

The Belt and Road Initiative (B&R) Provides Opportunity for China to Dominate Space Cooperation in Asia? An Analysis from the Legal Perspective

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Abstract

The co-existence of more than one regional space cooperation entity in Asia presents the competition on the cooperation of space affairs in this territory. Against this background, the Asian space powers take all possible measures to attract more space partners. The Belt&Road Initiative (B&R), which is defined as a comprehensive strategy for China to meet the challenges brought by the globalization, provides opportunities for the space field. However, legal improvements are demanded to be made on both domestic and regional levels for responding to the relevant legal challenges. On the domestic level, the Chinese space regulation which is intended to be formulated before the year of 2020 is recommended to encompass fundamental principles and provisions friendly to non-governmental entities and foreign partners. On the regional level, the Asia-Pacific Space Cooperation Organization (APSCO) is required to transform its role from Chinese platform to compete with its Asian rivals on space cooperation affairs to a co-builder and services provider of the B&R space programs (e.g., the SIC). Accordingly, legal coordination approached to ensure implementing the “co-sharing” principle is needed to be made between APSCO and the SIC sponsor; moreover, APSCO itself must do modifying jobs to improve its legal framework to adapt the requirements of its new role.

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1. Introduction

Europe has formulated the most successful regional cooperation framework in space activities by undertaking programs in the context of European Space Agency (ESA). In comparison, space cooperation among Asian countries is still in an initial stage which is characterized by the co-existence of more than one regional mechanism and the competition of the predominance for cooperating more partners.

The Belt and Road (B&R) Initiative was initially proposed by Chinese President Xi Jinping in 2013. The primary objective of this plan is to promote better connectivity, deepen linkage to improve mutual understanding and foster long-term stability in the B&R region.¹ Space technology also attracts the attention of the B&R policymakers, and a project entitled "Belt and Road Space Information Corridor (B&R-SIC)" was proposed to be constructed.² In the B&R Initiative context, opportunities are provided for China to further develop space cooperation in Asia.

Concerning the status quo of space affairs in Asia, the Asia-Pacific Space Cooperation Organization (APSCO) is currently the uppermost platform for China, who acts as the host country to compete with the other space-faring nations in this territory to cooperate more partners, especially with Japan, who has sponsored the Asia-Pacific Regional Space Agency Forum (APRSF). Against the background of the rapid growth of space commercialization, APRSAF is witnessed actively transform its role from a talking shop as shown previously to an entity that can conduct substantial cooperative programs.³ Accordingly, as the sponsor, Japan also enacted new domestic regulations for its nationals to get involved in space programs.

How could the B&R Initiative provide opportunities for China to enlarge its partners in Asia region concerning space activities? Are the legal regime of APSCO and Chinese national regulations of space ready to manage the new developments? What measures are necessary to be taken for responding? For the sake of answering the questions, this paper initially outlines the

1 National Development and Reform Commission, Ministry of Foreign Affairs, and Ministry of Commerce of the People's Republic of China, Vision and Actions on Jointly Building Belt & Road, <http://en.ndrc.gov.cn/newsrelease/201503/t20150330_669367.html> last accessed on 2 Dec. 2018.

2 The State Council Information Office of the People's Republic of China, China's Space Activities in 2016, <<http://www.scio.gov.cn/zfbps/32832/Document/1537024/1537024.htm>> last accessed on 2 Dec. 2018.

3 Marco Aliberti: Regionalisation of Space Activities in Asia? European Space Policy Institute, Feb. 2013, <https://www.files.ethz.ch/isn/163952/ESPI_Perspective_66.pdf> last accessed on 2 Dec. 2018.

competition of leading role in cooperation activities in space in Asia by briefly presenting the APSCO and APRSAF; then focuses on the recent movements carried out by the APSCO and APRSAF as well as their leading countries to enlarge regional partners, and the B&R space programs are specially mentioned. Thereafter, analysis concerning the legal challenges is made before responding measures are proposed as a conclusion of this research.

2. The Competition of Leading Role in Space Cooperation in Asia: An Overview of APSCO and APRSAF

The convoluted political considerations of Asian countries have eliminated nearly all cooperation activities in substantial among the main space-faring states located in this region, namely, China, Japan and India.⁴ Instead, the main space powers in Asia have respectively pushed forward their platforms to attract the other states for participation, for example, the APSCO sponsored and led by China and the APRSAF created and supported by Japan. In recent, India intends to make use of the emerged regional cooperation frameworks, *inter alia*, the South Asian Association for Regional Cooperation and the Association of Southeast Asian Nations to carry out space programs.⁵ Nevertheless, APSCO, as well as APRSAF, are at the present stage of representativeness to indicate the competition of leading role in Asian space cooperation and desire to be concerned particularly.

2.1 APSCO: Establishment and Legal Framework

The Convention of APSCO, which has formulated the legal framework of APSCO was opened for signature in 2005. This labels that the formal establishment of this organization. By now, eight countries have ratified the Convention and became members.⁶ Following aspects are of relevance to be emphasized to make the legal framework of APSCO fully understood.

2.1.1 Industrial Policy and the “Fair Return” Principle

The “fair return” principle, which has proved to be an effective measure for guaranteeing cooperation programs by ESA, is accepted by APSCO Convention and taken as the “cornerstone” of its industrial policy.⁷ Specifically, the “fair return” principle means that the proportion of

4 James Clay Moltz, *Asia’s Space Race: National Motivations, Regional Rivalries, and International Risks*, Columbia University Press, 2012, p. 33.

5 Rong Du, *Space Cooperation in Asia: A Mystery*, International Astronautical Congress, 2014, <https://swfound.org/media/187608/Rong_du_paper_iac_2014.pdf> last accessed on 2 Dec. 2018.

6 Eight countries have signed the APSCO Convention and became member states, namely, Bangladesh, China, Iran, Mongolia, Pakistan, Peru, Thailand and Turkey, see: <http://www.apSCO.int/AboutApsco.asp?LinkNameW1=APSCO_Member_States&LinkCodeN=11> last accessed on 2 Dec. 2018.

7 Art. 5 of the APSCO Convention.

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.⁸ From the perspective of ESA, by implementing this “fair return” principle, financial contributions in a considerable amount from the members promote its regular operation, as well as, offer opportunities to propose cooperative programs in large-scale further.

2.1.2 Cooperative Activities

Like ESA, APSCO’s cooperation activities are divided into basic and optional parts.⁹ All member states are obliged to involve in the basic cooperation programs, whereas the optional programs are freely decided by the member states of participation.

2.1.3 Financial Sources

Contributions of the member states to the costs of cooperative programs as well as to the common costs of the agencies are observed to be the primary financial resource of APSCO.¹⁰ Additionally, following its Convention, voluntary grants from the host government and other member states, donations/subsidies receive from other organizations, and services provided to others, also constitute rightful financial income of the organization.¹¹

2.2 APRSAF: Establishment and Principles of Cooperation

APRSAF is currently the largest space-related conference in the Asia-Pacific region. It was established in 1993, nearly one year after the proposal of creating a multilateral cooperation mechanism in Asia concerning space affairs by China on the Asia-Pacific Workshop on Multilateral Cooperation in Space Technology and Applications (AP-MCSTA) held in 1992 in Beijing.¹² The first decade of APRSAF was mainly geared towards

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

9 Art. 7 of the APSCO Convention.

10 Art. 18 of APSCO Convention.

11 Ibid.

12 The idea of promoting the multilateral cooperation in space technology and its applications in the Asia-Pacific region was firstly proposed in the year of 1992, when the Asia-Pacific Workshop on Multilateral Cooperation in Space Technology and Applications (AP-MCSTA) was held in Beijing. (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>. The participants from 16 Asia-Pacific countries unanimously agreed on establishing consequently the APSCO. From then on until the year of 2003, seven conferences were organized in Asia-Pacific countries which include Thailand, Pakistan, Republic of Korea, Bahrain, Iran and China. (Ibid.) In 2001, according to the recommendations of the sixth conference of AP-MCSTA, the secretariat of AP-MCSTA was formally established in Beijing. Its mandate was to

information exchange among space engineers to increase the region's understanding of space utilization,¹³ along with a gradational motivation of formulating APSCO by China, APRSAF gradually transforms its role from a talking shop to a regime that is capable of carrying out cooperation programs inessential.¹⁴ At the 8th and 9th APRSAF conferences, four working groups were set up to get the specific cooperation programs to be in charge.¹⁵

The "Principle of APRSAF" was made in 2012 and amended in 2013 subsequently.¹⁶ This Principle document addresses APRSAF's activities as to: (1) provide an open and flexible framework of cooperation; (2) offer cooperative activities to be participated in on a voluntary basis; and (3) launch projects addressed issues of common interest in the Asia-Pacific region and are implemented through concrete actions.¹⁷

APSCO and APRSAF are respectively established by China and Japan to compete in cooperating more partners in Asia. Even if these two entities take similar cooperative activities, no substantive cooperative activities have been carried out between them. And no such tendency is witnessed in the foreseeable future. Alternatively, both China and Japan are actively organizing coherent actions to improve the entities they sponsored.

3. Recent Movements of the Sponsor Countries for Enlarging the Cooperation Scale of APSCO and APRSAF

If we say that the previous competition between APSCO and APRSAF was profoundly driven by political considerations of China and Japan, the situation is potentially changed in the context of space commercialization and privatization. Both China and Japan are witnessed to take measures to respond to this change to promote a more comprehensive cooperation framework under their sponsored entities. On the one hand, non-governmental space participants are vigorously supported by the government to get involved in commercial space affairs for reserving possibilities for them

facilitate programs of multilateral space cooperation in the Asia-Pacific region and to promote the institutionalization of AP-MCSTA. (Ibid.) From 2001 to 2004, several meetings were held in Beijing which were attended by official delegations from nine Asia-Pacific countries to draft the Convention of APSCO.

13 David Kuan-Wei Chen, Stephanie Wan, *Space Cooperation in the Asia-Pacific: The Story (or Stories) of APSCO and APSAF*, in IISL Proceedings of the 52 Colloquium on the Law of Outer Space, 12-16 Oct. 2009, p. 46.

14 Marco Aliberti: *Regionalisation of Space Activities in Asia?* last accessed on 2 Dec. 2018.

15 The four Working Groups are: Earth Observation, Communication Satellite Applications, Space Environment Utilization, and Space Education and Awareness (Working Group). See: APRSAF, *About Working Groups*, <http://www.aprsaf.org/working_groups/about/> last accessed on 2 Dec. 2018.

16 Principles of APRSAF, available at: <<http://www.aprsaf.org/about/pdf/Principles.pdf>> last accessed on 2 Dec. 2018.

17 Ibid.

to push forward further progress of regional cooperative space activities. And on the other hand, both Japan and China have adopted measures to attract their potential Asian partners in the context of APRSAF and APSCO.

3.1 Japan's Activities for Enlarging Regional Cooperation Scale

Since the year 2008 when Japan officially adopted its Basic Space Law,¹⁸ the ban on the military utilization of space technologies and applications is lifted.¹⁹ A considerable amount of money will be invested in the space industry for securing objective;²⁰ thereby, the private sector gets opportunities to involve in governmental programs in the form of public-private partnership (PPP).²¹ As a result, Japanese private space enterprises' technological and financial capacities are potentially strengthened.

Shaped by the rapid growth of space commercialization, the main impetus towards carrying out space activities as well as (regional cooperation activities) is seen in the non-governmental entities and institutions. At the year-end of 2016, Japanese Space Activities Act (SAA) has been promulgated.²² The SAA is convinced to be sure to give a significant boost to space business in Japan, which has both technological strengthen and great potential.²³ In the context of the NewSpace era,²⁴ the development of space business would never be limited in Japan in this case, private companies' activities will extend to the regional level (also international level). This will in turn resort to the capacity of the country to dominate regional space cooperation activities.

Japan has vigorously organized actions to attract its Asian partners to launch space projects together. For example, in September 2017, Japanese Prime Minister Shinzo Abe and Indian Prime Minister Narendra Modi vowed to put outer space at the center of their bilateral relationship.²⁵

18 Basic Space Law, Act No. 43/2008 of 27 August 2008.

19 Mingyan Nie, *Legal Framework and Basis for the Establishment of Space Cooperation in Asia*, Lit Verlag GmbH& Co. KG, 2016, pp. 80-82.

20 Kyodo Staff Report, *Abe Approves New Space Policy with Profit, Security in Mind*, <<http://www.japantimes.co.jp/news/2015/01/09/national/new-space-policy-focuses-security-science/>> last accessed on 2 Dec. 2018.

21 Chapter 3, 3-4, (2), *Basic Plan on Space Policy*, 2013.

22 Aoki Setsuko, *New Law Aims to Expand Japan's Space Business*, <<https://www.nippon.com/en/currents/d00294/>> last accessed on 2 Dec. 2018.

23 Ibid.

24 NewSpace ventures are aiming to establish businesses such as building Internet infrastructure to blanket the globe with constellations of hundreds or thousands of small satellites, exploration and recovery of asteroid resources, active removal of space debris, and on-orbit servicing for efficient operation of resource recovery and space exploration vehicles. NewSpace relies on a combination of the vitality of start-ups with new business models and the technology for their implementation and the active support of investors, major aerospace industry firms, and governmental space agencies. See: Aoki, *ibid.*

25 Rajeswari Pillai Rajagopalan, *A New Space Race in Asia*, available at: <<http://www.eastasiaforum.org/2018/05/18/a-new-space-race-in-asia/>> last accessed on 2 Dec. 2018.

Similarity can also be observed in the APRSAF framework. On June 11 and 12, 2018, the first meeting on the joint development of innovative cube/small satellites was held.²⁶ Comparing to the previous APRSAF programs which focus mainly on managing common affairs of the territory, the new effort shares the aims of demonstrating the high capacities of experienced professional engineers in the region and bringing concrete solutions to the issues on the ground.²⁷ Furthermore, different from the existing APRSAF space programs that depend much more on Japanese space capacities, the innovative cube/small satellites program has obtained supports from seven Asian countries including India and Korea etc.²⁸ As mentioned, the initiative of this program results from the realization of an increasing momentum to acquire satellite manufacturing technologies by the emerging Asian countries;²⁹ thereby, economic benefits would be the driving factor in substantial for the main space powers in Asia to cooperate. Whereas the combination of Japan, India and Korea in a program under the APRSAF framework does challenge China's superiority in dominating Asian space cooperation on the APSCO platform.

3.2. China's B&R Initiative and the Space Perspective

Chinese governmental monopolized form in developing space activities including cooperation activities has been proved fruitful. For a long time, the absence of national space regulations and the slow development of non-governmental space sector have not put up obstacles for the rapid expansion of the Chinese aerospace industry and business. Until recently, Chinese President Xi Jinping proposed a strategy of Military-Civilian Integration (MCI)³⁰ and a global proposal of Belt and Road Initiative (B&R), non-governmental enterprises started to be emphasized, and nearly all existing Chinese private companies concerning space (space-related) businesses are established motivated by the MCI strategy.³¹ In the year-end of 2016,

26 APRSAF: "New Efforts: Joint Development of Innovative Small and Cube Satellites", APRSAF, June 2018, <https://www.aprsaf.org/capacity_building/joint_development/small_cube_sat.php>. <https://www.aprsaf.org/capacity_building/> last accessed on 2 Dec. 2018.

27 Ibid.

28 Ibid.

29 Ibid.

30 See: The National Military-Civilian Integration Strategy, available at: <http://guoqing.china.com.cn/keywords/2017-06/20/content_41085116.htm> last accessed on 2 Dec. 2018.

31 For example, the One-Space Corporation, <<http://www.onespacechina.com/>>, Commsat, <<http://www.commsat.cn/#introduction>>, Spacety, <http://en.spacety.com/en_company.htm>, LandSpace, <<http://www.landspace.com/site/about>>, and Space Honor (iSpace), <<http://en.i-space.com.cn/>>, etc. Companies such as Commsat, Spacety are engaging in the satellite R&D and the satellite launching fields.

Chinese new version “White Paper” on space activities for the next five years was published, for the first time, the social force was proposed to be supported and guided to get participated in space activities.³² The new “White Paper” asserts the fundamental legal principles for Chinese Space Act that is still in the negotiating process; additionally, this policy is of relevance to promoting the future space cooperation program, i.e., the Space Information Corridor (SIC) under the framework of the B&R.³³

The B&R Initiative, which is known as a global proposal encompasses a series of cooperation areas and intends to cover more than 60 countries all over Asia, Europe and Africa. Concerning space affairs, they are in the majority hailed as instruments to attract more B&R participants and serve the other B&R programs’ construction. For the purposes mentioned above, the B&R space initiative is witnessed being presented.

For embarking other states’ interests in becoming the B&R cooperators, China actively makes use of its technological advantages to show its friendship to the current B&R participating countries and the whole world. For example, Chinese new “White Paper” indicates that Chinese government plans to provide basic services by utilizing the Beidou global system to the countries along the B&R as early as 2018,³⁴ observers insist that this is the bonus given by China to the B&R partner countries.³⁵ Moreover, in May 2018, China issued a call for all UN members to participate in its upcoming space station for the peaceful use of outer space in cooperation with the UN Office for Outer Space Affairs,³⁶ this is witnessed being a benefit to the developing countries and will give China a powerful diplomatic tool for influence.³⁷

The SIC program is intending to be constructed to provide technical assistance to the B&R Initiative. Specifically, it covers mainly the cooperation fields concerning satellite application and other relevant areas such as ground

LandSpace Company and Space Honor (iSpace) Company are focusing on the rocket R&D, manufacturing and launching service.

32 Part I-Purposes, Vision and Principles of Development, China Space Activities in 2016.

33 Part V-International Exchanges and Cooperation, sector 3- Key Areas for Future Cooperation of the 2016 “White Paper”.

34 China’s BeiDou Navigation System to Expand to Belt&Road Nations by 2018, China Plus, <<http://www.scio.gov.cn/m/31773/35507/35520/Document/1555190/1555190.htm>> last accessed on 2 Dec. 2018.

35 Trefor Moss, China’s ‘One Belt, One Road’ Takes to space, <<https://blogs.wsj.com/chinarealtime/2016/12/28/chinas-one-belt-one-road-takes-to-space/>> last accessed on 2 Dec. 2018.

36 United Nations and China invite applications to conduct experiments on-board China’s Space Station, <<http://www.unoosa.org/oosa/en/informationfor/media/2018-unis-os-496.html>> last accessed on 2 Dec. 2018.

37 Namrata Goswami, What China’s upcoming space station means for the world, <<https://thedi diplomat.com/2018/06/what-chinas-upcoming-space-station-means-for-the-world/>> last accessed on 2 Dec. 2018.

and application system construction and application product development.³⁸ A primary target of the SIC is to provide space information services to the countries along the B&R after its completion.³⁹ Whereas all B&R participating countries and their national private corporations are invited to co-construct the SIC program, as well as, the relevant cooperation entity, for example, the APSCO.⁴⁰

As the sponsor of the B&R Initiative, Chinese institutions, as well its non-governmental enterprises are observed as the major builders of the SIC. Moreover, APSCO is also able to find its role in constructing the SIC program. The opportunities for cooperating programs in the B&R context in turn transfer into capacities for China to dominate Asian space cooperation, however, due to the shortage of comprehensive legal mechanisms on both national and regional levels, legal challenges are evident.

4. Legal Challenges for China to Dominate Asian Space Cooperation in the B&R Context: Taking the SIC Program as an Example

The SIC program is the most significant space-related activity concerning B&R construction. But the contribution of space technologies to the B&R will appear not constrained in the SIC program, and more space projects are predictable to be established following the growth of the B&R construction. From this point of view, a full study of the relevant legal challenges is not only consequential to the SIC program, but also to the future similar projects. The legal problems for creating the SIC program are seen respectively on the domestic and regional levels.

4.1. National Legislation and the SIC Construction

In accordance to the “Guideline” co-published by the State Administration of Science, Technology and Industry for National Defense (SASTIND) and the National Development and Reform Commission (NDRC) of China in 2016,⁴¹ the principles of “co-building” and “co-sharing” are presented to be insisted in the progress of constructing the SIC. In specific implementing phases, Chinese entities (including both governmental and non-governmental ones) are encouraged to provide space information and other space-related

38 Ibid.

39 State Administration of Science, Technology and Industry for National Defense, National Development and Reform Commission, Guidance on accelerating and promoting the construction and application of the B&R space information corridor, <http://www.ndrc.gov.cn/zcfb/zcfbqt/201611/t20161123_827548.html> last accessed on 2 Dec. 2018.

40 Guiding Opinions on Accelerating the Construction and Application of the “Belt and Road” Spatial Information Corridor, co-published by MIIT and NDRC on 22 October, 2016, available at: <http://www.ndrc.gov.cn/zcfb/zcfbqt/201611/t20161123_827548.html> last accessed on 2 Dec. 2018.

41 Ibid.

products to the other B&R countries,⁴² while the other B&R countries and their space corporations are invited to construct the associated space programs of the SIC.

From the perspective of Chinese national space law, the following two legal challenges are considerable:⁴³

Firstly, the uncertainty of national space legislation in China is potential to restrain the uninterrupted progress of constructing B&R-SIC when Chinese entities are acting as the information and product providers. The status quo of rules concerning Chinese space information and other products provision shows a characteristic of deciding on a case by case basis. If we believe that the B&R should be a global program that will last for an extended period, and the SIC program, as well as, the other similar space programs that are intended to be created subsequently should not be constructed only as temporary projects, stable domestic rules concerning providing information and other space-related products are desirable to be formulated.

Secondly, existing regulations are potential to impede the corporations from other B&R countries to participate in the construction of the SIC. And in principle, to get the opportunity to co-build the relevant SIC program is the premise for the B&R countries other than China to get their investments to return directly. It is an indispensable step in guaranteeing achieving the “co-sharing” principle. China’s regulations concerning outer space activities at the present stage are two “Measures”⁴⁴ which are respectively dealing with launching permits authorization and space objects registration. In general, the rules of foreign-related activities addressed by these two “Measures” are not friendly;⁴⁵ further amendments are needed.

The Chinese 2016 “White Paper” has outlined the basic thoughts for Chinese national space legislation in the future, which could be taken as references in case of that the requirements of constructing the B&R-SIC have been completely realized.

42 Ibid.

43 More specific analysis concerning Chinese national space legislation and the future developments, please see: Mingyan Nie, Huan Yu, To Establish National Space Law in China: An Analysis by Considering the New Developments, in *German Journal of Air and Space Law*, 2018, vol. 3, pp. 482-507.

44 Measures for the Administration of Registration of Space Objects, CSTIND P.R.C. Ministry of Foreign Affairs, February 8, 2001. Interim Measures on the Administration of Permits for Civil Space Launch Projects, Order No. 12 of the Commission of Science, Technology, and Industry for National Defense of the P.R.C., 2002.

45 For more analysis, see Mingyan Nie, Huan Yu, To Establish National Space Law in China: An Analysis by Considering the New Developments, pp. 499-501.

4.2. Regional Legislation and the SIC Construction: Taking APSCO as an Example

For the following reasons, APSCO is qualified to be taken as an example of regional space cooperation mechanism that will involve in the B&R-SIC construction. Firstly, APSCO was established initially by China as a platform to compete with its Asian rivals, e.g., Japan, who has created a similar platform named APRSAF. The B&R, as well as the SIC, are new proposals concerning strengthening China's influence in space affairs in Asia (as well as the world as a whole), and this is consistent with the APSCO's objects. Secondly, several documents have already formulated the fundamental principles and described specific ways for APSCO to contribute to constructing the B&R-SIC. Whereas the legal framework of APSCO challenges its involvement in SIC programs to be progressed smoothly.

According to the "Guidelines" co-published by Chinese SASTIND and NDRC, APSCO has two options to get involved in the SIC construction: (1) to co-build several programs such as several constellations of satellites, a comprehensive Earth observation system and several research projects;⁴⁶ and (2) to utilize its training and education center to carry out training programs concerning space information technological application, therefore to cultivate qualified personnel to serve the SIC construction.⁴⁷ Likewise, the principles concerning "co-building" and "co-sharing" are equally applied to APSCO's activities in developing the SIC programs.

When acting as the co-builder of the relevant SIC programs, how to ensure achieving the "co-sharing" purpose under the legal framework of APSCO is questionable. To be specific, APSCO is encouraged to construct several programs together with the SIC sponsors, while according to APSCO Convention, the following procedures are necessary to be observed: for the first step, basic or optional programs can be developed among the APSCO member states, thereafter, the completed APSCO programs can be combined with the SIC project. From this perspective, legal tensions are probably to be caused between the APSCO member states who have financially contributed to the APSCO's SIC-related programs and the other B&R countries that will use the SIC products. Pursuant to the APSCO Convention, the organization is responsible for making its facilities to any member state that requests for using them, and the Council is required to formulate guidelines and procedure as well as practical arrangements under which those facilities will be made available to the member state.⁴⁸ Thereby, the programs carried out

46 The programs are relating to a series of neotype satellite systems' R&D, for example, telecommunication satellites with multi-functions and data acquisition satellites constellations. See: *supra* note no. 44, the part concerning main targets description of the B&R-SIC.

47 *Ibid.*, the part of organizational guarantee of the B&R-SIC.

48 Art. 26 of the APSCO Convention.

under the APSCO framework are only applicable to its member states, after combining in the SIC project, how to coordinate the relationship between the APSCO member states and the other B&R countries is rather considerable, especially, the non-member states of APSCO are probably have involved in the construction of other SIC project's parts.

Additionally, the APSCO member states themselves may also be trapped in an argument concerning the efficient performance of the "co-sharing" principle if they have financially invested in its basic or optional programs. APSCO Convention has stipulated that the members' benefits of financial contributions should be ensured by the "fair-return" principle. However, the emerged cooperation programs of APSCO were created primarily by China, and most contracts of these projects were awarded to Chinese corporations or relevant institutions. This, in turn, results in a minimal scale of financial contributions by the other APSCO member states. In this case, the cooperation programs of APSCO are more like China's assistance to the other member states, whereby to obtain political advantage for competing for the regional dominance of space cooperation. While for the other APSCO member states, since the cooperation programs mainly supported by China are enough to cover their limited capital inputs, they will not fuss about the effective performance of the "fair-return" principle. For a long time, the "fair-return" principle was not comprehensively regulated and effectively implemented under the APSCO framework, especially when comparing to its European counterpart, namely, the ESA. However, the B&R-SIC is known as a project in a large scale and will be constructed by relying on broad participation of all B&R countries; therefore, APSCO itself is necessary to improve the performance of the "fair-return" principle to guarantee the other member states' motivation in investing relevant programs.

When providing services to the SIC construction, APSCO's challenges in legal aspect are also visible. At the APSCO's 5th administrative heads meeting, some delegations have realized the necessity to commercialize the APSCO's service to expand its cooperative scale to achieve the industrial policy targets.⁴⁹ The Chinese "Guideline" of B&R-SIC construction indicates that APSCO is possible to act as a service provider in fields of education and training. Considering that the B&R-SIC is known as a complicated program constituted by many space systems, APSCO's opportunities for offering services will not be limited to the education and training fields. APSCO Convention addresses that the income obtained from services offering to the others is capable of constituting the organization's source of finance, but so far, no legal regime has been made to manage the service providing business and its income, this will bring legal risks following the deep coordination

49 Iranian Space Agency, Proposal for Establishment of ssubsidiary Institute for the APSCO, Agenda no. 6, the 5th Administration Heads Meeting, 14-16, January 2013, Beijing, China, pp. 1-30.

between APSCO and the B&R-SIC sponsor with respect to services providing businesses.

For responding to the legal challenges mentioned above, measures of improvement are required to be taken.

5. Response Measures

This paper emphasizes the changes brought by the new development of regional and global events to Asian space cooperation. The main space powers in Asia will sustain their competition on dominating regional space cooperation for a long time, and the steps have been taken by Japan, China or even India have proved this estimation. The B&R Initiative offers opportunities to China for gaining an advantage in this competition, but the legal mechanisms in current are inappropriate, measures of improvement are needed.

5.1. To Improve National Space Legislation in China

The significance of Chinese national space legislation to constructing the SIC, as well as for China to dominate Asian cooperation in space in the B&R context has been demonstrated above. For improving the national space legislation of China, the proposal contained in the Chinese 2016 “White Paper” is demanded to be taken as a reference.

The 2016 “White Paper” manifests the necessity to accelerate the formulation of a space law system, and following laws (regulations) are proposed to be created, studied or improved: (1) to legislate a national space law as a center to govern the space industry; (2) to study and formulate regulations on space data and their application management, the management of the export of astronautic products and technologies; and (3) to improve regulations on permits for space launch objects and registration of space objects, etc.⁵⁰ A law system is recommended to be formulated instead of only enacting only one Space Act, for responding to the legal challenges brought by the B&R-SIC construction, the following aspects should be particularly focused on:

5.1.1. Fundamental Principles that Should be Contained in the Space Act

The fundamental principle for facilitating private space activities is necessary to be contained in the Space Act. The 2016 “White Paper” has already outlined several basic principles that should be complied with in space affairs. Among which, the wording concerning “coordinated development” is desirable for discussing. This principle indicates two aspects of coordination, and one is referring to space activities, the other is about the participants. For

50 Part IV- Policies and Measures for Development, title 5- Relevant legislative work strengthened, China’s Space Activities in 2016.

space activities, the “White Paper” recommends an allocation of resources under an overall plan of the state, and to achieve the comprehensive development of space science, technologies and applications thereof.⁵¹ For space participants, the 2016 policy mentions the encouragement of social forces’ involvement.⁵² This is a signal of supporting space privatization. Whereas space commercialization and privatization are of great relevance to B&R space programs growth, this principle needs to be confirmed in the Space Act and should be further implemented in the other regulations of the Chinese space law system.

Another basic principle must be considered is relating to the encouragement of international cooperation. The construction of the B&R-SIC insists a co-building philosophy, and this indicates the demand for developing cooperative activities. As the sponsor of B&R and the SIC (also including other B&R space programs in the future), China needs to take the legal principle of “promoting space cooperation” in consideration when enacting domestic space law. The 2016 “White Paper” has stipulated an “open development” principle, which confirms the possibility of applying this norm in the future Space Act. The matter that should be emphasized is how to perform such a principle effectively in the context of promoting space commercialization and privatization. This should be left to the specific regulations of the legal system to concern.

5.1.2. Specific Regulations for Implementing the Space Act

The formulation of regulations on space data and their application management, the management of the export of astronautic products and technologies⁵³ are put forward in the 2016 “White Paper”. In progressing the SIC, Chinese enterprises will be largely figured as space information and other space-related products’ suppliers. Thus, the regulations concerning space data and astronautic products and technologies export control could be reliable. Numerous complicated issues must be noticed when drafting these regulations. But the critical point is shown as the coordination between national security and these commercial actions. Several national practices are available as references.⁵⁴ A situation to China must be mentioned is that she gets no membership of either international export control mechanism, this is a difficulty that China should get over if she pursues commercial space cooperation all primary B&R members are involved.

51 Part I, Purposes, Vision and Principles of Development, China’s Space Activities in 2016.

52 Ibid.

53 Ibid.

54 For example, the U.S., for specific analysis please see: James A. Vedda, Space Commerce, in Eligar Sadeh ed., *Space Politics and Policy: An Evolutionary Perspective*, Kluwer Academic Publishers 2002, pp. 216-220.

5.2. To Improve Regional Mechanism to Satisfy the B&R Needs

APSCO, which was initially acting as China's platform to compete with the other space powers in this region, finds its position in progressing B&R space program which is known as the SIC at the present stage. For responding to the legal challenges, the following improvements are necessary to be made:

5.2.1. To Improve Legal regime for Ensuring the Achievement of the "Co-Sharing" Principle

The co-sharing principle is of relevance when APSCO involving in the B&R space programs as a co-builder. And measures of improvement are recommended to be taken in the following aspects:

Firstly, APSCO is required to conclude an agreement with the SIC sponsor to clarify the rights and obligations when the other non-members of APSCO are applying APSCO's part of the SIC program. In the present legal framework, only APSCO members are guaranteed by the organization to utilize its facilities, and non-member states are not mentioned. But in practices, APSCO's products are possible to be provided to other states for the purpose of managing common events, for example, the major disaster mitigation etc.⁵⁵ The B&R-SIC should be a permanent program, decision-making based on a case by case rule is inappropriate; therefore, stable legal arrangements are needed. On the contrary, the non-members of APSCO may also have contributed to constructing several SIC projects, the APSCO members' rights and obligations to these projects need to be addressed in the same way.

Secondly, APSCO itself need to do modifying jobs to meet the demands of the "co-sharing" principle. The "fair-return" principle should be performed efficiently by formulating legal documents. Comparing to the most mature regional space cooperation organization, i.e. the ESA, APSCO has enacted rather limited rules to ensure the achievement of the "fair-return" coefficient.⁵⁶ It is recommended that a series of legal documents should be created in the APSCO Convention framework, to ensure that all members' financial contributions can be returned in a rational coefficient.

5.2.2. Legal Arrangements When APSCO Acting as a Service Provider

Considering that the B&R-SIC is known as a complicated program constituted by many space systems, APSCO's opportunities for providing services will not be limited to the education and training fields. Since the commercialization of the service is of benefit to achieving its industrial policy, it is recommended that the APSCO consider the formulation of a stable legal regime for regulating.

55 Mingyan Nie, *Legal Framework and Basis for the Establishment of Space Cooperation in Asia*, pp. 192-193.

56 Art. IV (1), (3) of Annex V of the ESA Convention.

6. Conclusion

The B&R was initially entitled as a global “strategy”, after that, an official title of “initiative” was formally confirmed. This change indicates the Chinese attitude to the whole B&R proposal and is also applicable to space activities. As the primary platform for China to compete with its Asian rivals in space cooperation affairs, APSCO initially focused much more on political benefits, and Chinese advanced technologies afford such a role of APSCO. Following the development of the B&R Initiative, China, as well as its sponsored regional space cooperation entity, turn their eyes to commercial activities, the SIC is appropriate to be taken as a typical example. However, for avoiding the previous dilemmas, the improvement of the existing legal framework is desirable. And measures are demanded to be taken on the domestic and regional level. As the sponsor and major builder of SIC, China should approach its national space regulations to accommodate the potential large-scale multilateral cooperation in space affairs and businesses. Furthermore, as the important co-builder and services provider of the B&R space programs, APSCO is demanded to negotiate agreements with the SIC sponsor, and at the meanwhile to improve its legal mechanism to ensure the achievement of the co-sharing target.