

# International Cooperation Mechanisms in Outer Space Activities for the Next Decade

*11<sup>th</sup> Nandasiri Jasentuliyana Keynote Lecture*

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## 1. Introduction

“Exploration and use of outer space, including the Moon and other celestial bodies” (hereinafter ‘space activities’ unless the formal expression is needed.) has accomplished a tremendous success through international cooperation for the past six decades. Hardly ever have we seen such a successful record of international cooperation in the technologically sensitive fields of activities.

The importance of ‘international cooperation’ has been emphasized from the very beginning of the space age, and symbolically demonstrated by the title of the United Nations General Assembly (UNGA) resolution 1472 (XIV) “International Co-operation in the Peaceful Uses of Outer Space”,<sup>1</sup> which established the Committee on the Peaceful Uses of Outer Space (COPUOS) as a permanent body. The COPUOS has since been playing a pivotal role in encouraging ‘international cooperation’ among States by UN treaties and UNGA resolutions on outer space as well as other relevant instruments on peaceful space activities. In addition to the Outer Space Treaty,<sup>2</sup> the 1996 UNGA resolution “Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries”<sup>3</sup> (hereinafter ‘the Space Benefit Declaration’) stands out as an instrument which guides States to pursue ‘international cooperation’ of space activities by demonstrating the criteria and conditions thereof.

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1 A/RES/1472 (XIV), 12 December 1959. See also, A/RES/1348 (XIII), 13 December 1958, para.1. (b) (c); A/RES/1721B (XVI), 20 December 1961, para. 3. (c).

2 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, adopted 19 December 1966, entered in to force 10 October 1967. 610 UNTS 205.

3 A/RES/51/122, 13 December 1996.

The Space Benefit Declaration does not state that international cooperation in space activities constitutes a legal obligation for spacefaring States towards non-spacefaring States. Instead, this Declaration declares “States are free to determine all aspects of their participation in international cooperation” (para. 2) in space activities and that contractual terms such as intellectual property rights “should be fair and reasonable and they should be in full compliance with the legitimate rights and interests of the parties concerned” (para.2). Respecting “an equitable and mutually acceptable basis” (para. 2), it is recommended that spacefaring nations should contribute to enhancing the space capabilities of developing countries (paras. 3-5).

As the legal status of ‘international cooperation’ is unclear, in other fields of international law including those in development and humanitarian aid, especially until around the mid-1980s, the long discussion had been conducted whether a general obligation existed under international law to cooperate among States, to some specific group of States and to international organizations especially to the United Nations.<sup>4</sup> In contrast, in the field of international space law, the legal nature of ‘international cooperation’ was not nearly as a serious issue as other fields of international law. It was rarely seriously discussed if a certain international cooperation subject was a legal obligation or moral duty. International space law did not waste time in dwelling with the nature of international cooperation. Instead, it elaborated international cooperation mechanisms. Such mechanisms are diverse depending on the subject-matters as well as participating States and organizations.

About 15 years later, Legal Subcommittee (LSC) of the UNCOPUOS selected “review of international mechanisms for cooperation in the peaceful exploration and use of outer space” as a 5-year agenda item to study types of bilateral and multilateral mechanisms employed more often by member States to conduct an international cooperation project with a view to identifying common elements found in agreements. Once the common elements in various mechanisms are extracted, that information could be helpful to States when they plan to start a certain international space project.<sup>5</sup> In April 2017, the final report of the working group of this agenda item was submitted to the COPUOS. This is a useful reference document for considering the conclusion of a new bilateral or multilateral cooperation agreement.<sup>6</sup>

I would like to make a keynote lecture on international cooperation mechanisms which could be a practical use for the near future projects and missions. I had the honor of serving as a chairperson of the working group of

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4 See, e.g., Rüdiger Wofrum ‘International Law of Co-operation’ *in idem* (Ed.), *The Max Planck Encyclopedia of Public International Law*, vol. II, Oxford University Press, 2012, pp. 783-792.

5 A/AC.105/C.2/2012/CRP.21/Rev.1, 29 March 2012; A/AC.105/1003, 10 April 2012, paras. 179-180.

6 A/AC.105/C.2/112, 13 April 2017.

this agenda item for four years (2014-2017) and naturally, my lecture is in line with the discussions and result of the international mechanisms agenda item, but not limited to the scope of the LSC discussion. This also covers the ideas for future cooperative projects. My keynote lecture consists of three parts. First, examples of this year's cooperative agreements are introduced to show the characteristics and the development of international space cooperation. Second, the characteristics of the preferred bilateral cooperation mechanisms, i.e., the combination of the framework agreement and implementing arrangements/agreements and their contents are described, which is followed by the analysis of the current and future mechanisms of multilateral cooperation agreements. Finally, some concluding remarks are given.

## **2. The 2019 space cooperation agreements**

Allow me to introduce some of the space cooperation agreements adopted in the first half of the 2019. Examples stated below are bilateral agreements, for survey shows that most of the space cooperation agreements are bilateral, either between the two governments or two space agencies. Such bilateral agreements are categorized into four.<sup>7</sup> The first category is the comprehensive cooperation agreement between the two States that also contains space cooperation provisions. This type of agreement, either legally-binding or non-legally binding, is often signed when a president or prime minister pays a state visit and space cooperation is chosen as one of the areas of cooperation between the two States. This type of agreement often paves the way for a more concrete project agreement in the future. Examples would include: India-Saudi Arabia (20 February 2019; paragraph 27 of the joint statement provides that “the two sides also agreed to cooperate in the areas of space, science and technology, including remote sensing, satellite communication and satellite-based navigation”); China-United Arab Emirates (UAE) (23 July 2019; the joint statement provides that the two sides are keen on cooperating areas of AI and space as well as satellite and other modern and advanced technology industries.); and France-India (22 August 2019; the joint statement provides the spaceflight training of Indian astronauts and the launch of a Space Climate Observatory (SCO) that further enhances Indo-French cooperation on combating climate change).

Second category is the space cooperation agreement between the two States, which includes: Luxembourg-USA (10 May 2019; Memorandum of Understanding (MOU) on the increased collaboration across a wide range of space activities); India-Tunisia (11 June 2019; MOU on cooperation in the exploration and use of outer space for peaceful purposes); and Bhutan-India (18 August 2019; joint statement and MOU to establish a network for the

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<sup>7</sup> All agreements mentioned in this section are found on the internet.

utilization of South Asia Satellite (SAS) operated by Indian Space Research Organization (ISRO)). These agreements tend to become a basis on which a real agency-to-agency specific project will blossom.

Third category is the space agency to space agency agreement for the future comprehensive cooperation. As increased number of the States establish a space agency, the number of the agreements of this category is steadily increasing. Just a small number of the examples include: France's National Centre for Space Studies (Centre National d'Études Spatiales: CNES)-South African National Space Agency (SANSA) (28 February 2019; the founding agreement for the wide range of space cooperation); CNES-Ethiopian Space Science and Technology Institute (ESSTI) (14 March 2019; the framework agreement that covers the SCO cooperation, etc.); Bolivian Space Agency (Agencia Boliviana Espacial (ABE))-Paraguay's Space Agency (Agencia Espacial del Paraguay: AEP) (12 June 2019; the accord for the peaceful use of space technology); Portugal Space Agency-UK Space Agency (UKSA) (18 July 2019; MOU to promote civil space cooperation); and Australian Space Agency (ASA)-European Space Agency (ESA) (23 August 2019; joint statement of intent for wide range of space cooperation).

Finally, the fourth category is the space agency to space agency cooperation agreement providing immediate and concrete mission plans. Since the number of this category is the largest among the four, only a few examples are introduced here: ESA and US National Aeronautics and Space Administration (NASA) adopted a statement of intent on the lunar exploration on 28 March 2019. On 20 June and 27 June 2019, the implementing arrangement on Martian Moons eXploration (MMX) was signed between German Aerospace Center (Deutsches Zentrum für Luft-und Raumfahrt: DLR) and Japan Aerospace Exploration Agency (JAXA) as well as CNES and JAXA respectively. On 10 April and 25 April 2019, the Space Situational Awareness (SSA) data sharing agreement was signed between Polish Space Agency and US Strategic Command (USSTRATCOM) and Romanian Space Agency and USSTRATCOM respectively. The latter marked the 100<sup>th</sup> agreement of this kind after the 16 other governmental agencies, two international organizations and 80 private entities. Increased number of the SSA data sharing agreements shows the enlarging areas of space cooperation from pure scientific purposes to space application to even to safe and secure aspects of space activities.

The United Nations Office for Outer Space Affairs (UNOOSA) has been playing an increasingly important role for providing opportunities for States to embark on space activities. One of the ongoing initiatives is "Access to Space for All", which includes a range of activities from microgravity research, satellite development, in-orbit research, the utilization of the International Space Station (ISS) and the Chinese space station. This is enabled by triangular cooperation schemes between the established actors

(including private persons), States which have just started their space activities, and the UNOOSA being the linchpin.<sup>8</sup>

### **3. Characteristics of bilateral cooperation agreements**

#### **3.1. From a freestanding agreement to the combination of a framework agreement and implementing arrangement**

Survey of the space cooperation agreements shows that overwhelming majority of such agreements are bilateral, either government-to-government or space agency to space agency. Subject matters of cooperation are diverse including space science, space exploration, earth observation, data exchanges and their terrestrial application, telecommunication, satellite navigation, launches of foreign payloads on a contractual basis, and transparency and confidence-building measures (TCBM) in space activities. Survey of the agreements also confirms that the substantial starting point tends to be a comprehensive science and technology cooperation agreement, which develops into a freestanding project agreement. After the repeated use of such freestanding agreements on various cooperative subjects, the deepened space relationship tends to be forged by a framework agreement, which provides common legal elements found in a series of freestanding project agreements. Framework agreements have been adopted even without an immediately planned cooperative project. Resolving in advance important legal issues commonly found in each cooperation project saves time and resources for space agencies and enables them focusing on their mission negotiations efficiently and effectively.

Then, a concrete mission description and the allocation of responsibilities on each side is specified in a different instrument, called an implementing arrangement or implementing agreement. From now, it is called an 'implementing arrangement' or IA unless the term 'implementing agreement' is indispensable. In most cases, an implementing arrangement reiterates relevant provisions of the framework agreement. In general, a framework agreement is legally-binding under international law and often signed by the two government. There are also cases that legally binding framework agreements are concluded between the two space agencies. In contrast, an implementing arrangement tends to be non-legally binding and signatories are the two national space agencies.<sup>9</sup>

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8 <https://www.unoosa.org/oosa/en/ourwork/access2space4all/index.html> (accessed 5 October 2019).

9 See, e.g., A/AC.105/C.2/112, *supra* note 6, paras. 42-47; A/AC.105/C.2/2013/CRP.14, 8 April 2013, p. 4; A/AC.105/C.2/2013/CRP. 17, 8 April 2013, pp.3-6; A/AC.105/C.2/105, 29 November 2013, p.4; A/AC.105/C.2/2014/CRP.25, 25 March 2014, pp. 3-7; A/AC.105/C.2/109, 22 January 2016, p.3.

### 3.2. Basic elements of the framework agreements

Framework agreements (hereinafter 'FA' or 'FAs' is also used when pertinent.) have been concluded since around the last decade of the 20<sup>th</sup> century, and while slight variations are found among the US-led type, Russian-led type, French-led type and Chinese-led type, they are characterized by the similarity in contents than the differences thereof. Framework agreements found in the open sources and used for my research to extract common legal elements are as follows: US-Argentina (2011), US-Brazil (1996, 2011), US-Canada (2009), US-France (2007), US-Italy (2013), US-Norway (2001, 2006, 2016), US-Republic of Korea (ROK) (2016), US-Russia (2007, 2012), US-Sweden (2005, 2015), US-Ukraine (2008); NASA-Brazil (2011); NASA-DLR (2010), NASA-ISRO (2008), NASA-Israel Space Agency (ISA) (2015), Russia-Australia (2007), Russia-Brazil (2010), Russia-Germany (2001), Russia-Mexico (1996), Russia-ROK (2004), Russia-Spain (2006), France-Algeria (2006), France-Brazil (1997), France-China (1997), France-Malta (2017), France-Mexico (2014), France-Uzbekistan (2018), China-Brazil (1994), Italy-Argentina (1992), ESA-Turkey (2004), Argentina-Ukraine (2006), and Israel-Kazakhstan (2009).<sup>10</sup>

Basic elements of a typical framework agreement extracted from the FAs mentioned-above are: i) Preamble. This often describes the phased development of the bilateral cooperation concerned, from comprehensive scientific and technological agreement to freestanding space agreements to finally the framework agreement; ii) The application of the UN treaties on outer space; iii) Purpose; iv) Agencies for cooperation. An implementing agency for the FA is named in this article. If a space agency exists, it is a space agency, but otherwise, some other agencies or newly established joint committee by the FA is designated as a cooperation agency; v) Applicable law. Some FAs provide that the FA shall be implemented pursuant to the national laws and regulations of the each State under the heading of 'applicable law'; vi) Definitions of key terms; vii) Scope of cooperation; viii) Implementing arrangements. This is one of the key provisions of a FA, which makes it clear that an implementing arrangement will be concluded in the future to carry out a specific project. Names for implementing arrangements/agreements could be also 'working protocols', 'MOU', 'other agreements', etc.; ix) Financial arrangements. Most of FAs provide that each party shall be responsible for funding its own activities under the FA; x) Customs duties and taxes. Each party is tasked with making reasonable efforts to arrange free customs clearance and waiver of all applicable duties and taxes for the transfer of equipment and goods necessary to conduct a joint project; xi) Exchange of personnel. Each party shall make reasonable efforts to facilitate the entry, temporary residence and exit of personnel. Detailed conditions are often referred to in an implementing arrangement; xii) Transfer of goods and

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10 These are the FAs the text of which are publicized.

technical data. Each party is obligated only to transfer goods and technical data necessary for the scope of cooperation pursuant to its respective national laws and regulations; xiii) Cross-waiver of liability. Cross-waiver of liability is a legal technique to allocate the risks arising from an ultra-hazardous space venture that could generate enormous damage, and give the parties predictability for the total amount of liability that may be claimed against them;<sup>11</sup> xiv) Protection of intellectual property rights. Focus is placed on patent and copyrights. There are cases that a detailed annex on this subject is attached to the FA; xv) Publication of public information and results. The standard provision provides that each party shall retain the right to release public information regarding its activities; xvi) Consultation and settlement of disputes. This is a provision that relative difference is found among various types of FAs. Consultation and arbitration are usually preferred to the use of tribunals; and xvii) Final clauses: The duration of the FAs is usually either five or ten years and some FAs provide that it is automatically extended or renewed unless one party terminates it by written notice. It is often provided that the termination of the FA would not affect the continuing obligations assumed by the parties under transfer of goods and data, intellectual property rights or cross-waiver of liability.

### **3.3. An implementing arrangement with relevant framework agreement provisions**

In general, implementing arrangements contain the following provisions: i) detailed mission description; ii) responsibilities of the parties; iii) management and governance system in case of a big project; iv) investigation of mishaps; v) ownership of equipment; vi) registration, jurisdiction and control of space objects in case of a big hardware-related project; and vii) basic legal provisions reiterated from the corresponding FA.

For instance, based on the NASA-ISRO FA in 2008, both agencies signed an implementing arrangement in 2012 for collaboration on Oceansat-2 activities. This IA provides: purpose (Art. 1); reference to FA, which confirms that the FA will govern any conflict between the provisions of this IA and the FA (Art.2); definitions (Art.3); background (Art.4); ISRO responsibilities (Art. 5); NASA responsibilities (Art. 6); points of contact (Art. 7); ownership of equipment (Art. 8); amendment (Art. 9); and entry into force and termination (Art. 10).<sup>12</sup>

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11 The general idea of the cross-waiver of liability is that each party waives all claims against any of the entities or persons of (a) the other party, (b) a related entity of the other party and (c) the employees of any of the entities of the other party and a related entity thereof. In addition, each party shall ensure that its own related entities will waive all claims against the entities or persons of the other party.

12 Implementing Arrangement between USA and India, signed 20 March 2012 (India) and 26 March 2012 (USA).TIAS 12-326.

It should be noted that an IA reiterates basic legal provisions from the corresponding FA. This and the fact that the respective IA of one country on the same subject with multiple countries being almost identical or similar would influence the States which have not concluded any FAs. That phenomenon is especially conspicuous when the subject-matter of the IA is a stereotyped service such as the remote sensing data provision from one country to the other. One example is the IA in the form of MOU between US Geological Survey (USGS) and the corresponding national authority or international organization of Argentina,<sup>13</sup> China,<sup>14</sup> Gabon,<sup>15</sup> ESA,<sup>16</sup> India,<sup>17</sup> Japan,<sup>18</sup> Norway,<sup>19</sup> Saudi Arabia,<sup>20</sup> South Africa<sup>21</sup> and Thailand<sup>22</sup> with respect to cooperation in the use of US Land Remote Sensing Satellite Data. China, Gabon, Japan, Saudi Arabia, South Africa and Thailand have not concluded a FA with the US, but as the each IA contains provisions reiterated from the FAs which US/NASA previously concluded with various countries, the FA provisions automatically apply to such countries. The reiterated FA provisions on these specific IAs are: i) financial arrangements and legal authorization; ii) duties, fees, and taxes; iii) entry and exit of personnel; and iv) consultation and settlement of disputes. IA specific provisions almost identical to all USGS partners are: i) purpose and scope of cooperation; ii) responsibilities of the parties; iii) international mission coordination; iv) user service arrangements; v) science and application development; vi) laws, warranties, rights and liability; and vii) exchange of technical information.

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- 13 Signed 30 November 2012 (Comisión Nacional de Actividades Espaciales: CONAE) and 15 February 2013 (USGS). Entered into force 15 February 2013. TIAS 13-215.
- 14 Signed 10 October 2012 (USGS) and 20 October 2012 (Center for Earth Observation and Digital Earth (COEODE) of the Chinese Academy of Sciences (CAS)). TIAS 12-1020.
- 15 Signed and entered into force 11 February 2013. TIAS 13-211.
- 16 Signed 18 June 2012 (USGS) and 19 July 2012 (ESA).
- 17 Signed 4 June 2016 (USGS) and 9 July 2016 (ISRO). TIAS 16-709. Only this MOU has Annex III that provides data exchange between Landsat 8 and Resourcesat-2.
- 18 Signed 13 November 2013 (USGS) and 21 November 2013 (National Institute of Advanced Industrial Science and Technology of Japan). Entered into force 21 November 2013. TIAS 13-1121.1
- 19 Signed 12 March 2013 (USGS) and 22 March 2013 (Norwegian Space Centre: NSC). Entered into Force 22 March 2013. TIAS 13-322.
- 20 Signed 19 February 2013 (USGS) and 27 April 2013 (King Abdulaziz City for Science & Technology: KACST, Saudi Arabia). Entered into Force 27 April 2013. TIAS 13-427.
- 21 Signed 19 February 2013 (USGS) and 29 May 2103 (SANSA). Entered into force 29 May 2013. TIAS 13-529.
- 22 Signed 12 April 2013 (USGS) and 29 April 2013 (Geo-Informatics and Space Technology Development Agency: GISTDA). Entered into force 29 April 2013. TIAS 13-429. Arts. 10 (5) and 12(4) are found only between USGS and GISTDA.

### **3.4. Similar subjects, similar implementing arrangements**

Contents of the IAs are similar among the similar types of the cooperation projects. For instance, all 20 articles are quite similar between the IAs of the ESA-NASA Solar Orbiter Mission<sup>23</sup> and ESA-NASA ExoMars projects<sup>24</sup> as the same actors agree on same category of the space exploration. In comparison, contents of the IAs of the Italian Space Agency (ASI)-NASA nuclear spectroscopic telescope array (NuSTAR) mission,<sup>25</sup> and JAXA-NASA X-ray astronomy satellite (Astro-H) project,<sup>26</sup> have less similarity. The IA on nanosatellite technology research between NASA and Swedish National Space Board (SNSB)<sup>27</sup> has different features from any of the examples referred to in this section. However, most of the IAs have underlying principles of space cooperation in common which are confirmed in various FAs.

## **4. Characteristics of multilateral cooperation mechanisms**

### **4.1. Multilateral mechanisms as an international governmental organization**

The number of the legally-binding multilateral space cooperation agreements are much smaller than that of the bilateral agreements. A treaty to establish an international governmental organization (IGO) focusing on space activities plays a role both as a mechanism in which space cooperation of member States is carried out and an actor itself cooperating with other partners including non-member States, other international organizations or frameworks and even with private actors. ESA, Asia-Pacific Space Cooperation Organization (APSCO) and African Space Agency (ASA) are examples of this category. While the cooperation mechanisms of IGO mentioned above and those of non-legally binding frameworks is an interesting topic, this keynote lecture focuses on multilateral project treaties concluded by like-minded States.

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23 ESA-NASA MOU on Solar Orbiter Mission of 2012. Signed 23 February 2012 (ESA) and 6 March 2012 (NASA). TIAS 12-306.

24 ESA-NASA MOU on the 2016 ExoMars Mission. Signed 14 April 2014 (ESA) and 29 April 2014 (NASA). TIAS 14-429.

25 MOU on the NuSTAR Mission between Italian Space Agency (ASI) and NASA. Signed 1 December 2010 (NASA) and 22 December 2010 (ASI). Note Verbale from Italy 24 June 2011. TIAS 11-624.

26 NASA-JAXA MOU on ASTRO-H Project. Signed 4 November 2013 (NASA) and 11 November 2013 (JAXA). TIAS 13-108.

27 NASA-Swedish National Space Board (SNSB) Cooperation in Aeronautic and Space Research Using Nanosatellite Technologies. Signed 10 May 2011 (NASA) and 19 May 2011 (SNSB). TIAS 11-519.

#### 4.2. Multi-layered instruments for the operation of the ISS

It is no doubt that the ISS is “the most politically and operationally complex space exploration program ever undertaken”<sup>28</sup> among international cooperation missions. Thus, the structure of the ISS program is naturally legally complicated. The ISS has been operated through the combination of multi-layered instruments: i) a legally-binding ISS Intergovernmental Agreement (IGA)<sup>29</sup> participated by Canada, member States of ESA (ESA being one ‘Partner’ of this ISS/IGA), Japan, Russia and the US; ii) legally-non binding MOUs between NASA and the respective space agencies of the Partners, which establish the agency-level cooperation basis;<sup>30</sup> and iii) various implementing arrangements concluded when the need arises between NASA and another cooperating agency in implementing the MOUs, which deals with day-to-day operation. In addition to such implementing arrangements, different categories of instruments either legally binding on the Partners or affecting in some way their interests have been concluded.<sup>31</sup>

#### 4.3. ISS/IGA as a freestanding agreement

Due to this multi-layered instruments, at first glance, it seems that the IGA is a FA and MOUs and their supplementary instruments are IAs, especially because the term ‘implementing arrangements’ are used for the third tier instruments. Research reveals, however, that the 1998 ISS/IGA remains a freestanding space cooperation arrangement from which a future framework agreement should be extracted. Let me explain why I reach that conclusion. The currently used standard type framework agreement was not found in the 1992 US-Russian Agreement Concerning Cooperation in the Exploration and Use of Outer Space for Peaceful Purposes (seven Articles and Annex)<sup>32</sup> let alone the 1987 US-USSR Agreement of the same name (seven Articles and an attachment)<sup>33</sup> while the first Civil International Space Station Agreement was adopted in 1988. The structure of the 1988 ISS/IGA is identical and contents, quite similar to the present ISS/IGA. This means that the existing ISS/IGA

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28 A/AC.105/C.2/2013/CRP.17, *supra* note 9, p.2.

29 Agreement among the Government of Canada, Governments of the Member States of the European Space Agency, the Government of Japan, the Government of the Russian Federation and the Government of the United States of America Concerning Cooperation on the Civil International Space Station, done 29 January 1998, entered into force 27 March 2001; A/AC.105/C.2/2013/CRP. 24, 16 April 2013.

30 However, in case of Japan, not a space agency, but the Government of Japan signed the MOU pursuant to its national policy.

31 ISS Partners, “The legal framework for the International Space Station” a presentation made at the COPUOS, 17 April 2013, pp. 3, 6.

32 [http://www.jaxa.jp/library/space\\_law/chapter\\_4/4-2-2-6\\_e.html](http://www.jaxa.jp/library/space_law/chapter_4/4-2-2-6_e.html) (accessed 10 October 2019).

33 Text is found in the NASA Historical Reference Collection, Document I-51.

reflects the cooperation mechanisms that existed in late 1980s and at that time the classification of the FA and IA did not exist.<sup>34</sup>

The significance that the ISS/IGA is a freestanding agreement lies in that a framework provisions part can be extracted and be utilized for future multilateral and big exploration projects including the Gateway and Artemis programs. From the 28 Article of the ISS/IGA, provisions usually found in the FAs are as follows: i) object and scope (Art.1); ii) international rights and obligations (Art. 2); iii) definitions (Art.3); iv) cooperating agencies (Art.4); v) funding (Art. 15); vi) cross-waiver of liability (Art. 16); vii) customs and immigration (Art. 18); viii) exchange of data and goods (Art. 19); ix) intellectual property (Art. 21); x) consultations (Art. 23); xi) entry into force (Art. 25); xii) amendments (Art.27) and xiii) withdrawal (Art. 28).

Among the residual 15 Articles, the following seven Articles are often found in the IAs of a project involving hardware development and exchanges: i) registration; jurisdiction and control (Art. 5); ii) ownership of elements and equipment (Art. 6); iii) management (Art.7); iv) detailed design and development (Art.8); v) utilization (Art.9); vi) operation (Art. 10); and vii) evolution (Art. 14). The contents are to differ, but provisions of these subject-matters are most likely to be incorporated in Gateway program as that is also a space station project.

Residual eight Articles are ISS/IGA specific provisions, which may be categorized as elements of IAs of human ISS projects in the future: i) crew (Art. 11); ii) transportation (Art.12); iii) communications (Art.13); iv) Liability Convention (Art. 17); v) treatment of data and goods in transit (Art. 20); vi) criminal jurisdiction (Art.22); vii) space station cooperation review (Art.24); and viii) operative effect as between certain parties (Art.26).<sup>35</sup> These eight provisions have been applicable to the Partners only for the present ISS project and the subject-matters of these provisions might not be employed again in the next similar project. Even employed, the contents may be different. For instance, the content of the regulations on criminal jurisdiction may differ in the next program, considering that it was changed from the 1988 ISS/IGA to 1998 IGA, by removing quasi-territorial element and applying only personality principle.

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34 The US-Canada space cooperation agreement adopted in 1994 was also a freestanding agreement in the form of legally-binding MOU. MOU between the US and Canada. Signed 15 November 1994. TIAS 94-1115. Canada-US Framework Agreement was signed 9 September 2009. TIAS 10-511.2. One of the first US-led FAs was adopted in 2001 with Norway. Signed 20 October 2000 (USA) and 14 November 2001 (Norway). TIAS 13172. As the US-Brazil FA in 1996 does not have a cross-waiver of liability clause, it is not included in the present-type FAs led by the US.

35 Art. 26 could be found in a FA as this belongs to issues on entry into force of a treaty. However, as the political balance of this ISS program requires this provision, this is categorized in ISS/IGA specific.

#### **4.4. from three-tier to four-tier structures**

Currently three-tier structures have been taken for the operation of the ISS. Considering the rapidly increasing role of private actors, and NewSpace goes for exploration which had once been dominated only by the advanced spacefaring nations, four-tier structured instruments may be needed. While it is too early to assess what kind of instruments would be adopted in that case between space agencies and private actors, there is yet a possibility that a private actor will be treated as a formal or associate member to develop and operate a new multilateral space station. It has to be said, however, that the role of the States would diminish. On the contrary, authorization and continuing supervision by States would be more important.

#### **5. Concluding remarks**

The combination of the FA and IA is a result considered preferable by many countries in bilateral space cooperation. However, since it takes years to conclude a FA, an emerging spacefaring State can save time by employing standardized type of IAs which also contain relevant FA provisions. As for a multilateral space cooperation, since the number of multilateral cooperation programs is limited, participating in a project provided by the UN including especially UNOOSA seems appropriate for a State that plans to embark on space activities. In this case, it is important to become a party to the UN treaties on outer space and preferably becoming a member State to the COPUOS. Likewise, a regional space cooperation entity can be relatively smoothly accessed especially when that is not an IGO.

Finally, I would like to underline the importance of the pursuit of a valuable cooperation theme and raising awareness of each State to be a responsible actor in outer space as the two important factors for international space cooperation.