ANALYSIS OF THE LEGAL INSTRUMENT SIGNED BETWEEN BRAZIL AND THE UNITED STATES OF AMERICA REGARDING THE RETURN OF A SPACE OBJECT

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ABSTRACT

Late March 2008, in the city of Abadia de Goiás, State of Goiás, in the Brazilian territory, an object of unknown nature and origin was found. The object did not cause damages to properties and neither injury to animals or persons. Later, the object was identified as the component of a U.S. launch vehicle upper stage registered with the International Designator of 2007-046B in the United Nations Register of Space Objects. As soon as the origin of the object became known, the Embassy of the United States of America in Brazil, through its Diplomatic Note # 383, of August 25, 2008, sent to the Brazilian Ministry of Foreign Affairs, required the return of the object to the North-American authorities, in accordance with Article 5 of the 1968 Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space (ARRA). The return's act took place on March 5, 2009, at the Brazilian National Institute for Space Research (INPE)'s plant, in São José dos Campos, SP, Brazil. This kind of ceremony had never happened in Brazil. The representatives of INPE and the Embassy of the United States of America in Brazil, on behalf of, respectively, the Governments of Brazil and the United States of America signed a specific instrument to formalize the return of the object to the North-American authorities. However, ARRA does not foresee expressly the need of signing a legal instrument to formalize the return of a space object. In this context, the instrument signed between Brazil and the United States has a single nature. Therefore, the purpose of this paper is to present the whole text of the mentioned instrument, in order to verify whether it is in accordance with the existing legal framework, as well as to start discussions regarding the feasibility of establishing proceedings and patterns about return of space objects.

INTRODUCTION

The building of the Goiânia's Institute of Radiotherapy, a hospital in Goiânia, the capital of the central Brazilian State of Goiás, was abandoned in 1985. A caesium-137 based teletherapy unit was left behind. Over the following years, many homeless, squatters and scavengers entered the building. Eventually, on September 13, 1987, two men came across the radioactive

teletherapy head and took it with them in a wheelbarrow to the house of one of them. There they partly dismantled the equipment, taking the billiard ball-sized cesium capsule out of the protective rotating head. The gamma radiation emitted by the capsule's iridium window made the men nauseous after a couple of days, but they assumed it was due to something they ate. The exposure eventually caused localized burns to their bodies and later on one of them had to have an arm amputated. The two men attempted to open the cesium capsule, but failed. A few days later, however, one man did break open the iridium window, which allowed him to see the cesium chloride emitting a deep blue light. On September, 18, 1987 the two men sold the item to a nearby junkyard. That night, the junkyard's owner went into the garage and saw the blue glow from the cesium capsule. Over the next three days, he invited friends and family to view the strange glowing substance. Several people who visited the home came into contact with the dust and spread it around the local neighborhood and to other towns nearby. The wife of the junkyard's owner was the first to notice that many people around her had become severely sick all at the same time. On September 28, 1987 (15 days after the item was found) she put the material in a plastic bag and transported it by bus to a hospital. There, a physician rightly suspected it was dangerous. In the morning of September 29, 1987, a visiting medical physicist confirmed the presence of radioactivity. The accident response started that evening. The contamination resulted in four deaths (the wife of the junkyard's owner among them, who died on October 23, 1987) and serious radioactive contamination of 249 other people. The cleanup operation was much harder for this event than it could have been because the source was opened, and the fact that the active material was water-soluble[1]. The containers with radioactive material were stored in a site 1,55 miles from Abadia de Goiás, the same city where the space object was found.[2]

Due to the past experience, when the space object was found in the rural area of Abadia de Goiás, the inhabitants first thought that it was radioactive, and then they did not touch it. The municipal authorities contacted the Brazilian Commission of Nuclear Energy (CNEN) that sent its technicians to the city. After some tests, CNEN's experts confirmed that the object was not dangerous and they realized that it was a space object. Then, the Brazilian National Institute for Space Research (INPE) was involved in the case. INPE sent its technicians to Abadia de Goiás and, since they confirmed that it was really a space object, they moved it to INPE's plant, in São José dos Campos, in the State of São Paulo.

After that, members of INPE's board informed the authorities of the Brazilian Ministry of Science and Technology that they had the possession of a space object probably built in the United States. INPE's experts supposed that the object was built in the United States due to its high technological characteristics, found only in a few countries. Then, the representatives of the Brazilian Ministry of Science and Technology notified the representatives of the Brazilian Ministry of Foreign Affairs about the case.

As soon as the Brazilian Ministry of Foreign Affairs was notified about the case, its members contacted the representatives of the United States Embassy in Brazil, which sent the pictures of the space object to NASA[3]'s experts. After analyzing the pictures, NASA's experts concluded that the object

found in the Brazilian territory was the component of a U.S. launch vehicle upper stage registered with the International Designator of 2007-046B in the United Nations Register of Space Objects. Then, the United States Embassy in Brazil sent the Diplomatic Note # 383, of August 25, 2008, to the Brazilian authorities claiming the return of the space object in accordance with Article 5 of the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space (ARRA). The discussions and procedures to formalize the return of the space object were settled among the Brazilian Ministry of Foreign Affairs, the Brazilian Ministry of Science and Technology, INPE and the United States Embassy in Brazil.

THE CEREMONY

During the discussions for establishing procedures to formalize the return of the space object, the representatives of Brazil and the United States agreed that they should sign a legal instrument, despite ARRA does not foresee such necessity.

According to article 5.5 of ARRA, the United States of America, through its Embassy in Brazil, assure that they would cover all expenses regarding the transportation and storage of the space object, including those related with the time expended by the experts from CNEN and INPE. On this sense, Dr. Gilberto Câmara, INPE's Director, taking into account the close cooperation between Brazil and the United States in the space area, proposed to the Brazilian authorities from the Ministry of Foreign Affairs to waive the right of such compensation. The Brazilian Ministry of Foreign Affairs accepted this proposal.

The ceremony for the return of the space object to the North-American authorities took place at INPE's plant, in São José dos Campos, SP, on March 5, 2009. The North-American delegation was composed by Dr. James Richard Driscoll and Lieutenant Colonel Jon Mark Harrington, from the United States Embassy in Brazil, as well as by David Brooks, First-Secretary of the United States General Consulate in São Paulo. They arrived to the São José dos Campos Airport at 1:30 PM, in a plane piloted by Lieutenant Colonel Jon Mark Harrington. At the airport, the North-American delegation was welcomed by Dr. Marco Antonio Chamon, INPE's Coordinator for Technology Management.

The Brazilian delegation was composed by Dr. Marco Antonio Chamon, Dra. Nélia Ferreira Leite and Rozane Silva, from INPE; Dr. Himilcon de Castro Carvalho, from the Brazilian Space Agency; and Álvaro Fabricio dos Santos, from the Brazilian Ministry of Science and Technology.

The ceremony started at 2:30 PM. On behalf of INPE's Director, who was absent due to a business trip, Dr. Chamon made a speech recalling the close cooperation between Brazil and the United States in the space area. He emphasized that Brazil has been using Landsat images for monitoring its natural resources since the 70's. He also mentioned that the North-American company Orbital Science undertook the launching of INPE's first satellite, SCD-1, in February 1993. He has expressed his hope that both countries continue cooperating in the area of space activities.

Once he took the floor, the representative of the United States, Dr. Driscoll, thanked the Brazilian Government for the measures adopted for returning the space object. According to him, the way that the case was conducted reflected the high level reached by Brazil in the space scenario.

After that, the North-American delegation proceeded to the inspection of the space object, in order to verify whether it really was the one mentioned in the Diplomatic Note # 383. The object was involved in a protective plastic and placed inside a wood pallet. It weighted around 130 pounds and therefore, two men were able to carry it.

Since the North-American delegation confirmed that the object was the one they were looking for, it was put on the INPE's truck and took to the airport in São José dos Campos, where it was finally placed into the US plane. According to the members of the North-American delegation, the space object would be taken to the United States within a few months, because NASA's experts were interested in analysing how it was not dissipated during its re-entrance in the Earth's atmosphere.

In accordance with Article 5.1 of ARRA, the Brazilian Government notified the United Nations about the mentioned ceremony during the Session of the Legal Subcommittee of the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS), in Vienna, Austria, in April 2009.

THE LEGAL INSTRUMENT

The instrument signed between the Governments of Brazil and the United States of America to formalize the return of the space object is very simple, but it has a single nature. The whole text of the instrument is presented as follows:

"*The Brazilian National Institute for Space Research – INPE, hereinafter called INPE, represented by its Coordinator of Technology Management, Marco Antonio Chamon, and the Embassy of the United States of America in Brazil, hereinafter called US EMBASSY, represented by its Counsellor for Environment, Science and Technology, Richard J. Driscoll, sign this instrument to formalize the return, provided in this act by INPE to the US EMBASSY, of the component of a U.S. launch vehicle upper stage registered with the International Designator of 2007-046B in the United Nations Register of Space Objects, that fell from outer space on to Brazilian territory, in the State of Goiás, late March 2008. This act is taking place in accordance with Article 5 of the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space, in force since December 3, 1968, as well as with the Diplomatic Note # 383, of August 25, 2008, from the US EMBASSY. In acceptance of this Letter of Return, the representatives of INPE and the US EMBASSY sign it in 4 (four) versions, two in Portuguese and two in English*". (Place and date) São José dos Campos, SP, Brazil, March 5, 2009. Signatures: (INPE)) Marco Antonio Chamon, Coordinator of Technology Managent ; (US Embassy) Richard J. Driscoll, Counsellor for Environment, Science and Technology. Witnesses: Álvaro Fabricio dos Santos, Brazilian Ministry of Science and Technology: and Lieutenant Colonel Jon Mark Harrington, US Air Force.

LEGAL ASPECTS

Article 5.3 of ARRA states that "*upon request of the launching authority, objects launched into outer space or their component parts found beyond the territorial limits of the launching authority shall be returned to or held at the disposal of representatives of the launching authority, which shall, upon request, furnish identifying data prior to their return*".

Brazil ratified ARRA on January 31, 1973 and the Agreement entered into force in the Brazilian territory on February 27, 1973, in accordance with Article 7, paragraph 4, of the Brazilian Legislative Decree # 80, dated December 4, 1972[4]. Therefore, since the United States authorities had requested the return of the part of their space object, Brazil, as a State Part of ARRA, had to proceed according to that Agreement.

However, as it was emphasized, ARRA does not foresee the need of signing a legal instrument to formalize the return of a space object.

Actually, it seems that instruments of this nature are very rare or, at least, they are not well fostered among the space-faring countries.

The absence of specific proceedings gives to the States involved flexibility to deal with the subject. In this study case, for instance, there were no damages to properties or injuries to persons, and Brazil did not exercise the right of having the expenses related to the return of the space objects supported by the United States. By the way, if there were any damages, they would be regulated by the 1972 Convention on International Liability for Damage Caused by Space Objects (LIAB). Therefore, two United Nations Treaties on Outer Space would be applicable to the case: ARRA – to regulate the return of the space object; and LIAB – to regulate the compensation for damages caused by the space object.

However, supposing that Brazil would like to have its expenses covered by the United States, according to Article 5.5 of ARRA, but the States do not reach an agreement about the value, which instance or tribunal would have competence to solve it? LIAB could not be applicable to the case, because there were no damages.

Article XII of LIAB states that "*the compensation which the launching State shall be liable to pay for damage under this Convention shall be determined in accordance with international law and the principles of justice and equity, in order to provide such reparation in respect of the damage as will restore the person, natural or juridical, State or international organization on whose behalf the claim is presented to the condition which would have existed if the damage had no occurred*". Beyond that, Article XIV of LIAB foresees that "*if no settlement of a claim is arrived at through diplomatic negotiations as provided in article IX, within one year from the date on which the claimant State notifies the launching State that it has submitted the documentation of its claim, the parties concerned shall establish a Claims Commission at the request of either party*".

However, ARRA does not state what shall be done first: the payment of the compensation or the return of the space object; ARRA does not establish patterns for evaluating the amount to be paid for the launching State to the State where the space object was found; ARRA does not present a period of time to finish discussions; ARRA does not foresee the establishment of a Claim Commission to settle discussions.

POSSIBLE SOLUTION

The existing legal framework, provided by the five United Nations Treaties on Outer Space, is fundamental to assure the peaceful uses of outer space. However, the Treaties were issued in a completely different scenario, where the Cold War still prevailed and where only the States undertook space activities, because, at the time, there were no

commercial interests in outer space. In this context, the Russian Federation and other space-faring countries[5] have been advocating the need of establishing a universal comprehensive convention on international space law that would be able to deal with current matters[6].

However, the Russian's position has not reached consensus among the COPUOS' members. Actually, there is no consensus not even for updating one single Treaty. In the beginning of this decade, some countries presented the idea of updating the 1975 Registration Convention (REG), in order to regulate the transfer of ownership of a space object. Currently, the practice of transferring the ownership of a satellite, for instance, when it is already placed in outer space, can be considered usual[7]. However, according to REG the launching State will ever be liable for a space object during its whole lifetime. REG does not foresee the transfer of ownership of a space object, neither the liability of the State to which the ownership was transferred. The way found by COPUOS to deal with this problem was to provide a United Nations General Assembly Resolution regarding the subject. On this sense, the UNGA Resolution # 62/101 – Recommendation on Enhancing the Practice of States and International Intergovernmental Organizations in Registering Space Objects - was approved on December 17, 2007. According to its item 4, UNGA Resolution # 62/101 "*recommends that, following the change in supervision of a space object in orbit:*

(a) The State of registry, in cooperation with the appropriate State according to article VI of the Outer Space Treaty, could furnish to the Secretary-General additional information, such as:

(i) The date of change in supervision;

(ii) The identification of the new owner or operator;

(iii) Any change of orbital position;

(iv) Any change of function of the space object;

(b) If there is no State of registry, the appropriate State according to article VI of the Outer Space Treaty could furnish the above information to the Secretary-General".

Therefore, since the updating of ARRA is not feasible, a draft of a Resolution could be discussed among the COPUOS members, in order to fulfill the gaps in the existing legal framework. The Resolution could establish proceedings for the return of a space object, as well as establish patterns for evaluating the amount to be paid for the launching States to the State where the space object was found. It could also estipulate the time for finishing discussions and the need of establishing a Claim Commission if a consensus is not reached.

CONCLUSION

The instrument signed between Brazil and the United States of America to formalize the return of the part of the space object does not present any legal complexity. Actually, it seems to be a single letter and not a legal instrument, such as an agreement or a contract. However, despite its simplicity, it has a positive aspect: it is quite useful to formalize the cooperation between two space-faring countries, as well as to demonstrate the commitment of both States with the United Nations Treaties on outer space.

Beyond that, taking into account this simple instrument, it was possible to imagine some questions that might arise if the States involved were not able to reach a consensus.

Nowadays, space activities are completely different than the ones that were undertaken at the time when the United Nations Treaties on outer space were approved. This paper has not the intention of criticizing those States that do not agree to discuss a single convention on outer space, because there are a lot of circumstances to be considered and a lot of interests involved. However, this paper tries to demonstrate that the idea of discussing a UNGA Resolution is feasible, and this solution was yet adopted in the case of transfer of ownership of space objects. In this context, the suggested resolution might be able to adjust the existing legal framework to the current development of space activities.

References

[1] Data from Wikipedia "Goiânia accident" (http://en.wikipedia.org/wiki/Goi%C3%A2nia_accident)

[2] See the document "The Radiological Accident in Goiânia", published by the International Atomic Energy Agency – IAAE – in 1988 (http://www-pub.iaea.org/MTCD/publications/PDF/Pub815_web.pdf).

[3] NASA = National Aeronautics and Space Administration.

[4] The Brazilian President approved the ratification of ARRA by Brazil through his Decree # 71.989, dated March 26, 1973.

[5] Namely: China, Colombia, Greece, and Ukraine.

[6] See item 170 (e) of the document A/AC.105/942, from April 16, 2010 – Report of COPUOS Legal Subcommittee on its forty-ninth session, held in Vienna, Austria, from 22 March to 01 April 2010.

[7] Brazil, for instance, transferred the property of its satellites "Brazilsat" to the North-American company MCI, Inc., in the beginning of this decade when it sold its telecommunication company "Embratel".