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SPACE COOPERATION IN THE ASIA-PACIFIC:
THE STORY (OR STORIES) OF APSCO AND APRSAF

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ABSTRACT

Space cooperation promotes dialogue, understanding and means of confidence building, and international space law plays an instrumental role in facilitating this effort. In recent years, two initiatives have begun in the Asia-Pacific to further space cooperation. In 1993, Japan initiated cooperation under the Asia-Pacific Regional Space Agency Forum (APRSAF). To date, numerous meetings and cooperative programmes have been facilitated at the space agency level, and exchanges between various space-faring and non-spacefaring States have taken place on a regular basis. The establishment of the China-led Asia-Pacific Space Cooperation Organization (APSCO) in 2008 is the latest step towards the institutionalisation of regional space activities. Admitted, APSCO has a more entrenched and legal structure as compared to the APRSAF, however a comparison between the two reveals a number of similarities. This paper seeks to analyse the objectives and rationale behind APSCO and APRSAF from the legal and political perspective, and examine whether there is a duplication of objectives and efforts in the region. It further analyses whether a non-legally binding forum or an institutionalised space organisation is best for the space cooperation efforts of the Asia Pacific region in the future.

INTERNATIONAL COOPERATION
AND SPACE LAW

International space law plays a transformative role in fostering international cooperation. Various treaties and declarations underline that activities in the realm of outer space subscribe to common values and interests “which cannot be protected or promoted unilaterally, but only by a common effort”.¹ Such common interests and values include using outer space solely for peaceful purposes and the recognition that there is a universal right to access and use space for all.² Manfred Lachs believed international

cooperation to be “essential” to ensure the use of space in a responsible manner, and the submission of States’ conduct to the rule of law.³ Space law thus does not merely regulate of the activities of States, but contains principles and rules that ensure all space activities promote benefits to the international community and human kind as a whole.⁴

Since the launch of Sputnik, and thereby of the space era, the significance of international cooperation in this field of human activity has been repeatedly reinforced.⁵ Within the United Nations, the Committee on the Peaceful Uses of Outer Space (UNCOPUOS) was established to facilitate exchanges on

activities relating the peaceful uses of outer space. The 1963 Declaration of Legal Principles was early evidence of the anticipation that international organisations would be involved in space activities.⁶ The five space law treaties further foresaw the establishment of intergovernmental organisations that have the conduct of outer space activities as their mandate.

Much like other spheres of activities that cross sovereign boundaries, the regulation of outer space can best be founded and strengthened through institutional mechanisms. International institutional law recognises that international organisations have legal personality, in that they have rights and obligations to act independent of its constituent members. This means that international organisations are better suited to pursue interests that rise above the individual interests of any one State.⁷ Provisions of the Outer Space Treaty [OST] are applicable to the activities of States as well as activities conducted in the framework of an international organisation.⁸ This applies albeit an international organisation cannot itself be directly a party to the OST. The other treaties on the registration of space objects, activities on the Moon, liability matters, and the rescue and return of astronauts stipulate that an international organisation can shoulder the rights and responsibilities of a space law treaty by issuing a Declaration of Acceptance.⁹ Further, States member to the organisation are obliged to take “all appropriate steps to ensure that the organization” makes such a declaration¹⁰

At the international level, despite the lack of “police force”, the legal framework of a series of international and regional institutions “exert compliance” to international space law.¹¹

Organisations such as the International Maritime Satellite Organization (INMARSAT) or the International Telecommunications Union (ITU) have successfully coordinated and regulated the use of space technology and limited orbital resources in an orderly and effective manner. In Europe, the European Space Agency (ESA) has since its inception brought together dozens of States in the region to collectively pursue more efficient and economical access to space and space technologies.¹²

Today, the trend in international space cooperation is evidenced in the nascent beginnings of space institutions in the Asia-Pacific. Two frameworks of cooperation currently exist. Each is led by a separate space power, and both have different institutional arrangements and degrees of cooperation. The objectives and origins of the China-led Asia Pacific Space Cooperation Organisation (APSCO) and the Japan Aerospace Exploration Agency (JAXA)-led Asia Pacific Regional Space Agency Forum (APRSF) will be briefly analysed and compared. It will be argued that institutionalisation of space activities will bolster the development of and adherence to space law, however the international community should be wary of political agendas in the conception and operation of such institutions.

THE TALE OF APSCO

The framework of an international organisation seeks to harmonise activities with general principles of international law, as well as homogenise technical and scientific standards.¹³ Working together within an international institution induces mutual adherence to commonly agreed ‘rules of the road’,

and coerces States not to individually engage in activities contrary to international law. Most of all, international institutions serve to advance one of the cornerstones of international law, which is the promotion of international dialogue and understanding, and are conducive to maintaining international peace and security.¹⁴

In light of the aforementioned goals, the international community can welcome the establishment of the Asia Pacific Space Cooperation Organisation (APSCO), which formally began operations at its headquarters in Beijing in December 2008.¹⁵ Modelled on the structure and activities of ESA, the APSCO Convention created an international legal person with the vocation of fostering multilateral cooperation development and the peaceful applications of space science and technology in order to “bring more socio-economic benefits to each of the Member States”.¹⁶

The 2006 White Paper on China’s Space Activities emphasises the importance China attaches to international cooperation. For China, space cooperation is based on “equality and mutual benefit, peaceful utilization and common development”. Special significance is attached to “space cooperation in the Asia-Pacific region”, as well as to “supporting regional space cooperation around the world”.¹⁷

The establishment of the world’s second international space organisation¹⁸ was the result of the deepening institutionalisation of the Asia-Pacific Multilateral Cooperation in Space Technology and Applications (APMCSTA). This earlier multilateral cooperative effort initiated by China pursues international scientific and

technological exchanges “to make up what [China] actually needs and lacks” in its space endeavours, while in return offering assistance to other States.¹⁹ Since 1992, China and a number of neighbouring States have conducted periodic conferences and meetings of technical experts, and also begun facilitating a Small Multi-Mission Satellite programme.²⁰

Currently, Bangladesh, Indonesia, Iran, Mongolia, Pakistan, Peru, Thailand and Turkey are Member States of APSCO. Argentina, Brazil, the Philippines, the Russian Federation and Ukraine have joined as Observers.²¹ Based on its current membership, comprising almost exclusively of developing States as far apart as the Near East and South America, APSCO has the potential to become an influential actor in space activities.

Until now, APSCO has focused on its administration, including staff recruitment and establishment of various departments to ensure the day-to-day functioning of the new organisation.²² As APSCO’s institutional structure solidifies, it is predictable that the previous activities of APMCSTA will be subsumed under the formalised institutional framework. An observer involved in the Organisation’s foundation admitted however that it is yet unclear whether other leading Asian States possessing advanced space faring capabilities will join. Additionally, despite clear allocation of budgetary contributions,²³ APSCO’s financial resources also appear to be constricted, as existing Member States have yet to meet their dues.²⁴ This may seriously hamper the Organisation’s abilities to live up to the objectives contained in its Convention, and undermine the legitimacy of APSCO as an international

space organisation.

While international space cooperation is a means to further diplomatic efforts, as more partners are involved and the longer the project persists there can be unexpected cost overruns. Further, the deeper cooperation is institutionalised, the more difficult it will be to have an exit strategy should cooperation not deliver promises. Deepening cooperation risks a lack of “flexibility and unity of purpose”,²⁵ especially in a formalised institutional setting such as APSCO, where each Member State is ‘hemmed in’ by the degree of commitment and level of input of other Member States. An example of such a phenomenon is the International Space Station. As the symbolic embodiment of an extensive international space cooperation effort, the ISS became a “death march” for the United States, and to this day is “a product that in the end does very little of what was originally proposed”.²⁶ As the project progressed, the United States was “continually pressured to do more financially than it wished to do, under the guise that to not do more signaled a failure of US leadership”.²⁷ If a lesson is to be learned about the nature of space cooperation and, China must be prepared that its efforts to lead international space cooperation under the APSCO institutional framework requires long term commitment and vast investment in both financial and political capital.

THE TALE OF APRSAF

While the establishment of a fully-fledged space organisation lays down the cornerstone of greater institutionalised cooperation, it is may be questioned whether such an initiative by China is too ambitious for the region. The Asia-

Pacific, unlike Europe, has not yet experienced the political and economic integration emanating from a supranational institution like the European Union.²⁸ Former UN Secretary General Boutros Boutros-Ghali endorsed conducting exchanges between space agencies in an “informal and unstructured” setting “without a permanent staff and therefore with few overhead costs”.²⁹ In this vein, a different tale of space cooperation is being told by Japan’s JAXA under the auspices of the Asia Pacific Space Agency Forum (APRSAF).

Since 1993, APRSAF has functioned as a forum to “[exchange] views, opinions and information on national space programs and space resources”. The Forum aims to contribute to the region’s socio-economic development, and to “discuss possibilities of future cooperation” in space.³⁰ Participation in the Forum is broad, and includes the initiator JAXA, the Korea Aerospace Research Institute (KARI), the Chinese National Space Administration (CNSA), the Indian Space Research Organisation (ISRO) as well as the involvement of, among others, space agencies of France, Germany, the United States, Canada and Russia. Though the Forum lacks status as an international organisation, it has become a semi-global institution involving almost 100 governmental and non-governmental bodies from 27 States, and also encompasses the participation of a dozen regional and international bodies, including the UN Office for Outer Space Affairs (UNOOSA) as well as ESA, and International Space University.³¹ Interestingly, the APMCSTA, the predecessor of APSCO, is also a participant in APRSAF.

Convening of APRSAF is in line

with Japan's space policy, which is often inhibited by financial constraints. Unlike other space-faring powers, "rather than being underpinned by a comprehensive national space strategy", Japan's space activities has focused on developing science and technology.³² International cooperation initiatives, such as APRSAF, is thus premised on "promoting international cooperation commensurate with [Japan's] power in the world", and can only go as far as existing financial resources allow.³³

Therefore, as opposed to APSCO, APRSAF's structure has a self-sustaining informality with little overhead costs, and is a forum with rotating host locations. Of late, "politicians and related organizations that are interested in international cooperation in Asia" have also been invited to take part in the Forum, infusing it with more higher-level input, while simultaneously providing an informal setting for soft space power in the region.³⁴

In recent years, exchanges within the Forum signal the "steady march of Asian space ability".³⁵ In addition, there is willingness, buoyed with "increased self-assurance among Asian countries", to collectively utilise the region's space technologies and institutions to address environmental, ecological and security challenges, and to contribute to overall national and regional economic development.³⁶ A multilateral forum that allows space agencies and political figureheads to come together will result in "mutual confidence and familiarity" among space nations, which are crucial building blocks "for more extensive institution building in the future".³⁷

The first decade of APRSAF was mainly geared towards information exchange among space engineers to

increase the region's understanding of the benefits of space utilisation. Established in 2006, Sentinel Asia utilises remote sensing data from participating space agencies for disaster monitoring and management.³⁸ As a follow-up is Satellite Application for Environment (SAFE), in which JAXA plays a "leading role".³⁹ Though still in its planning stages, SAFE is a joint and voluntary activity of APRSAF, and aims to observe the Earth's environment from space as an environmental protection measure.⁴⁰ In early 2009, JAXA began the Satellite Technology for the Asia-Pacific Region (STAR) with space agencies of India, South Korea, Indonesia, Thailand, Vietnam, and Malaysia. This initiative largely mirrors the objectives of the Small Multi-Mission Satellite programme of the Chinese-led APMCSTA, and aims "to develop small satellites with researchers and engineers of space organizations in Asia-Pacific countries".⁴¹

However, a long period of economic stagnation has constrained Japan's space activities.⁴² Despite various high profile conferences between space agencies on either side of the Pacific, there have not been "any tangible outputs due to the lack of solid policy and funding".⁴³ This has adversely impacted on JAXA's initial enthusiasm to coordinate and lead APRSAF, and may hamper ambitions to further the periodic meeting of space agencies and organisations in the region.

ONE REGION WITH TWO TALES?

Asia-Pacific is a vast region, comprising over half the world's populations and some of the world's largest economies. Great potentials can therefore be realised if regional spacefaring States can

conjoin their resources and political will. However, the objectives of both APSCO and APRSAF reveal similar in objectives and overlapping activities, which hint at a “wastage of resources in the region”.⁴⁴ Thus an “appropriate and realistic agenda-setting of the region” is crucial to the development and continued survival of Asian space cooperation.⁴⁵

Though APSCO and APRSAF have different initiators with different geopolitical interests in the Asia-Pacific, the differing levels of legal and political involvement may suggest the two institutions are not necessarily in competition for space leadership. Indeed, both institutional frameworks of regional cooperation have their merits and flaws.

APSCO has a higher level of international legitimacy due to its legal status as a regional space organisation. However, without the participation of other prominent space States in the region, such as India, South Korea and Japan, it may be relegated to become an international organisation dominated by the host State China. This may be detrimental to equitable exchanges between Member States the organization was originally intended to facilitate, and cast doubts as to the organisation’s ability to act independently.

Conversely, APRSAF offers a framework for involvement that attracts greater interest and participation than APSCO’s existing membership. Yet, APRSAF has till now only been an ad-hoc meeting of agencies that rests on political good will, and lacks the legal entrenchment to enhance its activities or mandate. Of interest is that close to half of APSCO Members are also participants of APRSAF, and this may offer possibilities for interaction between the two space cooperation initiatives.

There is evidence which indicates that China and Japan are working closer together, and thereby dispel warnings of a competition for regional space leadership. The Disaster Charter, though a non-legally binding document, stresses the desire of involved national space agencies like China’s CNSA, and Japan’s JAXA, “to strengthen international cooperation” by using space assets and technology to alleviate humanitarian crises.⁴⁶ After all, nothing better subscribes to the use of space for the benefit of humankind and for peaceful purposes than using satellite data for disaster response and management. Space agencies of both China and Japan are also members of the Inter-Agency Space Debris Coordination Committee (IADC), which has served as a confidence building and forum to diffuse any political misunderstandings or competition.⁴⁷

IMPEDIMENTS TO SPACE COOPERATION IN THE ASIA-PACIFIC

Memories of World War II, coupled with the lingering geopolitical interests of the Cold War may dampen the prospect of regional space leaders like Japan and China cooperating fully. The role and continued military presence of the United States in the region, together with Japan’s alignment with the US against the perception of a geopolitical alliance of States in the Pacific Rim to constrain China’s influence, also impedes intensified space cooperation.

China has made great effort to establish APSCO, and its organisational structure is “still imbued with the time-honoured notion of hierarchy” under Beijing’s leadership.⁴⁸ Considering that the existing membership of APSCO stretches from Peru to Turkey, it is to be

questioned to what extent APSCO's objectives truly rest on regional cooperation or on geopolitical convenience. The existence of APSCO may be construed as a classic example using space cooperation to foster international relations with the aim of advancing foreign policy goals.⁴⁹ From a space leadership standpoint, through APSCO China can "assert itself as the alternative power to America currently in the Asia-Pacific".⁵⁰

A key component of space diplomacy involves exchange or suspension of space technology and hardware "to induce others toward desired [behaviours], or away from undesirable [behaviours]".⁵¹ Both APSCO and APRSAF may be perceived as a vehicle through which the founding States, China and Japan respectively, aim to further particular political interests. This prospect may undermine the idea of international cooperation contained in space law instruments, and may in fact be a source of discord and confrontation rather than unity of purpose and induce collaboration. As the American Institute of Aeronautics and Astronautics forewarns, it is no longer viable for space superpowers or any single country to "take the lead". Rather, space activities must aim to coordinate various national agendas and be conducted under the framework of international cooperation.⁵²

Furthermore, the Missile Technology Control Regime (MTCR) may also be a hindrance to intensifying space cooperation in the Asia-Pacific, particularly between advanced space States like China and Japan. The Regime, which restricts the transfer of sensitive missile technology, in effect bars the exchange of many rocket systems and space assets.⁵³ While Japan adheres to

the MTCR, China, despite its willingness to join the MTCR, is not a participant.⁵⁴ Effectively, this means that in the foreseeable future exchanges on space technology and know-how between the two States can only be conducted on a superficial level.

Incidentally, an arms control regime like the MTCR encourages States that have been excluded from the "cartel" of space technology suppliers⁵⁵ to jointly develop launch capabilities and space technologies that bypass existing international arms control regulations.⁵⁶ APSCO's existence could be perceived in this light. This is an unfortunate phenomenon that will impede the establishment, let alone functioning, of an international space organisation that aims to be pan-Asian.

CONCLUSION

In its report *Space Law in 2006*, UNCOPUOS urged States to foster the "progressive development of international space law" through regional cooperation initiatives that are in line with existing space treaties and the fundamental principles contained therein.⁵⁷ The Preamble of the OST cites international cooperation as a means to develop "mutual understanding and to the strengthening of friendly relations between States and peoples",⁵⁸ while the more recent 1996 Declaration on International Cooperation further spurs such initiatives.⁵⁹ Today, the internationalisation of space activities has accelerated with an increasing number of cooperative agreements, and the contribution of international space institutions, such as APSCO and APRSAF under discussion, to the development of space law "is far from negligible".⁶⁰

An international space institution can further evidence a departure from the Cold War era, in which space policy “rested primarily on political considerations”⁶¹ rather than on cooperative initiatives pursued for the purpose of common scientific and technological advancement. The future of coherent and effective space cooperation in the Asia-Pacific lies not in the self-interests of an “exclusive bloc, but [requires] a flexible and pragmatic organ founded on the basis of common needs”.⁶²

The late Eilene Galloway believed the unique characteristics of space “naturally [emphasises] the whole globe rather than national divisions governed by terrestrial boundary lines”.⁶³ To “receive benefits out of abridging costs and increasing synergy effects” in the conduct of space activities, States must pool together their expertise, resources and political will, rather than individually exhaust their efforts and duplicate technological and scientific advances.⁶⁴ Furthermore, cooperation reduces tension and increases political and national transparency—elements that are much needed in a region that still feels the lingering effects of the Cold War.

In this light, the narratives of the nascent APSCO, and its older, albeit less institutionalised cousin APRSAF, are important to heed. The current activities of APSCO have yet to deliver on the objectives and goals the Founding Members have set under the Organisation’s Convention. At present, APSCO is composed mainly of less developed nations, which possess limited economic and technological resources. This may present an obstacle for the effective functioning of this new space organisation, in particular as the

costs of administering the bureaucracy alone is high. Furthermore, the potentials of political bargaining used by a State with independent access to space and related technology and know-how, and the leverage over a developing country which vies to obtain such sensitive space technology, should also not be underestimated.⁶⁵ Existence of stringent national and international arms control regimes, such as the MTCR, will further polarise States between the space technology haves and have-nots.⁶⁶ Should such circumstances persist, the spirit of international space cooperation will be undermined, effectively negating the freedom to explore and use exploration contained under international law. This should be contrasted with the institutional arrangement of APRSAF which, albeit being informal and ad-hoc, allows certain flexibility for space agencies and States to determine the degree of collaboration according to the financial capabilities and technological needs of each participant.

Currently, the lack of an integrated political or economic system in the Asia-Pacific means that the basis for cooperation in the space field may be “very fragile, if not non-existent”.⁶⁷ Even so, a shared concern for natural disasters and the mitigation thereof may be a starting point for States in the region to come together and share information and resources. The Sentinel Asia project is a prime example of this.

While APSCO and APRSAF may have different institutional arrangements and somewhat different objectives, it cannot be denied they both contribute to the “continuing evolution of space law”.⁶⁸ Regional space institutions, while limited in geographic scope and participation, may prove to

better serve the similar interests and immediate needs of States in close proximity to one another, as the history of the ESA has proven. Developments in the relationship and interaction between APSCO and APRSAF should be closely followed, especially as there is overlapping involvement of a number of space agencies and States in both cooperative arrangements.

The Asia-Pacific region has great potential in outer space. If at all possible in the future, a collaboration between “deep pockets and manpower” of China, the “IT prowess and new launch systems” of India and “technical abilities and high-technology” of Japan will form a formidable alliance of Asian space powers.⁶⁹ For now, two tales are being told in the region, and irrespective of the Chinese or Japanese narrative, the morals of the tales are similar: International cooperation and the pooling of resources, know-how and expertise will undoubtedly benefit the region’s economic development, and fosters closer political ties. Perhaps one day the region will be able to tell a common and coherent tale about space cooperation in one single voice.

¹ Georges Abi-Saab, ‘Wither the International Community?’, 9 *European Journal of International Law* 248 (1998), at 251. For an earlier account of the importance of space law in fostering international cooperation, see Huang Jiefang, ‘The Roles of Bilateral Agreements in Space Law’, 172-176 in *Proceedings of the Thirty-First Colloquium on the Law of Outer Space* (1988).

² For more on the ‘public interest’ in outer space, see Jakhu, Ram, ‘Legal Issues relating to the Global Public Interest in Space Law’, 32 *Journal of Space Law* 31 (2006).

³ Manfred Lachs, *The Law of Outer Space* (1972), at 6-7.

⁴ José Monserrat Filho sets out the benefits of States conducting themselves under the “rule of

international law”: see ‘United Nations Principles on Outer Space’, 99-100 in *Meeting International Responsibilities and Addressing Domestic Needs, Proceedings of the United Nations/Nigeria Workshop on Space Law* (2005). Jonathan F. Galloway expresses this point through an examination of ‘Game Theory’: see ‘Conflict and Competition in Space Law’, 2-8 in *Proceedings of the Forty-Sixth Colloquium on the Law of Outer Space* (2003).

⁵ See e.g. UNGA Res. 1348(XIII).

⁶ UNGA Res. 1962 (XVIII), specifically paras. 4 and 5.

⁷ See generally Henry G. Schermers and Niels M. Blokker, *International Institutional Law: Unity within Diversity* (4th Ed.), (2003).

⁸ Art. XIII of the OST.

⁹ See Rescue and Return Agreement, Art. 6; Liability Convention, Art. XXII(1); Registration Convention, Art. VII(1); Moon Treaty, Art. 16. For more on the European Space Agency issuing such a declaration, see Gabriel Lafferandierie, ‘The Outer Space Treaty and the International Organisations conducting Space Activities’, 161-168 in *Proceedings of the Fortieth Colloquium on the Law of Outer Space* (1997), 164-165.

¹⁰ See Liability Convention, Art. XXII(2); Registration Convention, Art. VII(2); and Moon Treaty, Art. 16.

¹¹ Eilene Galloway, ‘International Institutions to ensure Peaceful Uses of Outer Space’, 9 *Annals of Air and Space Law* 303 (1984), 325.

¹² See John Krige, ‘An Historian Looks at the ESA Convention’, 13-20 in *Implementation of the ESA Convention: Lessons from the Past : Proceedings of the ESA/EUI International Colloquium organised by the European Space Agency, the European Centre for Space Law and the European University Institute, Florence, 25 and 26 October 1993* (1994).

¹³ See Joanne Irene Gabrynowicz, ‘Space Law: Its Cold War Origins and Challenges in the Era of Globalization’, 37 *Suffolk University Law Review* 1041 (2004), at 1042-1044.

¹⁴ See OST, Art. III; see also e.g. 1970 Declaration on Friendly Relations, UNGA Res. 2625 (XXV).

¹⁵ For more on the history and objectives of APSCO, see David Kuan-Wei Chen and Stephanie Wan, ‘Space Powers on the Rise: The Legal and Political Implications of the Asia-Pacific Space Cooperation Organization’, presented at the *13th Annual ISU Symposium ‘Space for a Safe and Secure World’*.

¹⁶ 'The China's Government and APSCO Signed the Host Country Agreement', <<http://www.cnsa.gov.cn/n615709/n620682/n639462/169046.html>> (18 August 2009).

¹⁷ 'China's Space Activities in 2006', Information Office of China's State Council, <http://english.peopledaily.com.cn/200610/12/en_g20061012_311157.html> (15 August 2009).

¹⁸ Note that when speaking of 'international space organisation', this paper refers to organisations like the ESA or APSCO, the field of action of which are general and not specialised. This much be contrasted with international organisations like the INMARSAT or EUTELSAT, which are space organisations but only concerned with a particular field of space application.

¹⁹ Qizhi He, 'A preliminary Study of Chinese Bilateral Agreements in Space Activities', 191-196 in Chai-Jui Cheng (ed.), *The Use of Air and Outer Space: Cooperation and Competition* (1998), at 193.

²⁰ See 'AP-MCSTA Mechanism in Perspective and its Institutionalization', <<http://www.apmcsta.org/CommonWeb/foreword.aspx>> (17 August 2009).

²¹ See Haifeng Zhao, 'Asia-Pacific Space Cooperation Organization Convention', 3-13 in *Proceedings of the Fiftieth Colloquium on the Law of Outer Space* (2007).

²² 'International Staff Recruitment of APSCO for Year 2009: Supplementary Information', <http://www.mict.go.th/article_attach/HR_Supplementary_Information_20090313.pdf> (30 August 2009).

²³ See 'Financial Arrangements' under Art. 18 of the APSCO Convention.

²⁴ Source on file with author pursuant to personal communication on 31 August 2009.

²⁵ Roger Handberg and Zhen Li, *Chinese Space Policy: A Study in Domestic and International Politics* (2006), at 170-171.

²⁶ *Ibid.*

²⁷ *Ibid.*

²⁸ One should note such institutions as the Association of South East Asian Nations (ASEAN) and the Asia-Pacific Economic Cooperation (APEC), which exist to enhance regional trade and economic cooperation, but neither has reached the depth of legal, economic and political institutionalisation as the European Union.

²⁹ Boutros Boutros-Ghali, 'International Cooperation in Space for Security Enhancement', 10 *Space Policy* 265 (1994), 270.

³⁰ See 'Overview', <<http://www.aprsaf.org/text/about.html>> (17 August 2009).

³¹ Participation extends to organisations from Australia, Bangladesh, Brunei, Bhutan, Canada, Cambodia, China, France, Germany, India, Indonesia, Japan, South Korea, Laos, Malaysia, Mongolia, Myanmar, Nepal, New Zealand, Pakistan, the Philippines, Russia, Singapore, Sri Lanka, Thailand and Vietnam. See 'Participation from Asia-Pacific Countries', <<http://www.aprsaf.org/text/members01.html>> (15 August 2009).

³² Hashimoto Nobuaki, 'Briefing Memo: Establishment of the Basic Space Law – Japan's Space Security Policy', The National Institute for Defense Studies News (2008), <<http://www.nids.go.jp/english/dissemination/briefing/2008/123.pdf>> (9 September 2009).

³³ 'Fundamental Policy of Japan's Space Activities', <<http://www.mext.go.jp/english/kaihatu/aerosp01.htm>> (10 September 2009).

³⁴ 'Linking Asia to Tackle Disaster and Environmental Issues', <http://www.jaxa.jp/article/special/asia/ishida01_e.html> (20 August 2009).

³⁵ Jeff Kingwell, 'Moving forward: Outcomes of the APRSAF', 22 *Space Policy* 63 (2006), 63.

³⁶ *Ibid.*, 64.

³⁷ Kenneth S. Pedersen, 'Is it time to create a World Space Agency?', 9 *Space Policy* 89 (1993), 93. See also Boutros-Ghali (1994), 272.

³⁸ For more information, see 'About Sentinel Asia',

<<http://dmss.tksc.jaxa.jp/sentinel/contents/SA-intro.html>> (17 August 2009). See also Setsuko Aoki, 'Regional Cooperation in Asia relating to Space Activities (Commentary)', 153-170 in *Proceedings of the 4th IISL regional Space Law Conference, Bangkok, 2006*, at 168.

³⁹ 'Interview with Keiji Tachikawa, 2009: A New Era for Japan's Space Program', <http://www.jaxa.jp/article/interview/vol44/p3_e.html> (9 September 2009).

⁴⁰ 'About SAFE', <<http://www.eorc.jaxa.jp/SAFE/TOP/html/about/background.html>> (9 September 2009).

⁴¹ 'Spring 2009 STAR program starts in earnest', <http://www.aprsaf.org/interview/interview_34.html> (10 September 2009).

⁴² Minoru Suzuki, 'Alternative International Cooperation in Space Development for Japan—Need for more cost-effective Space Application Projects', 59 *Acta Astronautica* 430 (2006), 431.

⁴³ *Ibid.*, 436.

⁴⁴ Aoki (2006), at 168.

⁴⁵ *Ibid.*

⁴⁶ Preamble of the Charter On Cooperation To Achieve The Coordinated Use Of Space Facilities In The Event Of Natural Or Technological Disasters, <http://www.disasterscharter.org/charter_e.html> (16 August 2009). See also Balakista Reddy and Debarupa Banerjee, 'The Disaster Charter: Formulating a Common Space Policy for the Asian Region', 14-23 in *Proceedings of the Fiftieth Colloquium on the Law of Outer Space*, 2007.

⁴⁷ Aoki (2006), 168.

⁴⁸ Sang-Myong Rhee, 'Regional Cooperation in Asia relating to Space Activities—Northeast Asian Issues', in *Asian Cooperation in Space Activities: A Common Approach to Legal Matters, Proceedings of the 4th IISL regional Space Law Conference, Bangkok, 2006*, at 147-148.

⁴⁹ See e.g. Stephen N. Whiting, 'Space Diplomacy: A new Tool for Leverage', 1 *Astropolitics* 54 (2003), especially 57-58. See also Nicolas Peter, 'The changing Geopolitics of Space Activities', 22 *Space Policy* 100 (2006), 108.

⁵⁰ Gabriele Garibaldi, 'Chinese Threat to American Leadership in Space', <<http://www.globalpolitician.com/2699-china-america>> (16 August 2009).

⁵¹ Whiting (2003), at 62.

⁵² Graham Gibbs and Ian Pryke, 'International cooperation in Space: the AIAA-IAC Workshops', 19 *Space Policy* 53 (2003), at 55.

⁵³ See Rhee (2006), 149.

⁵⁴ The majority of MTCR participants are European and North American States, and also includes Argentina, Brazil, Japan, the Republic of Korea, the Russian Federation, South Africa, Turkey, and the Ukraine. See 'MTCR Partners', <<http://www.mtcr.info/english/partners.html>> (9 September 2009).

⁵⁵ See Lora Lumpe, 'Zero Ballistic Missiles and the Third World', 14 *Contemporary Security Policy* 208 (1993), 212. See also Rhee (2006), 144-145.

⁵⁶ Cornelia Riess, 'International Cooperation Patterns and Trends of Future Space Regulations', 175-190 in Marietta Benkoe and Kai-Uwe Schrogl (eds.), *Space Law: Current Problems and Perspectives for Future Regulation* (2005), at 185-186.

⁵⁷ See Report on the United Nations/Ukraine Workshop on Space Law on the theme "Status, application and progressive development of international and national space law", (A/AC.105/880).

⁵⁸ OST, Preamble, paras. 4-5.

⁵⁹ See specifically paras. 2 and 4 of the 'Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interests of all States, taking into Particular Account the Needs of Developing Countries', UNGA Res. 51/20.

⁶⁰ Lafferanderie (1997), 167.

⁶¹ He (1993), at 50.

⁶² *Ibid.*, at 51.

⁶³ Galloway (1984), 304.

⁶⁴ See Rhee (2006), at 141; and see also Pedersen (1993), 90-91.

⁶⁵ Handberg and Li (2006), at 169.

⁶⁶ There is the exception of Turkey, which is both a member of APSCO and a partner of the Missile Technology Control Regime. See Lumpe (1993), at 209-210.

⁶⁷ Aoki (2006), at 154.

⁶⁸ Nicolas Mateesco Matte, 'Institutional Arrangements for International Space activities', 97-111 in Nandasiri Jasentuliyana (ed.), *Space Law: Development and Scope* (1992), at 107.

⁶⁹ See Scott Shackelford, 'From Asian Politics to Astropolitics: the History and Future Shape of Asian Space Policy', 68-82 in *Proceedings of the Fiftieth Colloquium on the Law of Outer Space* (2007), at 76.