

## The USA- Brazil Implementing Arrangement on the International Space Station: Interpretation and Application

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### Introduction

The International Space Station Program - ISSP is one of the most important and complex international project with respect to space cooperation and commercialization.<sup>1</sup> “The fundamental difference between the ISS and previous near-Earth orbital facilities is that the ISS is envisioned as a long-term, space-based research facility that will be occupied and utilized continuously by a changing contingent of operations and research staff. To be as successful as possible, the ISS will operate more like ground-based facilities than did previous orbital facilities”, emphasizes the Task Group to Review Alternative Institutional Arrangements for Space Station Research.<sup>2</sup>

The ISS international framework provides that this cooperation should be carried out in accordance with all recognized sources of international law<sup>3</sup>. These legal criteria establish a Space Law teleology flow-down where the Space Station Intergovernmental Agreement [IGA]<sup>4</sup> and the principles stated at the United Nations International Treaties on Space Law prevail.

The Brazilian participation at the International Space Station is based on the Implementing Arrangement between the USA and Brazil for the Design, Development, Operation and Use of Flight Equipment and Payloads for the International Space Station Program<sup>5</sup>, which states in part of article 2 :

“ The Parties undertake the cooperation under this Implementing Arrangement exclusively as part of the United States commitment to provide certain equipment for ISS under IGA. This Implementing Arrangements is intended to be consistent with and not derogate from the provisions of the IGA...and the Space Station Agreements...” “ ...the term “ISS Partners” will mean the parties to the relevant Space Station Agreements”.

Márcio Nogueira Barbosa points out the strategic importance of international cooperation in space matters: “ The level attained by the Brazilian Space Program would be different and certainly inferior to the present one, had not Brazil exercised in a strategic way and whenever possible, international cooperation... international cooperation is an important alternative to obtaining lower costs... development of space projects together with other countries based on international cooperation mechanisms and sharing costs, is the ideal way for countries such as Brazil, that obtain at a lower cost fulfillment of its needs, as well as, obtain an opportunity to place its technology in other markets”<sup>6</sup>

The right of entering into international engagements is an attribute of State sovereignty<sup>7</sup> regarding international transactions, and Brazil agreed to cooperate at the ISSP as “Participant”, under the Space Law flow down stated in the IGA. In this context, the interpretation of Brazilian rights and obligations arising from the Implementing Arrangement, must be considered under the international regime governing Space Station cooperation<sup>8</sup> following the Public International Law mechanisms, pointed out at the Vienna Convention on the Law of Treaties<sup>9</sup> and the IGA.

Under the ISSP, international participation encompasses two types of representation as stated by Petrônio Noronha de Souza, “ the so-called partners and the so-called participants. The partners (the USA, Russia, ESA countries, Canada and Japan through their respective space have the same status as NASA, although they act under NASA’s leadership. The participants are countries that were integrated into the program by sharing the rights and obligations of one of the partners. AISI (Italian Space Agency ), even though a partner through ESA, has also a separate agreement with NASA...This happens also with

Brazil, participating in the program through a similar agreement to the Italian one. The equipment to be furnished by Brazil originate from the American part in the Station".<sup>10</sup>

### **I – Interpretation of the Terms “Jurisdiction” and “Responsibility” under the USA – Brazil Implementing Arrangements on the International Space Station**

The Vienna Convention on the Law of Treaties, Vienna, 1969, establishes general rules of interpretation of treaties. Article 31, states in relevant part:

“A treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its objects and purpose. There shall be taken into account, together with the context ...any relevant rules of international law applicable in the relations between the parties.”

Therefore, to interpret the terms used in the Implementing Arrangement one must adopt the teleology of the ISS international legal framework, as defined, basically, in the following international agreements: [a] IGA (Intergovernmental Agreement among the Partner States concerning ISS Cooperation), 1998; [b] Outer Space Treaty, 1967; [c] Registration Convention, 1969; [d] Convention on International Liability for Damage caused by Space Objects, 1972

#### **1. Jurisdiction**

##### **1.1 Brazilian Case**

In the Brazilian case, the arrangement concerning jurisdiction is defined in Article 5 of the Implementing Arrangement between the USA and Brazil, which states:

“In accordance with Article 5 of the IGA, NASA will exercise jurisdiction and control over all AEB- provided equipment”

This provision concerns to jurisdiction and control solely with respect to a specific event: Brazilian Space Agency [AEB] provided equipment. With respect to all other issues Brazil will exercise jurisdiction and control. The Brazilian Space Agency will develop and provide the equipment to NASA as part of NASA’s contribution to the

ISS program. In exchange, AEB will receive rights from NASA as provided in the Implementing Arrangement from NASA’s allocation to utilize the ISS.

The Brazilian contribution to the ISS Program, under of the Implementing Arrangement, includes the following equipment:

[1] The Technology Experiment Facility [TEF], which will provide long-term exposure to the low Earth orbit space environment for active and passive experiments; [2] The Window Observational Research Facility Block 2 [WORF-2], which represents an ISS capability devoted to observational science and remote sensing development; [3] The Expedite the Processing of Experiment to Space Station [EXPRESS PALLET], which serves as an interface mechanism which is utilized to attach small payloads to the U.S. truss segment P3 or S3; [4] THE Unpressurized Logistics Carrier [ULC], which is a platform for transportation of unpressurized cargo and will be attached to U.S. truss segment P3.; [5] The Cargo Handling Interface Assembly [CHIA], which are flight support equipment which provide a method of attaching cargo to ULCs and allow for orbit handling of the cargo; [5] The Z1-ULC- Attach System [Z1-ULC-AS], which provides mounting accommodations for external passive payloads and experiments.

As by the terms of Article 4.1 of the Implementing Arrangement Brazil will retain ownership of TEF and WORF. However, article 4.2 establishes that AEB will transfer ownership to NASA of the other flight elements, payload facilities, and flight equipment US- Brazil will develop this joint cooperation with the purpose of advancing space science, Earth observation, technology, and the commercial use of outer space<sup>11</sup>. The Brazilian status vis-à-vis the ISSP framework is a “ Participant” and it is Brazil’s intention that access to and use of the ISS will enable Brazil to strengthen its industrial and scientific space activities<sup>12</sup>

##### **1.2 Interpretation of the terms “jurisdiction” and “control” stated in article 5 of IA**

Applying the space law teleology flow down framework for ISSP, the term “jurisdiction”, mentioned in article 5 of IA, adopts the concept established in article 5 of IGA, which states:

“ Pursuant to Article VIII of the Outer Space Treaty and Article II of the Registration Convention, each Partner shall retain jurisdiction and control over the elements it registers in accordance with paragraph 1 above and over personnel in or on the Space Station who are its nationals. The exercise of such jurisdiction and control shall be subject to any relevant provisions of this Agreement, the MOUs, and implementing arrangements, including relevant procedural mechanisms established therein.”

This rule determines that Partner States intend their jurisdictional rights and obligations under the Outer Space Treaty. By analogy the Participants States in the ISSP must apply the Outer Space Treaty teleology, as in the Brazilian case.

Article VIII of the 1968 United Nations “Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and other Celestial Bodies” [Outer Space Treaty] provides:

“A State Party to the Treaty on whose registry an object launched into outer space is carried shall retain jurisdiction and control over such object, and over any personnel thereof, while in outer space or on a celestial body. Ownership of objects launched into outer space, including objects landed or constructed on a celestial body, and of their component parts, is not affected by their presence in outer space or on a celestial body or by their return to the Earth. Such objects or component parts found beyond the limits of the State Party to the Treaty on whose registry they are carried shall be returned to that State Party, which shall, upon request, furnish identifying data prior to their return.”

This provision states the close relationship between Jurisdiction and Registry. It is based on the idea that all objects launched into space will be registered prior to launching and consequently the State of registry will exercise jurisdiction not only on spacecraft but also on all personnel on board, irrespective of their nationality<sup>13</sup>. The registration implies jurisdiction and States remain internationally responsible for activities involving space objects registered by them.<sup>14</sup>

Jurisdiction is a legal concept used to describe a State’s right to exercise legislative, executive and judicial powers with respect to a particular person, thing or event, as pointed out by Gorove<sup>15</sup>. This

effective power may take the form of control over persons or control over property. Mc Dougal clarifies: “In the consideration of Bases of Power, we dealt with the claims of states to comprehensive and continuing control for all purposes over particular resources, such as land, water, airspace and so on; here we deal with claims by states to assert a particular competence for particular purposes in relation to particular episodic events which may occur...”<sup>16</sup>

Von Der Dunk defines control as a “ kind of factual complement to, or consequence of, jurisdiction, and as the right to control by juridical means. The requirement of control is added to that of jurisdiction, to ensure that the state of registration will also be able to enforce the legislation by the exercise of its jurisdiction”<sup>17</sup>

As far as Space Law is concerned, the complexity in presenting a solution with respect to “outer space jurisdiction” is the spillover of several factors:

[a] The outer space, including the Moon and other celestial bodies, is not subject to national appropriation;

[b] Registration implies jurisdiction. However, not all objects launched into space are objects of registry, as per the Registration Convention;

[c] In practice two or more States may be considered launching States, and they need to negotiate which State will register the launched object. The State of Registry generally has Jurisdiction and control over objects launched into space. Moreover, the Registration Convention, article II, allows launching States to jointly agree which one of them shall register the object and shall have jurisdiction and control over the space object.<sup>18</sup> Regarding this issue Gorove observes that “such an arrangement, however, is without prejudice to appropriate agreement concluded among the launching States on jurisdiction and control over the space object and any personnel, thereof. In this connection, it is not quite clear just how appropriate agreements would modify the jurisdiction and control granted to the State of registry”<sup>19</sup>.

Bi Cheng refers to the “quasi-territorial character of Jurisdiction of the State of registry overrides, therefore, the personal jurisdiction of the national state, at least insofar as the power of enforcement

ore implementation (“jurisdiction”) is concerned... This being so, it would appear that whenever States engage in co-operative scheme for the conduct of space activities, joint registration, accompanied by satisfactory arrangements concerning the exercise of jurisdiction, is highly desirable, if they are not to find themselves burdened with various responsibilities under the treaty, but at the same time deprived of effective power to meet them<sup>20</sup>

Regarding the impact of new utilization of outer space, as the ISS case, the existing international instruments do not state a solution for new issues arising from the commercial use of outer space<sup>21</sup> to attract a revision of the concept of the term “jurisdiction”. In the study case there is a “*sui generis* jurisdiction” in outer space in order to enable the commercial use of outer space. This Jurisdiction is the connecting factor that attracts State responsibility and liability, and is one of the pillars of the existing international legal framework.

It is important to mention the Rules stated by the Brazilian Space Agency [Rule n.27, June 20,2001] on procedures and definitions of requirements necessary to require, evaluate, control, follow-up and supervision of the license to perform launching space activities within the Brazilian territory. These rules are applied in cases where Brazil exercise jurisdiction and control in what refers to space activities. The relevant provision deals with launching space activities, licenses and necessary documents for launching from Brazil.<sup>22</sup>

## 2. Responsibility

### Preliminaries

Under Brazilian legal terms responsibility and liability are translated for the word “responsibility - *responsabilidade*”, there not existing the conceptual difference appointed by comparative law systems which apply the following bipolar legal structure: [a] responsibility – at it most basic level means a factual relation of authorship of an act or omission<sup>23</sup>; [b] liability – is one aspect of responsibility and a consequence of responsibility in case the person responsible breaches an obligation that is incumbent upon it and, in doing so, causes damage to another<sup>24</sup>. Similar to French, no specific term is used in Portuguese to describe liability.

State responsibility, originated from Customary Law, and is the corollary of the principle of damage reparation. Shaw clarifies “State responsibility is a fundamental principle of international law, arising out of the nature of the international legal system and the doctrines of state sovereignty and equality of states. It provides that whenever one state commits an internationally unlawful act against another state, international responsibility is established between the two. A breach of an international obligation gives rise to a requirement for reparation”<sup>25</sup>

### 2.1 Interpretation of the term “Responsibility” stated in Article 7 of IA

Applying the teleology of international law, both Brazil and USA must observe the general obligations arising out of the formal sources of international law.<sup>26</sup> However, *ad latere* of these general obligations, the IA establishes specific obligations vis-à-vis design and development of ISS elements, summary followed described. However, In the Brazilian case, NASA “will exercise jurisdiction and control over all AEB-provided equipment”<sup>27</sup>. Applying the above teleology, we could conclude that these transfer of jurisdiction and control attracts the USA responsibility and liability vis-à-vis this specific issue, related third parties. However, under the ISSP the Cross Waiver of Liability Clause is applied with respect to USA- Brazilian relationship. Concerning all the other matters not stated at Article 5 of IA, Brazil remain responsibly and liable related third parties.

The Brazilian position regarding a consensual interpretation of the Convention of International liability for Damage Caused by Space Objects, pointed out that recent developments concerning the emergence of joint ventures and international consortia demand update interpretations of concepts that rise out of the outer space treaties. The Convention does not define the term liability, however it stipulates the extent of the Liability of a given State, as “absolute” [Article IV.1.a] or “based on the fault” [Article IV.1.b]... “Notwithstanding these criteria, other cases can be established: a State which only provides launch services, or grants facilities or parts of its territory to them. In this case, a “limited liability” situation would be configured, with two different approaches:[1] in the case of the State that only grants facilities or part of its territory for launches, liability would end at the moment launch

activities were successfully concluded; [2] in case of the state that provides launch operations, it would not be liable for damage caused by the spacecraft after it is correctly injected in orbit”<sup>28</sup>

## 2.2 NASA Responsibilities

- Establish basic requirements and detailed for the AEB-provided equipment;
- Perform formal review and final acceptance of the AEB-provided equipment;
- Assist AEB in establishing verifications, safety and mission assurance requirements and plans for the AEB-provided equipment;
- Approve AEB verification and flight readiness certification;
- Establish, in consultation with AEB, requirements for testing and operations of the AEB-provided equipment;
- Perform overall training management;
- Integrate the AEB-provided equipment with the Space Shuttle and the ISS.

## 2.3 AEB Responsibilities

- Establish design and manufacturing concepts for the AEB-provided equipment under NASA’s specifications;
- Provide NASA with all design, integration, test and operational data for the AEB-provided equipment, necessary for NASA to integrate, operate, and maintain the AEN equipment, and to ensure safety;
- Perform stress assessments, based on NASA Design and Verification Loads analyses;
- Provide required analyses and support for all AEB payloads proposed for operations on the ISS.

## II US – Brazil Implementing Arrangement on the International space Station

### 1. Application

The Brazilian legal system with respect to the application of international treaties, stated in article 49 of the Brazilian Constitution, is based on the necessary control of the Brazilian Congress for the approval of international treaties and agreements. However, there are exceptions regarding this rule. In certain cases, there is the possibility of treaties being applicable directly within the Brazilian jurisdiction, without any intermediate stage after signature and ratification -

the Executive Agreements - whenever a pre Umbrella Treaty (Framework Agreement) exists.

However divergent Court decisions, concerning the application of monism or dualism in view of the Brazilian Constitution, exist.

The Implementing Arrangement, signed in Brasilia, in October 1997, is an Executive Agreement<sup>29</sup> and formal source of international law regarding the Brazilian legal system. Article 25 states:

“This Implementing Arrangement will take effect upon signature. It will remain effect for the duration of  
NASA’s Space Station Program ...”

A . Farand, regarding IGA, emphasizes “Furthermore, in view of the relative urgency of the matter dictated by programmatic imperatives, the US negotiators also decided that the IGA would be an ‘Executive Agreement’ which, under US constitutional practice, does not require ratification by Senate... This IGA still generated rights and obligations for its signatories under international law, as would any other type of international agreement”<sup>30</sup>.

## III - International Space Station Utilization

### 1. International Legal Framework

The fundamental principles for ISS utilization are defined in Article 9.1 of the IGA:

“ Utilization rights are derived from Partner provisions of user elements, infrastructure elements, or both. Any Partner that provides a Space Station user element shall retain use of those elements, except as otherwise provided for in this paragraph. Partners which provide resources to operate and use the Space station, which are derived from their Space Station infrastructure elements, shall receive in exchange a fixed share of the use of certain user elements”.

Jay Steptoe<sup>31</sup> regarding the U.S. commercial use of ISS accommodations and resources points out the following applicable provisions:

“ The Partners shall have the right to barter or sell any portion of their respective allocations. The terms and conditions of any barter or sale shall be

determined on a case-by-case basis by the parties to the transaction”. [IGA Art. 9.2]

“ Utilization plans... which fall completely within their respective allocations and do not conflict operationally or technically with one another’s Utilization Plans will be automatically approved”[MOU Art. 8.3.g.3]

Limitations on barter and sale are few, says Steptoe: “ Partners may use and select users for their allocations for any purpose consistent with the IGA, provided: [a] consensus required for use by no-partner [IGA Art. 9.3(a)]; [b] proposed use is for peaceful purposes” - as determined by the partner providing the user, but subject to approval by partner owning the element in which the proposed use would occur.[IGA Art. 9.3 (b)]”. Finally he mentions the Proprietary Data Protections – proprietary rights protection in – and confidentiality of – utilization data passing through ISS communications and transportation system; each Partner commits to ensure that its crew members comply with the Code of Conduct which requires that use of all marked proprietary data be used only in performance of crew, member’s duties”.<sup>32</sup>

## 2. Brazilian Case

### 2.1 Commercialization

According to a governmental agreement signed between Brazil and the USA [IA], AEB is responsible for the development and provision to NASA of equipment which are part of NASA’s contribution to the ISS program. In exchange, AEB will receive rights from NASA’s allocation to utilize the ISS.

In the Brazilian case, IA provisions affecting ISS commercialization follows the IGA parameters. Article 9 of IA states:

“ AEB may at any time barter for, sell to NASA or the International Space Station partners, or enter into other arrangements for any portion of its access to ISS, and is free to market the use of its access according to procedures established by the International Space Station multilateral User Operations Panel ( UOP), as defined in the Space Station agreements.”[ IA Art. 9.3].

However, as Brazil is not a ISS Partner, but an ISS Participant, under the NASA Umbrella treaty,

the terms and conditions of any barter or sale will be determined on a case-by-case basis by the parties to the transaction, with NASA’s concurrence and AEB may retain any revenues it derives from such marketing [IA Art. 9.3]. AEB–provided equipment capabilities may also be made available to ISS Partners, in accordance with the Space Station Agreements [IA Art. 9.1].

The schedule for the Brazilian utilization of the ISS follows the criteria stated in IA, Art.9.1; Art. 9.2.c; Art.9.4.a:

- AEB’s rights to access and use of NASA’s ISS pressurized volume allocations and rights to associated transportation and communication services and utilization resources will begin to accrue after the first AEB- provided equipment is launched and operationally available on-orbit;
- AEB may manifest its express locker one year after their rights begin to accrue, or as agreed by NASA;
- AEB’s rights to access and use of NASA’s ISS external payload accommodations and rights to associated transportation services and utilization resources will begin after the Z1-ULC-AS is launched and operationally available on orbit;
- AEB’s rights to access and use of WORF-2 and TEF and rights to associated transportation and communication services and utilization resources will begin after the WORF-2 and TEF are launched and operationally available on-orbit;
- AEB may, as agreed by NASA, purchase, on an annual basis, additional launch and return services from U.S. allocation of total ISS user payload capacity available on flights to and from ISS;
- In exchange for the AEB-provided equipment, NASA will provide AEB, from its ISS allocation as stated in the Space Station Agreements, with: [1] user accommodations on the ISS – express lockers, and adapter site years and transportation services to support AEB’s use of these accommodations;[2] use of the equivalent of 3.0 percent of the operational time available in the WORF-2 facility and standard Space Shuttle services for the launch and return of 120 pounds of AEB payload each year for a period of ten years; [3] user accommodations in the TEF equivalent to two 50kg trays for ten years and standard space Shuttle services for five

rotations of trays;[4] up to 45 percent of NASA's allocated utilization resources to support use of the above user accommodations; [5] standard Space Shuttle services for launch and return of spares for the TEF and the WORF-2 in amount not exceed a total of 120 pounds each year for a period of ten years;[6] Tracking Data and Relay Satellite System data transmission capability to support AEB's ISS utilization up to its allocated percentage of utilization resources

## 2.2 Intellectual Property

Concerning Proprietary Data Protection, NASA will respect the proprietary rights in, and confidentiality of, AEB's appropriately marked data and goods to be transported on the space Shuttle. AEB may implement measures necessary to ensure confidentiality of AEB utilization data passing through the ISS communications and data systems and other communications system being used in conjunction with the ISS. IA, Art. 9.4.b firmly establishes:

"The proprietary rights in, and the confidentiality of, AEB's utilization data passing through communications systems will be respected".

Marguerite B. Broadwell regarding intellectual property and the economic development of the International Space Station emphasizes that this issue "reflect the partners understanding the protection and treatment of confidential and proprietary data and inventions are critical factors for achieving optimum industry participation and successful economic development of the ISS...through the IGA and MOU, each partner has agreed that they shall respect the proprietary rights in and the confidentiality of properly identified and appropriately marked data and goods. Each Partner agrees to protect the marked proprietary data in accordance with the marking<sup>33</sup>.

For the purposes of article 19 of IA, intellectual property must be interpreted in broad meaning as established in IGA article 21, which refers to article 2° of the Convention Establishing the World Organization of Intellectual Property, Stockholm, 1997 and reviewed in 1979.

Space activities, in the context of the International Space Station Program are basically related to technological development, scientific research and

inventions, evidencing the importance of protecting these activities in view of the different legislation of the member states of the ISSP and in accordance with the international agreements signed by the Partners and Participants.

Protection of patents and other intellectual property rights are of paramount interest for every commercial users of the ISS.<sup>34</sup> Article 19.5 of IA, following the criteria stated in Article 21 of IGA, states:

"for the purpose of intellectual property law, activities occurring in or on an ISS flight element shall be deemed to have occurred only in the territory of the Partner State of the element's registry, except that for ESA-registered elements any European Partner state may deem the activity to have occurred within its territory".

This system applies the same link principle which establishes a relationship between a State and a ship on the High seas, to exercise extraterritorial jurisdiction over vessels by a particular State.<sup>35</sup> The ISS is constituted by different hardware elements registered in different States or by ESA. Under this legal system the State of registry is the connecting factor regarding the choice of the law applicable. The IGA and the IA leads to the possible application of different national laws.

And Article 19.7 of IA, states:

" The temporary presence in the territory of a Partner State or Brazil of any articles, including equipment in or on the ISS, in transit between any place on Earth and any flight element of the ISS registered by a Partner or ESA shall not in itself from the basis for any proceedings in a Partner State or Brazil for patent infringement"

## 2.3 Policy and Strategies

The National Policy on the Development of Space Activities establishing major principles,, objectives and guidelines for the Brazilian space activities was approved by the Presidential Decree on December 1994. The main objectives may be summarized as :<sup>36</sup>

[1] To establish within Brazil scientific and technical competence in the space area which would make it possible for the country to act with real autonomy in some well identified situations, including the selections of technological solutions

to Brazilian problems and the international negotiations, agreements and treaties;

[2] To promote the development of space systems and related ground infrastructure, that may provide data and services desired by the country;

[3] To prepare the Brazilian industry to participate and become competitive in the market for space goods and services;

[4] Priority shall be given to those projects capable of mobilizing considerable efforts and resources towards challenging, significant and deserving goals, and also to those seeking solutions to national problems, particularly through the application of space technology;

[5] International cooperation projects shall be encouraged provided they are unquestionably beneficial to all parties and will contribute to further the objectives of this policy;

[6] The national industry shall be brought to participate as much as possible of the space projects, which shall provide opportunities to qualify Brazilian firms as suppliers of space systems, products and services;

[7] The programs shall encompass all the activities and means necessary to guarantee their final results will fully translate into benefits to the society;

[8] The decision on new projects shall require formal analysis of costs and benefits, emphasizing efficiency and giving preference to initiatives that may produce earlier results;

[9] The Brazilian space activities shall be organized into a National Program, composed by single programs covering the different areas of activities, which must show coherence among themselves.

With respect to Brazilian policy and strategies for the International Space Station utilization Brazil has been developed a micro-gravity project, established and managed by AEB, in order to improve national research. Petrônio Noronha mentions the Brazilian technologic and scientific areas that will most benefit from the ISS were not yet fully identified. Brazil is in "*de lege ferenda*" phase regarding the establishment of a Program for the ISS utilization and commercialization. The

issue is still premature and needs to be reflected under the international mechanisms and policy stated for the ISS commercialization. It is the pressure of facts on law.

In fact, the report developed by KPMG<sup>37</sup> to examine the potential for commercial utilization of the U.S. portion of the ISS says: "it became clear that the future commercial markets for the ISS are still premature and any market study would be wholly speculative. In the larger sense, markets for the ISS must be nurtured, rather than studied ...However, building commercial markets for the ISS had been identified as an important goal.. Hence, the need for an independent organization to facilitate the commercialization effort".

### **3. Non- governmental Organization [NGO] for Space Station Utilization Management**

In the international scenario, states rationally recognize their interdependence with other states, mainly in the area of the space activities, indirectly affecting the institute of sovereignty, evidencing the fundamental role of international affairs and the impact of the international organizations on the management of space issues.

The need to balance the interests of the countries involved in the International Space Station Program regarding cooperation and commercialization .... the establishment of new mechanisms for manager an conduct the ISS.

The NASA idea of creating a non-governmental organization to manage the space station is based upon the 1995 NASA proposal to create an orbital research institute for the station<sup>38</sup>. The report with respect to Institutional Arrangements for Space Station Research<sup>39</sup> mentions the request from NASA to assess alternative approaches to the management of ISS research and concludes that NASA should establish an NGO to manage all aspects of research on the ISS and carry out its assigned responsibilities.<sup>40</sup>

Regarding the relations with commercial users the report, above mentioned, in Recommendation 8 states:<sup>41</sup>

"The NGO should foster use of the ISS for research not only by academic science and engineering communities but also by commercial entities. To this end the organization should :

- Proactively explore and stimulate potential commercial uses;
- Assist the community of NASA commercial space centers in using the ISS;
- Develop well-defined criteria for commercial research activities;
- Include commercial representation in user groups, where appropriate;
- Broker funds between NASA and other sources to advance commercial research.”

This Recommendation emphasizes the need to establish a clear policy for the protection of proprietary information and intellectual property. This is one of the pillars and focal point for the utilization of the ISS.

### Conclusions

[1] The International Space Station Program - ISSP is one of the most important and complex international project with respect to space cooperation and commercialization.

[2] The ISS international framework provides that this cooperation should be carried out in accordance with all recognized sources of international law. These legal criteria establish a Space Law teleology flow-down where the Space Station Intergovernmental Agreement [IGO] and the principles stated at the United Nations International Treaties on Space Law prevail.

[3] The Brazilian participation at the International Space Station is based on the Implementing Arrangement between the USA and Brazil for the Design, Development, Operation and Use of Flight Equipment and Payloads for the International Space Station Program, which states that the Parties undertake the cooperation with respect to ISSP exclusively as part of the United States commitment to provide certain equipment for ISS under IGA.

[4] The Implementing Arrangements is intended to be consistent with and not derogate from the provisions of the IGA and the Space Station Agreements.

[5] The interpretation of Brazilian rights and obligations arising from the Implementing Arrangement, must be considered under the international regime governing Space Station cooperation following the Public International

Law mechanisms, pointed out at the Vienna Convention on the Law of Treaties and the IGA.

[6] The participation in the ISSP encompasses two types of representation: [1] “Partners” (the USA, Russia, ESA countries, Canada and Japan through their respective space have the same status as NASA, although they act under NASA’s leadership); [2] “Participants” (they are countries that were integrated into the program by sharing the rights and obligations of one of the partners - AISI (Italian Space Agency) and Brazil – they develop activities as part of the American part in the ISS).

[7] In the Brazilian case, the arrangement concerning jurisdiction is defined in Article 5 of the Implementing Arrangement between the USA and Brazil, which states: “In accordance with Article 5 of the IGA, NASA will exercise jurisdiction and control over all AEB- provided equipment” This provision concerns to jurisdiction and control solely with respect to a specific event: Brazilian Space Agency [AEB] provided equipment. With respect to all other issues Brazil will exercise jurisdiction and control. The Brazilian Space Agency will develop and provide the equipment to NASA as part of NASA’s contribution to the ISS program. In exchange, AEB will receive rights from NASA as provided in the Implementing Arrangement from NASA’s allocation to utilize the ISS.

[8] State responsibility is the corollary of the principle of damage reparation. Applying the teleology of international law, both Brazil and USA must observe the general obligations arising out of the formal sources of international law. However, *ad latere* of these general obligations, the IA establishes specific obligations vis-à-vis design and development of ISS elements. However, In the Brazilian case, NASA “will exercise jurisdiction and control over all AEB-provided equipment”<sup>42</sup>. Applying the above teleology, we could conclude that these transfer of jurisdiction and control attracts the USA responsibility and liability vis-à-vis this specific issue, related third parties. However, under the ISSP the Cross Waiver of Liability Clause is applied with respect to USA- Brazilian relationship. Concerning all the other matters not stated at Article 5 of IA, Brazil remain responsibly and liable related third parties.

[9] In the Brazilian case, IA provisions affecting ISS commercialization follows the IGA parameters. Article 9 of IA states: " AEB may at any time barter for, sell to NASA or the International Space Station partners, or enter into other arrangements for any portion of its access to ISS, and is free to market the use of its access according to procedures established by the International Space Station multilateral User Operations Panel ( UOP), as defined in the Space Station agreements." [ IA Art. 9.3]. However, as Brazil is not a ISS Partner, but an ISS Participant, under the NASA Umbrella treaty, the terms and conditions of any barter or sale will be determined on a case-by-case basis by the parties to the transaction, with NASA's concurrence and AEB may retain any revenues it derives from such marketing [IA Art. 9.3]. AEB-provided equipment capabilities may also be made available to ISS Partners, in accordance with the Space Station Agreements [IA Art. 9.1].

[10] Concerning Proprietary Data Protection, NASA will respect the proprietary rights in, and confidentiality of, AEB's appropriately marked data and goods to be transported on the space Shuttle. AEB may implement measures necessary to ensure confidentiality of AEB utilization data passing through the ISS communications and data systems and other communications system being used in conjunction with the ISS. A clear policy for the proprietary information and intellectual property is one of the pillars and focal point for the utilization of the ISS.

[11] In the international scenario, states rationally recognize their interdependence with other states, mainly in the area of the space activities, indirectly affecting the institute of sovereignty, evidencing the fundamental role of international affairs and the impact of the international organizations on the management of space issues. The need to balance the interests of the countries involved in the International Space Station Program regarding cooperation and commercialization point out the establishment of new mechanisms for manager and conduct the ISS.

[12] The NASA's idea of creating a non-governmental organization to manage the Space Station could be one pathfinder related a new management approach for the ISS. In fact, the complexity regarding the management of the International Space Station Program could justify the establishment of an independent organization

to facilitate the commercial effort regarding these new space activities.

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#### **ABBREVIATIONS**

**AEB** - Brazilian Space Agency - "*Agência Espacial Brasileira*".

**BISSP** – Brazilian International Space Station Program.

**IA** – Implementing Arrangement between the Government of the United States of America and the Government of the Federative Republic of Brazil for the Design, Development, Operation and Use of Flight Equipment and Payloads for the International Space Station Program.

**IGA** - Intergovernmental Agreement on the Space Station.

**INPE** - (**Brazilian**) National Institute for Space Research, "*Instituto Nacional de Pesquisas Espaciais*".

ISS – International Space Station.  
ISSP – International Space Station Program.  
TRIPs – Agreement on Trade Related Aspects of  
Intellectual Property Rights,  
Including Trade in Counterfeit Goods.  
WIPO – World Intellectual Property Organization.  
WTO – World Trade Organization.

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<sup>1</sup> See Institutional Arrangements for Space Station Research, National Research Council, National Academy of Sciences, USA, 1999, xi.

<sup>2</sup> *Idem*, 1

<sup>3</sup> See IGA arts. 1, 2.

<sup>4</sup> See about IGA: Farand, André- Space Station Cooperation: Legal Arrangements, Outlook for Space Law over the Next 30 Years, Kluwer Law International, MNP, The Netherlands, 1997, 125-133. Gorove, Stephen - Developments in Space Law, Kuwer AP, MNP, The Netherlands, 1991, 315-336.

<sup>5</sup> Signed at October, 1997, Brasília, Brazil,

<sup>6</sup> See Barbosa, Marcio Nogueira – A Importância Estratégica da Cooperação Internacional, in Parcerias Estratégicas, Ministério da Ciência e Tecnologia, Brasília, Brazil, 1999, 131-137.

<sup>7</sup> See Brownlie, Ian - Principles of Public International Law, Claredon Press, UK, 4<sup>th</sup> ed., 1980, 288

<sup>8</sup> See A Farand.

<sup>9</sup> The Vienna Convention is source of Brazilian International Law at the level of Customary Law.

<sup>10</sup> Noronha, Petrônio [Manager Brazilian International Space Station Program] et al - The Brazilian International Space Station Program: Histórico, Estratégias, Objetivos, in Parcerias Estratégicas, Ministério da Ciência e Tecnologia, Brasília, Brazil, 1999, 137-150.

<sup>11</sup> See Article 1.3 Implementing Arrangement.

<sup>12</sup> *Idem*.

<sup>13</sup> See Cheng, Bin - Studies in International Space Law, Claredon Press, UK, 1997, 231. Gorove, cit., 330. Verschoor, Diederiks – An Introduction to Space Law, Kluwer Law and Taxations Publishers, The Netherlands, 1993, .85.

<sup>14</sup> See Von Der Dunk, Franz G. – Private Enterprise and Public Interest in the European ‘Spacescape’, IIASL, Leiden Univ., The Netherlands, 1998, 38.

<sup>15</sup> See Gorove, 330.

<sup>16</sup> See Mc Dougal, Myres et al – International Law in Contemporary Perspective, Univ. Case Series, Foundation Press, USA, 1981, 433.

<sup>17</sup> Von Der Dunk, 27.

<sup>18</sup> In the absence of an agreement, emphasizes Meredith, “ registration of your client’s satellite

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on a foreign registry would subject your client’s satellite to the laws and control of a foreign country. Despite the fact that the foreign jurisdiction arguably may not be far-reaching, affecting only the satellite’s presence in space and not business applications on Earth...Furthermore, where a foreign State exercises jurisdiction and control, a potential exists for conflict between laws applied, or actions taken, pursuant to jurisdictional authority and those applied, or taken in accordance with the obligation to supervise the private space activities. See Meredith, Pamela et al – Space Law: A Case Study for the Practitioner, Kluwer AP, MNP, The Netherlands, 1992, 53.

<sup>19</sup> Gorove, 232.

<sup>20</sup> Cheng, 231/32.

<sup>21</sup> See Project 2001, International Colloquium, Cologne, 29-31 May 2001, Report of the Working Group on Space Stations, 3.

<sup>22</sup> See AEB Rule n. 27, June 20, 2001.

<sup>23</sup> Cheng, 603.

<sup>24</sup> *Idem*, 604.

<sup>25</sup> Shaw, Malcolm – International Law, Univ. Cambridge, UK, 4<sup>th</sup>.ed., 1997, 541.

<sup>26</sup> See Liability Convention.

<sup>27</sup> See art. 5 -IA .

<sup>28</sup> See Proposal by Brazil and [GRULAC] ... for a Consensual Interpretation of the Convention of International Liability for Damage caused by Space Objects”, UNCOPUOS, Legal Subcommitee, 1999.

<sup>29</sup> See Framework Agreement Between the Government of the Unites States and the Government of the Federative Republic of Brazil, on Cooperation in the Peaceful Uses of Outer Space, March 1, 1996.

<sup>30</sup> See Farand, .51.

<sup>31</sup> See Steptoe, -----

<sup>32</sup> *Idem*.

<sup>33</sup> Broadwell, MargueriteB., Intellectual Property and the Economic Development of the International Space station, ISS Commercial Development Manager, NASA, washingtonp, USA, 1-6

<sup>34</sup> “The ISS Partner States faced the situation that two different approaches had to be compromised. Under the ‘First to Fille Approach” the time and the place of invention is irrelevant to protection of IPR’s, this approach is followed by most of the patent laws of the World, whereas the “ First to Invent-Approach” is applied by the patent law of the USA. By creating a link between an ISS element and a State (or Organization) of registry,

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the IGA follows neither of the two systems” In Project 2001, International Colloquium, Cologne, 29-31 May 2001, Report of the Working Group on Space Stations”, 29.

<sup>35</sup> Idem.

<sup>36</sup> See Brazilian National Space Policy and Program – Brazilian Space Agency, Brazil.

<sup>37</sup> NASA: Commerce and the International Space Station, KPMG , USA, 1999,1-25.

<sup>38</sup> See Allen Lar, Space Station: Status of Efforts to Determine Commercial Potential, GAO, USA, 1999, 1-6.

<sup>39</sup> See Institutional Arrangements for Space Station Research.

<sup>40</sup> Idem, 27.

<sup>41</sup> Idem ,45. See Uhran, Mark, NASA Headquarters – Reference Model, a Non – Government Organization for Space Station Utilization Management, discussion draft, October 1998.

<sup>42</sup> See art. 5 -IA .