpose.⁷⁸⁾

Also later in the concrete cooperation activities, this civil concept has proved attractive to governments and industry.⁷⁹⁾ Although the motivations for establishing APSCO are different from those of creating ESA, there is no reason for APSCO to refuse to accept the term “exclusively peaceful” as an illustration of cooperation programs under its framework. So it is recommended the APSCO to consider to modify the word “peaceful uses” of cooperation programs into “exclusively peaceful uses”.

It has proved by the experience of ESA that the utilization of the term “exclusively peaceful uses” is attractive to governments and industry, and for APSCO, the application of this term should be helpful to reduce the negative influences of the political factors discussed above.

In a word, the political factors that will block the participation of South Korea in APSCO could not be easily removed. By taking measures to amend or modify the regulations of the APSCO Convention, it is anticipated that the political barriers can be reduced, and the non-member states, for example, South Korea, can accept APSCO, as a platform to promote Asian space cooperation affairs gradually.

Verlag, 2009, pp. 82-83.

78) Kazuto Suzuki, *Policy Logics and Institutions of European Space Collaboration*, Ashgate 2003, p. 40.

79) Wulf Von Kries, *The ESA Convention and Europe's Security Interests in Outer Space*, in German Journal of Air and Space Law, Carl Heymann Verlag, 1994, p. 223.

VI. Concluding remarks

As a state that actively promotes regional space cooperation in Asia, South Korea was an important actor of the AP-MCSTA. For creating a proper entity to promote Asian space cooperation, seven workshops and international conferences were organized by AP-MCSTA from 1992 to 2003, and one of which was held in South Korea.⁸⁰⁾ The discussing result of those workshops and international conferences is to create a permanent space cooperation organization, namely, the APSCO. However, so far, South Korea has not ratified the Convention.

There are complicated political reasons for South Korea determining not to become a member of APSCO. However, it has to realize the fact that, the development of space commercialization and privatization, as well as the increasing common needs in Asia, provide new opportunities for Asian space cooperation. Against this background, APSCO could take activities to modify the relevant legal measures to overcome the negative influences of the political factors to Asian space cooperation, to make the participation of South Korean in APSCO a possibility.

80) Initialization Stage of APSCO, available at: <http://www.apSCO.int/AboutApscoS.asp?LinkNameW1=History_of_APSCO&LinkNameW2=Initialization_Stage_of_APSCO&LinkCodeN3=11171&LinkCodeN=17>last accessed 29 November 2016.

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Abstract

The possibility of South Korea to become a member state of
APSCO: an analysis from legal and political perspectives

Mingyan Nie

Asia-Pacific Space Cooperation Organization (APSCO) is the only inter-governmental space cooperation organization in Asia. Since its establishment to date, eight countries have signed the convention and become member states. South Korea participated actively in the preparatory phase of creating the organization, and one conference organized by AP-MCSTA which is the predecessor of APSCO was held in South Korea.

However, after the APSCO Convention was opened for signature in 2005 to date, South Korea does not ratify the Convention and become a member.

The rapid development of space commercialization and privatization, as well as the fastest growing commercial space market in Asia, provides opportunities for Asian countries to cooperate with each other in relevant space fields. And to participate in the existing cooperation framework (e.g., the APSCO) by the Asian space countries (e.g., South Korea) could be a proper choice. Even if the essential cooperation in particular space fields is challenging, joint space programs among different Asian countries for dealing with the common events can be initiated at the first steps.

Since APSCO has learned the successful legal arrangements from ESA, the legal measures established by its Convention are believed to be qualified to ensure the achievement of benefits of different member states. For example, the regulation of the “fair return” principle confirms that the return of interests from the relevant programs is in proportion to the member’s investment in the programs.

Moreover, the distinguish of basic and optional activities intends to authorize the freedom of the members to choose programs to participate. And for the voting procedure, the acceptance of the “consensus” by the Council is in favor of protecting the member’s interest when making decisions.

However, political factors that are potential to block the participation of South Korea in APSCO are difficult to be ignored. A recent event is an announcement of deploying THAAD by South Korea, which causes tension between South Korea and China. The cooperation between these two states in space activities will be influenced. A long-standing barrier is that China acts as a non-member of the main international export control mechanism, i.e., the MTCR. The U.S takes this fact as the main reason to prevent South Korea to cooperate with China in developing space programs.

Although the political factors that will block the participation of South Korea in APSCO are not easy to removed shortly, legal measures can be taken to reduce the political influence. More specifically, APSCO is recommended to ensure the achievement of commercial interests of different cooperation programs by regulating precisely the implementation of the “fair return” principle. Furthermore, APSCO is also suggested to contribute to managing the common regional events by sharing satellite data. And it is anticipated that these measures can effectively response the requirements of the rapid development of space commercialization and the increasing common needs of Asia, thereby to provide a platform for the further cooperation.

In addition, in order to directly reduce the political influence, two legal measures are necessary to be taken:

Firstly, to clarify the rights and responsibilities of the host state (i.e., China) as providing assistance, coordination and services to the management of the Organization to release the worries of the other member states that the host state will control the Organization’s activities. And secondly, to illustrate that the cooperation in APSCO is for the non-military purpose (a narrow sense of

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“peaceful purpose”) to reduce the political concerns.

Regional cooperation in Asia regarding space affairs is considered to be a general trend in the future, so if the participation of South Korea in APSCO can be finally proved to be feasible, there will be an opportunity to discuss the creation of a comprehensive institutionalized framework for space cooperation in Asia.

Key words : space activities, APSCO, South Korea, space commercialization, common needs, “fair return” principle, basic/optional activities, consensus, export control measure, THAAD

摘要(Abstract)

韓國加入亞太空間合作組織的可能性： 基于法律与政策的分析

聶明岩*

亞太空間合作組織（以下簡稱亞空組織）是亞洲地區唯一一個政府間空間合作國際組織。自成立以來至今，八個國家簽署了“亞空組織公約”並成為成員國。作為亞洲重要空間國家之一，韓國在亞空組織籌備階段曾積極參與各項工作，且主辦了一屆籌備會議。但自2005年“亞空組織公約”開放簽署至今，韓國尚未簽署公約成為成員國。

空間活動商業化與私營化的快速發展及亞洲空間商業市場規模的迅速擴大為亞洲國家在相關領域的空間合作創造了機會。亞洲國家（例如韓國）參與到已有的亞洲空間合作組織（例如亞空組織）開展合作，是一個合適的選擇。即便開展實質性的空間合作仍是一個不小的挑戰，在起步階段，亞洲國家可以考慮共同開展應對區域公共性事務的空間項目。

由於亞空組織借鑒了歐空局的成功經驗，所以其公約中規定的諸多法律措施可以較好的保障不同成員國間的利益分配。舉例而言，公約規定的“投資返還”原則保障了成員國投資到相應項目中的資金按照比例予以返還。此外，公約對於“基本活動”和“任擇活動”的區分賦予了成員國選擇參加合作項目的自由。而在決議程序方面，公約採用的“全體一致”的方式有利於保障成員國的利益。

但是，阻礙韓國加入亞空組織的政治因素同樣無法忽略。近期韓國宣布在其境內部署“薩德”導彈防禦系統導致了中韓之間的緊張關係，客觀上影響中韓之間的空間合作。而中國沒有加入“導彈及其技術控制機制”這一事實則是美國長期以來阻礙韓國與中國開展空間合作活動的一個重要理由。

儘管短期之內無法徹底克服政治因素的阻礙作用，但仍舊可以採取法律措施減

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少政治因素的影響為韓國及其他亞洲國家加入亞空組織創造條件。具體而言，亞空組織應制定執行“投資返還”原則的具體法律規範保障項目參與國投資的公平返還。此外，亞空組織還應通過分享衛星數據的方式為區域公共事務做出貢獻。

亞空組織還可以採取如下法律措施直接減少政治因素的影響，即：（1）明確東道國（即：中國）的權利和責任，將東道國的責任確立為提供協調及輔助服務。以此減少其他成員國對中國以東道國的身份控制亞空組織活動的擔憂。

（2）詳細闡明組織合作的目的為“非軍事目的”以降低參與國及其他國家的政治考量。

空間合作是未來亞洲空間活動發展的一個趨勢，如果韓國能夠加入亞空組織，則將為建立一個完善的區域空間合作框架奠定基礎。

關鍵詞(Key words)： 空間活動；亞太空間合作組織；韓國；空間活動商業化；共同利益；投資返還原則；基本/任擇活動；全體一致；出口控制措施；“薩德”導彈防禦系統