

# **Space Cooperation in Asia: a Mystery**

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## **Abstract**

The status quo of space cooperation in Asia presents a bifurcation structure, shaped by the two distinctive cooperation initiatives APSCO and APRSAF led by China and Japan respectively. India has recently joined the club by proposing to use SAARC as the platform to carry out space cooperation among the South Asian countries. The coexistence of these sub-regional organizations and forums has been largely articulated under the theme of Asian space race. This article examines the outcomes and limitations of these initiatives, taking into account of the pursuit of soft power by China, Japan and India. After exploring the interactions between APSCO and APRSAF initiatives, this paper argues that due to the disparities in organization structure, it is unfeasible for these initiatives to carry out substantial cooperation with each other. The sub-regionalization and fragmentation of space cooperation in Asia is likely to be magnified, if no cooperation agreement is reached among China, India and Japan.

## **1. Introduction**

Just like international cooperation in any other field, space cooperation can be undertaken from the bilateral, regional and multilateral level. Regional space cooperation takes advantage of geographical proximity among the states concerned so that they could pool the resources to build space infrastructure and make full use of the benefits derived from space applications. With regard to the initiative of setting up regional cooperative mechanism, there are examples like the ESA (European Space Agency) that takes advantage of the European Union integration.<sup>1</sup> In Asia, the Asia-Pacific region in particular, there are two established initiatives, the Asia-Pacific Space Cooperation Organization (APSCO) and the Asia-Pacific Regional Space Agency Forum (APRSAF). Both of them are often seen as the tools for China and Japan to accumulate power and influence over the neighboring states.<sup>2</sup> There are emerging initiatives promoted by the South Asian Association for Regional

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<sup>1</sup> The relationship among ESA, the EU and the member states is still evolving so that the space competences of ESA and the EU are open to debate.

<sup>2</sup> Asif A. Siddiqi. An Asian space race, hype or reality? Roger Handberg, China's space strategy and policy evolution. in Eligar Sadeh, editors. Space strategy in the 21st century: theory and policy. New York: Routledge; 2013, p 259. Kazuto Suzuki. The contest for leadership in East Asia: Japanese and Chinese approaches to outer space. Space Policy, 2013; 29(2): 99-106.

Cooperation (SAARC) and the Association of Southeast Asian Nations (ASEAN). As one scholar has summarized, space cooperation in Asia presents a bifurcated structure, “the absence of substantive cooperation among the four major Asia space programs themselves (China, India, South Korea, and Japan),” and “the presence of strong contacts with outside provides for the self-interested purpose of building political and economic influence.”<sup>3</sup> The tension is not softened in the cooperation of civil space activities, since “space cooperation has been accorded a position at the top of the national agenda for certain countries thanks to the high political profile associated with space activities.”<sup>4</sup>

Both APSCO and APRSAF focus on the aspect of space applications. The AP-MCSTA (Multilateral Cooperation on Space Technology Applications Initiative in the Asia-Pacific Region) is the embryonic form of APSCO. It was a MoU (Memorandum of Understanding) signed between China, Pakistan and Thailand in 1992 and organized conferences from 1992 to 2003. For the purpose of institutionalizing the cooperation mechanism and coordinating the development of space programs, the AP-MCSTA secretariat was established in 2001.<sup>5</sup> The APSCO Convention was signed in 2005, with the organization officially inaugurated in 2008.<sup>6</sup> Now it has 9 signatory States, including Bangladesh, China, Indonesia, Iran, Mongolia, Pakistan, Peru, Thailand, and Turkey.<sup>7</sup> Though the Republic of Korea participated in AP-MCSTA and hosted the third AP-MCSTA conference, it eventually did not participate APSCO. Due to the strict treaty-based cooperation framework of APSCO, it will take a long time to negotiate and take in new members. The APSCO Convention provides for the specific rules on financial arrangements, intellectual property rights, and dispute settlement. It provides convenience for states to carry out space projects of common interests; they jointly contribute fund and human resources and assume risks. The focus of APSCO includes the building up of space hardware, education and training in space technology and its applications. The programs considered so far include the spatial data sharing service platform and its application pilot project, the applied high-resolution satellite project, the navigation project, research on atmospheric effect, the Earth-based optic space target observation network, communication satellite application project, telecommunication satellite project. The latter two are not confirmed by the member states at current stage.

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<sup>3</sup> James Clay Moltz. *Asia's space race: national motivations, regional rivalries, and international risks*. New York: Columbia University Press; 2012, p 33.

<sup>4</sup> Nicolas Peter. The changing geopolitics of space activities. *Space Policy*, 2006; 22(2): 100–109.

<sup>5</sup> Convention history, APSCO website.

<sup>6</sup> The preparatory work for the APSCO Convention was started in 2001 and the Convention was finalized in late 2003.

<sup>7</sup> Indonesia signed the protocol but did not ratify it yet. So it is not a full member of APSCO.

In contrast to APSCO, APRSAF is not driven by member state. It is a forum that is not institutionalized but having discussions and meetings on a regular basis. It was initiated by the Japanese Aerospace Exploration Agency (JAXA) and the Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT) in 1993. It is open to governmental bodies, non-governmental entities, and international organizations. Since 2001, the annual meeting has been held by countries other than Japan.<sup>8</sup> The 20<sup>th</sup> session in 2013 attracted more than 400 participants from 28 countries and 8 international organizations.<sup>9</sup> APRSAF has set up four working groups, earth observation, communication satellite applications, space education and awareness, and space environment utilization. The cooperation projects deal with disaster management, space applications for environmental issues, climate change, utilization of the international space station, and education.

The Center for Space Science and Technology Education in Asia and the Pacific (CSSTEAP) affiliated with the United Nations was set up to enhance space science and technology education in the developing countries in accordance with the UN General Assembly Resolution.<sup>10</sup> India became the host country as nominated by the United Nations Office of Outer Space Affairs. It provides training opportunities for scientists and engineers from participating states in operating remote sensing and meteorology systems.<sup>11</sup> In comparison to APSCO and APRSAF, it focuses only on the education and training. India is a regular participant to APRSAF. Recently India has committed to use the platform of the South Asian Association for Regional Cooperation (SAARC)<sup>12</sup> and promote the use of Indian Regional Navigational Satellite System (IRNSS). ASEAN also has the plan to develop programs of space technology application.

The bifurcated structure of Asian space cooperation has captured much attention in the scholarship, with the implications often overstated. The central issue of the paper is, to

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<sup>8</sup> Countries that have held APRSAF sessions include Malaysia, Korea, Thailand, Australia, Japan, Indonesia, India, Vietnam, and Singapore.

<sup>9</sup> Overview of APRSAF-20, <[http://www.aprsaf.org/annual\\_meetings/aprsaf20/overview.php](http://www.aprsaf.org/annual_meetings/aprsaf20/overview.php)>

<sup>10</sup> CSSTEAP website. The background is “In response to the UN General Assembly Resolution (45/72 of 11th December, 1990) endorsing the recommendations of UNISPACE-82, the United Nations Office of Outer Space Affairs (UN-OOSA) prepared a project document (A/AC.105/534) envisaging the establishment of Centers for Space Science and Technology Education in the developing countries.”

<sup>11</sup> Participants of CSSTEAP includes Republic of Korea, Democratic People’s Republic of China, Mongolia, Indonesia, Malaysia, Myanmar, Philippines, Thailand, India, Nepal, Sri Lanka, Kazakhstan, Kyrgyzstan, Turkmenistan, Nauru. CSSTEAP website.

<sup>12</sup> SAARC has eight members: Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka. The nations with observer status include the United States, Australia, Japan, and China. Of particular note is, in spite of the India-Pakistan rivalry over border issues and other security-related issues, Pakistan is the member of SAARC.

what extent the coexistence of several initiatives is a reasonable reality and to what extent the interactions between them can be formalized. In section 2 it discusses the outcomes and limitations of APSCO, APRSAF and SAARC. In section 3, it explores the role of space diplomacy in dictating different cooperation schemes with reference to the national space policies of China, India and Japan. In section 4, it takes the interaction between APSCO and APRSAF as an example and points out the difficulty in integrating the efforts of these initiatives. In section 5, it considers the feasibility of the proposal for an Asian space organization. This paper concludes that the pursuit of regional cooperation organization has to be premised upon the cooperation among China, India and Japan in the first place.

## **2. Evaluation of the Emerged and Emerging Cooperation Initiatives**

APSCO has achieved much success. The shortcoming is, regarding the programs that call for each participant's endowment of space segment, ground segment, and financial resource, the progress is not made as smoothly as expected. The Small Multi Mission Satellite (SMMS) project of APSCO is inherited from AP-MCSTA and dedicated to earth observation and disaster monitoring.<sup>13</sup> It is a joint effort to build a regional constellation system of monitoring environmental changes and natural disasters in Asia-Pacific Region.<sup>14</sup> The space segment of the SMMS consists of eleven satellites; three of them will be launched in the first stage, the remaining eight (four optical satellites and four SAR satellites) to be launched in the second stage.<sup>15</sup> The operation of the SMMS project by APSCO bears many similarities to the ESA's approach in running space programs.<sup>16</sup> However, the original plan to jointly develop the SMMS satellites by China and Thailand did not work out well; and China provided the satellite HJ-1A to APSCO.<sup>17</sup> At current stage China is solely responsible for the SMMS operations. The Asia-Pacific Optical Satellite Observation System (APOSOS) is a project led by China and Turkey and aims to develop a space observation network consisting of optical trackers.<sup>18</sup> The network will be used "for a collision avoidance

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<sup>13</sup> China, Iran, Republic of Korea, Mongolia, Pakistan and Thailand signed the MOU to develop SMMS project in 1998 with Bangladesh joined in 1999. The satellites will be jointly invested and manufactured by China and Thailand. See APSCO data policy and regulations on SMMS, APSCO website.

<sup>14</sup> SMMS for Environmental Monitoring and Disaster Management, APSCO website.

<sup>15</sup> *Id.*

<sup>16</sup> Asif Siddiqi, *supra* note 2.

<sup>17</sup> HJ-A/B of Environments and Disasters Monitoring Microsatellite Constellation Delivered to the Users, CNSA website. The satellite was built by DFH Satellite Corporation of China and was launched in 2008 at Taiyuan Satellite Launch Center. It constitutes the Environment and Disaster Monitoring Microsatellite Constellation. It will achieve the large-area, all-weather, all-time dynamic monitoring of environment and disasters. HJ-1A/B will provide disaster management data to the world through UNSPIDER.

<sup>18</sup> APSCO website. <<http://www.apsco.int/program.asp?LinkNameW1=APOSOS&LinkCodeN=83>> (last visited 5 October 2012).

early warning service in the future.”<sup>19</sup> The project has two successive goals, the first one is to build capability of tracking space objects and space debris in LEO; the second one is to develop considerable ability for observing MEO and GEO.<sup>20</sup> The optical trackers have been placed in the member states except for Bangladesh. The project is moving forward at a slow pace. So far only China has certain observation capability. Other participating States have encountered technical and financial difficulties in building new facilities.<sup>21</sup>

In terms of APRSAF, in spite of the wide participation, it is blamed by the LDP (Liberal Democratic Party) politicians and the participants of APRSAF for being “focused only on technical and educational aspects of the space cooperation program only among different space agencies” and “not supporting the needs of developing countries, such as the transfer of technology and collaborative projects on space hardware, as APSCO does.”<sup>22</sup> This accusation is not fair since on one hand, the flexibility of APRSAF determines the depth of cooperation; on the other hand, JAXA was faced with difficulties in technology transfer.<sup>23</sup> JAXA has tried to address these concerns and launched the Sentinel program and the Space Application for Environment program, most importantly, the Satellite Technology for the Asia-Pacific Region (STAR) program.<sup>24</sup> According to the development agenda, the current working groups on communication satellite application will be developed into a space technology working group, expecting new countries which are interested in space technology, as well as the developed and emerging countries.<sup>25</sup> As a matter of fact, APRSAF has decided to adjust the focus of the working groups from technology-oriented into a mixture of technology-oriented and solution-oriented.<sup>26</sup> Even though with all these efforts, Minoru Suzuki noted that, “Japan’s role is still marginal in APRSAF”, as exemplified by the weak capability to provide timely data with wide coverage due to the lack of sufficient earth observation satellites to develop a constellation system.<sup>27</sup> More efforts are needed to carry out the programs concerning space development and applications

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<sup>19</sup> *Id.*

<sup>20</sup> *Id.*

<sup>21</sup> Shen Ming. Progress on APOSOS. 2012 Beijing Space Sustainability Conference. 8 November 2012. <[http://swfound.org/media/95032/Shen-Progress\\_APOSOS-Nov2012.pdf](http://swfound.org/media/95032/Shen-Progress_APOSOS-Nov2012.pdf)>

<sup>22</sup> Kazuto Suzuki, *supra* note 2.

Kazuto Suzuki, Transforming Japan's Space Policy-making. *Space Policy* 2007; 23(2): 73-80.

<sup>23</sup> *Cf.* section III.

<sup>24</sup> Kazuto Suzuki, *supra* note 2.

Minoru Suzuki, Toward the Establishment of Asia and the Pacific space agency. *Journal of Policy Studies* (Kwansei Gakuin University) 34 (March 2010): 57-62.

<sup>25</sup> Akiko Suzuki. APRSAF activity in the Asia-Pacific region for the next decade, Presentation at the 57<sup>th</sup> Session of the Committee on the Peaceful Uses of Outer Space, Vienna, 11-20 June 2014.

<sup>26</sup> APRSAF newsletter 18.

<sup>27</sup> Minoru Suzuki, *supra* note 24.

in Asia; JAXA should devote more resources to enhance the space capability in tackling disaster management and promote activities of the Asian Disaster Reduction Center (ADRC).<sup>28</sup> Another noteworthy point of APRSAF is the growing attention to space sustainability and space security and the coordination of regional space policy; it held workshop on space security.

The economic and political integration created by ASEAN<sup>29</sup> does not produce an influential space organization affiliated with ASEAN. In recent years, it picked up the interests in space affairs and held the ASEAN security workshop.<sup>30</sup> A scholar proposed that the member states should develop indigenous space technology, reduce the reliance on the non-ASEAN space-faring nations, and carry out collaborative research, so as to eliminate the dependency on non-member states and put the space applications projects into practice as anticipated by 2020.<sup>31</sup> The next step would be to establish a capacity-building space organization within ASEAN.<sup>32</sup> It is a good idea but a long-term thing to use ASEAN as the platform to enhance space cooperation in Southeast Asia. It is doubtful whether there is sufficient solidarity within ASEAN members in jointly developing space capabilities. The member states such as Thailand and Indonesia have already participated APSCO. Other states have participated APRSAF.

By contrast, the SAARC has more potential to bring out space programs for two reasons: (i) as a spacefaring nation, India will make substantial contributions to the SAARC's space capabilities; (ii) most of the SAARC members have less exposure to international space cooperation and are interested in easier access to space technology and applications. The Indian Prime Minister Modi puts forward the need to share India's space expertise with its neighbors and proposed to develop a "SAARC satellite" for the region and spread the coverage of IRNSS.<sup>33</sup> At currently stage, India is developing an astronomy satellite; it might as well invite the SAARC members to the project.<sup>34</sup> It is also considering building a spaceport with Sri Lanka.<sup>35</sup>

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<sup>28</sup> *Id.*

<sup>29</sup> ASEAN members include Indonesia, Malaysia, the Philippines, Singapore, Thailand, Vietnam, Brunei, Laos, Myanmar, and Cambodia.

<sup>30</sup> Space technology application is one of ten scientific and technological programs to be developed by ASEAN in the future.

<sup>31</sup> Chukeat Noichim. Promoting ASEAN space cooperation. *Space Policy*, 2008; 24(1):10-12.

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

<sup>33</sup> Modi asks Indian space scientists to develop Saarc satellite, <<http://timesofindia.indiatimes.com/india/Modi-asks-Indian-space-scientists-to-develop-Saarc-satellite/articleshow/37543526.cms>>

<sup>34</sup> Ajey Lele. India's SAARC satellite proposal: a boost to a multilateral space agenda.

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

### 3. The Space Diplomacy Dimension of Regional Space Cooperation

The co-existence of different initiatives reflects the underlined complexity in the competition and cooperation in the space field. The rivalry between different cooperation frameworks corresponds with traditional political lines that there has almost been no cooperation history among the leading space players in Asia, “there are no major, region wide projects among Asia’s leading space players in the scientific or commercial sectors and no significant political, diplomatic, or military talks on space among the major capitals.”<sup>36</sup> Meanwhile, the major space players proactively seek cooperation with states outside Asia that share diplomatic consensus and have similar goals in the space missions. States are motivated to prioritize space-related matters in the national agenda, e.g. space cooperation, considering the political outcomes produced by space activities.<sup>37</sup> In the debate about whether China and Japan are engaging in a contest for leadership in East Asia, Kazuto Suzuki points out that China and Japan are competing for leadership in the area of international services or public goods, using APSCO and APRSAF as the tool to provide technologies and services for developing countries.<sup>38</sup> They are “playing the same game with the same rules,”<sup>39</sup> the aim is “not to beat each other in space, but to utilize their space capability for diplomatic activities.”<sup>40</sup> China and Japan are using its space assets to support the program of APSCO and APRSAF respectively. For instance, the Sentinel Asia project of APRSAF functions through Japan’s Advanced Land Observing Satellite “Daichi”, the utilization of the Japanese Experimental Module “Kibo”. In the case of APSCO, China made substantial contributions to the project of APOSOS and SMMS.

China does not have a grand space strategy so that space policies are often inferred from the space behaviors, the statements made by high-level officials in diplomatic occasions, the white papers on space activities. According to the most recent white paper, China attaches much importance to regional space cooperation in the Asia-Pacific area.<sup>41</sup> There are different understandings as to China’s role in APSCO in relation to the limited membership of APSCO. APSCO is often seen as China’s implementation of the soft power approach, which is to use its space capabilities to gain

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<sup>36</sup> Moltz, *supra* note 3, p 33.

<sup>37</sup> Nicolas Peter, *supra* note 4.

<sup>38</sup> Kazuto Suzuki, *supra* note 2.

<sup>39</sup> *Id.*

<sup>40</sup> *Id.*

<sup>41</sup> Chinese space activities in 2011, “Emphasizing the regional space cooperation in the Asia-Pacific area, and supporting other regional space cooperation around the world. Reinforcing space cooperation with developing countries, and valuing space cooperation with developed countries.”

political leverage and influence over the targeting states.<sup>42</sup> It was even speculated that as the only spacefaring nation in the organization, China deliberately excluded other spacefaring nations in the region such as Japan and India in order to manipulate APSCO, which will override the equal partnership of the member states and the organization's autonomy.<sup>43</sup> Another often cited example is the inclusion of Iran and Pakistan that are undergoing sanctions and cannot obtain space technology elsewhere.<sup>44</sup> These accusations overlook the substance of the APSCO Convention. China's support of APSCO should not be isolated from the fact that it is also proactively cooperating with partners from other continents.<sup>45</sup> The programs carried out by ASPCO so far were proposed not elusively by China, but also other member states. They have gone through the feasibility study and discussions by the working groups. There was speculation that the APSCO programs would provide more launch opportunities for the Chinese launchers.<sup>46</sup> It is proved to be inaccurate. The CGWIC (China Great Wall Industrial Corporation) launched a communication satellite named PALAPA-D for Indonesia in 2009 and a communication satellite named 1R for Pakistan in 2011.<sup>47</sup> Both of them were commercial launches and did not take advantage of the partnership in APSCO to close the deal. With respect to the launching of satellites dedicated to APSCO programs, it is undoubted that the launching capability and lower cost of the CGWIC will smooth the progress of the relevant programs.<sup>48</sup>

On the part of Japan, it has realized the importance of international cooperation. Japan's Basic Space Plan has attached much importance to space diplomacy.<sup>49</sup> The role of APRSAF is summarized as follows, "Japan will establish a leadership by utilizing the leading role in the APRSAF and the position as the only participant of

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<sup>42</sup> Jaganath Sankaran. China-India space race: rhetoric or reality? Talk at Harvard South Asia center. February 26, 2014. See also Dwayne Day. It's not bragging if you do it. <<http://www.thespacereview.com/article/2418/1>>

<sup>43</sup> D.K.-W. Chen & S. Wan. Space cooperation in the Asia-Pacific: the story (or stories) of APSCO and APRSAF. In Proceedings of the 52nd colloquium on the law of outer space, pp 42-52.

<sup>44</sup> Kazuto Suzuki, interviewed by Peter Brown, in *Japan's next chapter in space begins*, <<http://www.worldsecuritynetwork.com/Japan/Brown-Peter/Japans-next-chapter-in-space-begins>>

<sup>45</sup> Asif Siddiqi, *supra* note 2.

<sup>46</sup> Kazuto Suzuki, *supra* note 2.

<sup>47</sup> The customers are the Indonesia Telecommunication Corporation and the Pakistan Space and Upper Atmosphere Research Commission (SUPARCO).

<sup>48</sup> CGWIC has conducted successful launches in the past year and became a strong competitor in the international commercial launch market.

<sup>49</sup> In the Basic Space Plan issued by the Strategic Headquarters for Space Policy in 2009, there is a subsection devoted to discuss the promotion of space diplomacy, which includes two interrelated parts: "space for diplomacy" and "the diplomacy for space". Promotion of "space for diplomacy" is described as follows, "All these prior experiences [engagement in international cooperation] and the contribution of Japan to the international society, including in disaster monitoring and space science are diplomatic assets which enhance Japan's international leverage and presence, as well as a source of its soft power." Promotion of "the Diplomacy for Space" is to seek support from partners and create favorable conditions for the space industry.

the International Space Station program in Asia.”<sup>50</sup> ARPSAF is also expected to change the cooperation approach of space agency centric and open up the ministerial-level cooperation in space science and technology.<sup>51</sup> The bureaucratic adjustment in terms of space-related matters has facilitated international space cooperation. Before 2012 JAXA played only a scientific role and was restricted in technology transfer.<sup>52</sup> Since 2012 the basic space law modified the mandate of JAXA so that it is able to carry space programs of dual use nature.<sup>53</sup> The Ministry of Foreign Affairs has set up an office of space to specifically deal with the diplomatic aspect of space activities; and it has played a constructive role in the ARF (ASEAN Regional Forum) space security workshop and the space security session at APRSAF-19.<sup>54</sup> MoFA contends that Japan should play a leading role in regional space cooperation, in the awake of the socio-economic benefits brought about by the development of space infrastructure in many developing countries in Asia.<sup>55</sup> In April 2014, JAXA signed partnership agreement with JICA (Japan International Cooperation Agency); this arrangement will combine JAXA’s aerospace technology with JICA’s expertise to solve challenges faced by developing countries and other global issues.<sup>56</sup>

Although India’s space policy concentrates very much on civil space applications, it does not show strong interests in playing a leading role in regional space cooperation until the recent years. In terms of bilateral cooperation, it has offered space-based services to the developing countries to meet diplomatic needs. It has provided remote sensing transmitters to Afghanistan.<sup>57</sup> India was partly pushed by China’s proactive bilateral cooperation with the neighboring states of India such as Sri Lanka, Bangladesh, Pakistan, and Thailand.<sup>58</sup> The Indian Prime Minister Modi has emphasized that it will contribute to build a peaceful and prosperous neighborhood by providing space-based services to the neighborhood; and he is determined to enhance

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<sup>50</sup> The Japanese Basic Space Plan.

<sup>51</sup> *Id.*

<sup>52</sup> Kazuto Suzuki, *supra* note 2.

<sup>53</sup> *Id.*

<sup>54</sup> *Id.*

<sup>55</sup> Genba Koichiro. Speech of the foreign minister: Japan’s efforts in the global agenda: implementing “full cast diplomacy” and expanding the frontiers of international cooperation. National Graduate Institute for Policy Studies (GRIPS). February 28, 2012.

<sup>56</sup> Signing of Partnership Agreement between JAXA and JICA, April 23, 2014, <[http://www.jica.go.jp/english/mobile/news/press/2014/140423\\_02.html](http://www.jica.go.jp/english/mobile/news/press/2014/140423_02.html)>

Reducing Emissions from Deforestation and Forest Degradation in developing countries; and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries.

<sup>57</sup> India’s Assistance Programme for Afghanistan’s Reconstruction <<http://eoi.gov.in/kabul/?0356?000>>

<sup>58</sup> Ananth Krishnan. China offers satellite system use to neighbours in strategic push. <<http://www.thehindu.com/news/international/world/article5508993.ece>>

the role of space diplomacy that was undervalued in previous administrations.<sup>59</sup> The success of APSCO provides India with further justifications for pursuing similar cooperation because India always views China as the competitor, though China does not think the same way. The attitude of the Indian observer toward APSCO is somewhat hostile, “from the SAARC point of view, such a body [APSCO] is not of much use.”<sup>60</sup> It is pointed out, although India is the only space player in SAARC, India should show full support to the equal partnership in developing joint projects, rather than dominate the decision-making.<sup>61</sup>

#### **4. Exemplification: Interactions between APSCO and APRSAF**

There is overlapping of membership and space projects among these cooperation initiatives. Some APSCO members also attend the annual session of APRSAF, and some members of SAARC belong to APSCO.<sup>62</sup> The door of APRSAF is open to APSCO, whose delegate has attended the meetings of APRSAF since 2010. The China National Space Administration (CNSA) participated APRSAF-17 and was encouraged by APRSAF to attend APRSAF-18.<sup>63</sup> There are also mutual visits between APSCO and JAXA. The visit to JAXA by APSCO’s delegate was kept low profile.<sup>64</sup> The Vice President of JAXA Yukihide Hayashi visited APSCO’s headquarters in Beijing in 2009. He raised a few points that had been approved by the Japanese government in advance: (i) the cooperation between APSCO and APRSAF should come first than competition and duplication; (ii) both parties should work to find common interests and foster cooperation therein.<sup>65</sup> The secretary-general Zhang Wei expressed the same willingness as to the cooperation between APSCO and APRSAF.<sup>66</sup> Albeit with the reciprocal friendliness, by far APSCO and APRSAF have not undertaken further discussions on the cooperation and coordination of the overlapping space projects.<sup>67</sup> It should be understood as indicators for encouraging China to proactively participate in APRSAF and Japan to get acquainted with APSCO, other than the cooperation between APSCO and APRSAF. In other words, the mutual visit is a way for China and Japan to get along with each other due to the political sensitiveness for the space

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<sup>59</sup> Vidya Sagar Reddy Avuthu. India’s space diplomacy.

<sup>60</sup> Ajey Lele. India’s SAARC satellite proposal: a boost to a multilateral space agenda. August 18, 2014. < <http://www.thespacereview.com/article/2579/1>>

<sup>61</sup> *Id.*

<sup>62</sup> Indonesia, Mongolia, and Thailand belong to APSCO and CSSTEAP. Pakistan belongs to both SAARC and APSCO.

<sup>63</sup> Aprsaf17, <[http://www.aprsaf.org/annual\\_meetings/aprsaf17/recommendation.php](http://www.aprsaf.org/annual_meetings/aprsaf17/recommendation.php)>

<sup>64</sup> Kazuto Suzuki, *supra* note 2. According to Suzuki, “A delegation from the APSCO secretariat visited JAXA as a part of its global tour and demonstrated its achievement.” This visit was not reported by either APSCO or JAXA.

<sup>65</sup> APSCO meet with JAXA, APSCO website.

<sup>66</sup> *Id.*

<sup>67</sup> Kazuto Suzuki, *supra* note 2.

agencies of two countries to approach each other directly. As a matter of fact, there is no much room to explore after APSCO becoming a regular participant of APRSAF. APRSAF cannot become an observer of APSCO since only will APSCO grant the Observer's status to the State Members of the United Nations or the international organizations engaging in space activities.<sup>68</sup>

The interaction between APRSAF and APSCO takes place in an informal way. First, APRSAF has learned a lesson from APSCO in initiating the small satellite program.<sup>69</sup> Second, several Asian nations have participated both APSCO and APRSAF. Take Thailand as an example, it is a member of APSCO, also a proactive participant to APRSAF. It used the hosting of APRSAF-16 as the opportunity and introduced its progress in Theos ground station, space operations, data development and education. GISTDA expressed the hope to be involved in the STAR program and build micro satellites with the facilities supported by APRSAF.<sup>70</sup>

## **5. Prospect of a Regional Space Cooperation Organization**

Advantages of having more than cooperation framework in a particular region is that, states with modest space capabilities can find themselves accepted by one particular framework or another. It helps to reduce the disparity between space capable states and developing states. However, the potential of space applications will not be fully exploited owing to the sub-regionalization reality. It benefits all the countries in this region if the regional capabilities can be formed in tsunami prediction, disaster relief, and climate monitoring operations. A scholar pointed out, all the states in the Pacific Rim region have serious concerns over disaster management and are willing to make concerted efforts.<sup>71</sup> It is noteworthy that Japan has been providing Earth observation data to China for a long time out of humanitarian considerations; the recent representative case is the Sichuan earthquake in 2008. Efforts should be made in building regional capabilities in Earth observation. Many Asian countries possess Earth observation systems, including India, China, Malaysia, Thailand, Singapore, Vietnam, Taiwan, South Korea and Japan.<sup>72</sup> Only China and Japan are able to process Earth observation data.<sup>73</sup> APSCO and APRSAF provide the expediency for

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<sup>68</sup> APSCO Convention, Article 9 (6).

<sup>69</sup> The STAR program was proposed by JAXA. Japan, Malaysia, Thailand, India, South Korea, Indonesia and Vietnam have agreed to develop small satellites.

<sup>70</sup> Interview with Dr. Thongchai Charupatt, Advisor, Geo-Informatics and Space Technology Development Agency (GISTDA). 27 January, 2010. APRSAF-16 <[http://www.aprsaf.org/interviews\\_features/interviews\\_2010/40.php](http://www.aprsaf.org/interviews_features/interviews_2010/40.php)>

<sup>71</sup> Joan Johnson-Freese, interviewed by Peter J Brown, in China fears India-Japan Space alliance. [http://www.atimes.com/atimes/South\\_Asia/JK12Df02.html](http://www.atimes.com/atimes/South_Asia/JK12Df02.html)

<sup>72</sup> Nicolas Peter, *supra* note 4.

<sup>73</sup> Kazuto Suzuki, in Peter Brown, *supra* note 44.

China and Japan to share data with the partner States. It is beneficial for the data receiving states because they can obtain abundant sources of data in cases of big disasters.<sup>74</sup> Yet the lack of regional capabilities is counterproductive since prediction is equally important as post-disaster management.

The conceptualization of a regional cooperation organization will be meaningless if no considerations are given to the bilateral cooperation between the major space nations in this region. There is suspicion as to China's willingness to invite Japan into APSCO, "China's present status with regard to most of its current partners is clearly that of leader - a position easily maintained when the relevant partners are significantly weaker. Adding Japan to APSCO would change the dynamics since Japan if so motivated can compete with China with regards to space technologies and their applications."<sup>75</sup> This point of view fails to see that the mutual consent is the bedrock of space cooperation. Hypothetically, inviting the major space-faring nations into APSCO will be subject to the bilateral cooperation agreement between China and the State in the first place. Afterwards, it will go through the decision making of the APSCO Council. Therefore, the ice is to be broken with China and Japan reaching cooperation agreement. The rationale is also applicable to the possible participation in APSCO by India.

India and Japan have more dialogues in space cooperation. The Indian Space Research Organization (ISRO) and JAXA signed a MoU in 2005 for cooperation in many areas including lunar missions and X-ray astronomy, satellite remote sensing, satellite communication, and disaster management support. This MoU was given substance in 2008 in terms of disaster management. Yet Joan Johnson-Freese does not think that India and Japan will develop a close space relationship due to the time-consuming decision making process of Japan.<sup>76</sup> India and Japan recently also decided to further their cooperation through their participation to APRSAF.<sup>77</sup> China and India recently signed a MoU for space cooperation, which is the outcome of the Chinese President, Xi Jinping's visit to India. Though it is politically challenging to materialize this MoU, it is a breakthrough and suggests the positive aspect of regional space cooperation in the future.

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<sup>74</sup> *Id.*

<sup>75</sup> Roger Handberg, Zhen li. Chinese space policy: a study in domestic and international politics. New York: Routledge; 2007. 60-61.

<sup>76</sup> Joan Johnson-Freese, interviewed by Peter J Brown, *supra* note 71.

<sup>77</sup> India, Japan to boost cooperation in science and technology.

<[http://www.business-standard.com/article/news-ani/india-japan-to-boost-cooperation-in-science-and-technology-114090101306\\_1.html](http://www.business-standard.com/article/news-ani/india-japan-to-boost-cooperation-in-science-and-technology-114090101306_1.html)>

## **6. Conclusion**

The coexistence of several cooperation initiatives in Asia basically reflects the political reality in this region. Civil space cooperation is not overshadowed by considerations of space security, but the pursuit of regional leadership between China and Japan, with India joining the club recently. The commonality among the initiatives is, they to large extent rely on the leading country's contribution of their space expertise and space assets to the organization or forum. Therefore, on one hand, these sub-regional initiatives meet certain diplomatic needs of the leading countries; on the other hand, the developing countries get access to space applications and services in one way or another by participating in APSCO, APRSAF or SAARC. Albeit with the overlapping in space projects and dual participation by several States, it is difficult for these initiatives to cooperate with each other and integrate their efforts due to the disparities in the organization structure, as exemplified by the low-profile interaction between APSCO and APRSAF. The substantial regional cooperation will await the bilateral agreement among China, India and Japan.