

## RECENT DEVELOPMENTS OF THE BRAZILIAN SPACE LAW \*

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*"It may be seen that, for the time being, the only way to introduce and regulate private activities in outer space, will be through national legislation."* Henri A. Wassenbergh<sup>1</sup>

### Introduction

Brazil is planning to commercially explore its Alcantara Launching Center (CLA), with the perspective of offering reliable and low cost launching services to the world market. This is a recent project. It was officially created only in 1993. The CLA is located in the state of Maranhao in a very privileged geographical area, only 2.18° south from the Equator Line. It offers conditions considered as excellent for equatorial and polar orbits launchings. It occupies an area of 620 km<sup>2</sup> and it already has a reasonable infrastructure, able to hold many launching pads and facilities necessary to the operation of different launchers of all sizes.

This paper aims to present and comment some important legal aspects of such a project, from a more broad evolution picture of what can be called Brazilian Space Law, as a collection of national rules related to space activities. It goes from the first legal act issued in August 3<sup>rd</sup> 1961, which set up the Organizing Group for the National Commission on Spaces Activities (GOCNAE), to current efforts envisaging the regulation of commercial launching activities in Brazil.

### 1. Domestic Space Law

Above all it is necessary to say that space law is not only international law. It includes relevant rules of other legal systems, such as municipal law.<sup>2</sup> In general, each nation, as it ventures into space, develops its own municipal law of space that in turn reflects the legal and political system of that nation. As Bin Cheng has foresaw, "in time they (the domestic space laws) will no doubt expand rapidly and extensively, particularly among States with space capabilities."

A national legislation is, indeed, a privileged and valuable instrument for the defense of properly national

interests: editing specific rules, for example, *appels d'offres* (national or regional preferences), technology transfers, financing research and development, insurance, patents, fiscal matters. With the same concern and in order to guarantee the achievement of its goals, all national legislation can make clear and precise the way that it intends to relate with other national legislation and international rules. Finally, it can also serve the purpose to practically determinate notions for the use and exploration of outer space, that remain widely undefined in Space Law, and it can establish a juridical background favorable to the development of local industry.

Space activities left behind the struggle for military and political state supremacy as a major motivation. Practical uses, starting from the commercial one, became predominant with the advent of private companies. But even now State intervention remains indispensable in this field. To the State and only to it, with effect, relies the responsibility to establish the juridical framework in which non-governmental organizations, submitted to its jurisdiction, can place its actions, and to define the institutional shape for organisms in charge of well developing activities reserved to them.

Nevertheless, nothing of this minimizes the importance of International Space Law as the highest level of regulation for space activities, with an essential global character and of immense and ever growing interest for all humanity.

### 2. Brazilian Space Law

I call Brazilian Space Law the collection of laws in force in Brazil concerning space activities. It encompasses all the international agreements signed and ratified by the Federative Republic of Brazil, as well as the domestic space legislation, including regulations and contracts.

Such a collection may be divided in two groups:

- Laws adopted in the first phase of Brazilian space activities, from the 60's until the 80's, when this matter was seen as of scientific interests and above all as of national strategic security;

- Laws approved in the 90's, aiming to attend the growing demands of space commercialization.

### 3. First phase of Brazilian Space Law

The main national documents of this phase are:

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1) Presidential Decree n° 51.133, of August 3, 1961, establishing at the National Research Council (CNPq) the Organizing Group for the National Commission on Space Activities (GOCNAE).

It was the first Brazilian space governmental organization. According to this Decree, it had a large range of competencies, among them:

- To study and propose the Brazilian Space Policy and the corresponding legislation, in close collaboration with the Ministry of Foreign Affairs

- To elaborate the plan for the creation of the National Commission on Spaces Activities as well as the laws, rules and regulations (laws, statutes and rules) necessary to the institution;

- To develop programs for technical-scientific interchange and international cooperation;

- To coordinate the relations between space activities and the Brazilian industry.

GOCNAE president was nominated by the President of the Republic and it could receive assistance from scientific and industrial national and foreign organizations. The COGNAE, established by Presidential Decree, had to prepare to creation, through the legislative, of the National Commission on Spaces Activities.

The National Commission on Space Activities would be directly subordinate to the President of the Republic, structured as an autonomous organism and preferably with a juridical personality of a Public Right Foundation, according to technical recommendation made to the President at the time. But this was never created. GOCNAE itself assumed in practice its place and it worked out this way until it was substituted by the National Institute for Space Research (INPE), 1971.

Although since the beginning it had an active participation of renowned civilian scientists and technicians, GOCNAE was clearly lead by superior officials from the Air Force, Army and Marine. Its scientific and military concerns were mixed together. If there was some reference to the national and foreign industry, nothing was said on space commercialization, which was normal and common at the time.

2) Ministry of Aeronautics decision of June 1964, creating the Executive Group for Space Studies and Projects (Getepe).

This decision was taken little after the deposition of the civilian government, in the beginnings of April 1964, when started the long cycle of military governments, extended until 1985.

The Getepe initial mission was to implant the Barreira do Inferno Rocket Range (CLFBI), at Natal, in the state of Rio Grande do Norte, in the Brazilian Northeast, close to the magnetic equator. Rapidly constructed, the CLFBI was inaugurated on December 15<sup>th</sup>, 1965.

Its main contribution to international cooperation and to the commercial use of space only came later, by the end of the 70's, when it started to give support to Ariane launchings, from Kourou base, at the French Guyana, right up the north of Brazil.

3) Presidential Decree n. 200, of February 2, 1967, modified by the Presidential Decree n. 900, of September 29, 1969, and by the Presidential Decree n. 991, of October 21, 1969. All these Decrees, in its Article 63, established as competence of the Ministry of Aeronautics "to study and propose directions for the National Aerospace Policy".

It formalized the predominant role of the Ministry of Aeronautics in space affairs.

4) Ministry of Aeronautics decision of October 17<sup>th</sup>, 1969, creating at the Aerospace Technical Center (CTA) the Institute for Space Activities (IAE), which replaced the Getepe.

This decision came to consolidate the mark of space activities controlled by the military sector, related to the development of rockets, launching vehicles, bases and launching operations.

5) Presidential Decree n° 68.009, of January 20, 1971, creating the Brazilian Commission for Space Activities (Cobae).

Cobae was defined as a complementary organ of the National Security Council, with the mission to assist directly the president of the Republic in implementing the National Policy for the Development of Space Activities (PNDAE). It was headed by the Chairman of the Joint Chiefs of Staff (EMFA), subordinated directly to the president of the Republic.

This decision consecrated the vision of space activities, both for military and civilians, as a matter of national security. The sector became rigorously reserved and its subjects were not submitted to Congress appreciation. There was a growing idea that the country should conquer full autonomy and self-sufficiency in the space area. This turned into a considerable underestimation of the benefits of international cooperation.

Cobae was in charge of evaluate and take care of space cooperation with foreign bodies and international organizations. Or, like it was said in the decree:

- "Undertake the superior coordination of external cooperation programs and follow their execution, signing necessary instruments with the foreign and international execution organs ...";

- "... Previously give opinion on contracts and conventions with foreign and international entities, to be signed by the Brazilian execution organs."

But since it had a clearly military nature, Cobae not only had difficulties to promote a better international interchange, mainly in technological areas, as it also did not place this task as one of its high priorities.

Such a problem was in the center of the decision adopted, latter in the 90's, to substitute Cobae by a civilian space agency.

6) Presidential Decree n° 68.532, of April 22, 1971, creating the National Institute for Space Research (Inpe).

This decree extinguished GOCNAE and created INPE, formally subordinate to the National Research Council (CNPq), as "the main execution organ for the development of space research, in the civilian scope", but acting "in

accordance with the orientation of Cobae". It was a clear indication that the civilian space programs were military supervised.

7) Presidential Decree n° 69.905, of January 6, 1972, establishing INPE's Internal Regulation.

This decree confirmed INPE as an organ oriented by Cobae and it established a permanent presence of an EMFA (Joints Chief of Staff) member at INPE's Directorate Council.

8) The November 1979 Cobae decision to create the Brazilian Complete Space Mission (MECB).

As the highest point of this phase, such a decision was adopted at the same time as it was refused, allegedly as too expensive, a French proposal of bilateral cooperation involving the development of a launch vehicle and three satellites (two for data transmission and the third for remote sensing). Cobae approved the purely Brazilian proposal, in which all the technological development necessary would be carried out in Brazil.

Within the MECB program the Institute for Space Activities (IEA), at the Aerospace Technical Center (CTA), would develop the launch vehicle (VLS), the Ministry of Aeronautics would also construct a new launch base (Alcantara) and the National Institute for Space Research (INPE) would be responsible for the development of the satellites, their tracking, control and for data reception.

#### 4. Present phase of Brazilian Space Law

The main documents of the present phase are:

1) The 1988 Federal Constitution, in its Article 21 gives competence to the Union to "explore", directly or through authorization, concession or permission, "aerospace" navigation."

In this case, the Union is represented by the Ministry of Aeronautics that, by the article 9<sup>th</sup> of the Complementary Law n.69, of July 23, 1991, is competent to establish, equip and directly operate, or through concession, the aerospace infrastructure.

2) The Protocol on Approval of Research and Production of the Earth Resources Satellite Between the Government of The Federative Republic of Brazil and The Government of The People's Republic of China, of July 6, 1988.

This agreement was internally very important because introduced the Ministry of Science and Technology – which had negotiated the Protocol – as a strong new player in the Brazilian space decisions.

Until now Brazilian-Chinese cooperative program is conducted by this Ministry.

Brazil and China are planning to create a bi-national enterprise to explore the data from its Earth Resources Satellites. That will be a commercial activity, of course.

3) Law n° 8.854, of February 10, 1994, creating the Brazilian Space Agency (AEB) and establishing the framework for the development of space activities in Brazil.

The creation of AEB, as an organ responsible for the conduction of the National civil space policy, marks a very important change in the Brazilian space policy, mainly having in sight the improvement of relations and interchange conditions with the USA and other developed countries.

It was raised to succeed the Cobae, that as a military institution had been a great impediment in the international space cooperation, particularly on transferring space technology.

EMFA's chief, in his report of April 15, 1993, recognized that "the Cobae structure, responsible for management of the Brazilian space program, in determining large restrictions to full development of space program".

The creation of AEB, as practice reveals, has allowed Brazil to amplify, more than at any other time, its external relations in the space area. In this sense, among AEB's attributions the following can be enhanced:

- To analyze international space cooperation agreement proposals and to sign them, in liaison with the Ministry of Foreign Affairs and the Ministry of Science and Technology, and to monitor their implementation;

- To issue opinions, in liaison with the Ministry of Foreign Affairs and the Ministry of Science and Technology on space related matters in international organizations, and to participate in their meetings;

- To stimulate private sector participation in space activities;

- To identify opportunities for the participation of the private sector in the provision of services and manufacture of goods in space related areas;

- To issue standards and regulations for space activities in the country.

This last attribution, if properly used, can facilitate fast solutions of relevant and urgent juridical questions, such as those related with the commercialization plans of the Alcantara Launching Base (CLA), that I will mention ahead.

This possibility is reinforced by the fact that AEB's Superior Council is competent to "approve directions for the establishment of rules and expedition of licenses and authorizations related to space activities", according to what says paragraph VII from Section III of Decree n. 1.329, of December 6, 1994, which established AEB regimental structure

4) Presidential Decree n° 1.332, of December 8, 1994, approving the National Policy for the Development of Space Activities (PNDAE).

This document affirms that "Brazil's achievements in the space field must be consolidated and amplified" and that "this requires", among other things, "the creation of opportunities for the commercialization of space related products and services".

The PNDAE considers as one of its specific goals to "adequate the Brazilian productive sector to participate and acquire competitiveness in space products and services markets".

Some of its objectives are the following:

- "To promote international cooperation at all levels, as a way to accelerate the acquisition of scientific and technological knowledge, guarantee the access to data and

to make economically viable the development of space systems of interest to the country."

- "Promote and encourage entrepreneurial participation on the financing of space systems devoted to pay services in commercial basis."

- "Encourage initiatives of commercial exploration, mainly by the private sector, of services and products originated or associated to space activities."

On its turn, the National Program of Space Activities (PNAE), with approval based on the PNDAE, has as one of its main objectives "donate the country with a totally operational launching center that, exploring the overcoming advantages of its equatorial location, may provide a wide variety of services, in conditions commercially competitive in the international arena."

5) Presidential Decree n° 1.953, of July 10, 1996, creating the National System of Space Activities Development (SINDAE);

It establishes the Brazilian Space Agency (AEB) as central organ of the system, and as sectorial organs the Department of Research and Development (Deped) of the Ministry of Aeronautics, and the National Institute for Space Research (INPE) of the Ministry of Science and Technology. It includes as participant organs and entities of other Ministries interested in space activities, as well as representatives of states and local authorities, if it is the case.

The system can also be integrated, through the signature of a participation convention, by a representative legally indicated by the private sector and approved by AEB's Superior Council.

6) Law n. 9.112, of October 10, 1995, that disposes about the Export of Sensible Goods and Services directly linked.

This law approved by National Congress was enacted by the President of the Republic on October 10, 1995, the same day that Brazil was received as a new member of the Missile Technology Control Regime (MTCR). It was not a mere coincidence. The promulgation of this law was an indispensable condition for Brazil's entrance in the MTCR, since it represented a legal guarantee that Brazilian authorities would strongly control the export of dual use technologies, that can be used for pacific or military purposes.

In February 1994, in another deliberated coincidence, at the same time that the Brazilian government enacted the law for the creation of a civilian Space Agency, the Ministry of Foreign Affairs made public a message, announcing that Brazil started to behave according to the MCTR rules, as if it was a member of this regime.

These were pragmatic measurements adopted by the Brazilian government in order to eliminate suspicions and distrusts from the USA and other developed countries that its space program had, in reality, a military character. In this way, Brazil expected to open up the way for possible space technology transfer. These, in fact, did not happen yet. But, at least, the bias and fears against the Brazilian space program are not as manifested as before.

7) Provisional Decree n. 1549-36, of November 6, 1997, on the organization of all Ministries, that modified the disposition of the Provisional Decree n. 813, of January 1st, 1995, related to the Ministry of Aeronautics competences.

In despite of AEB's creation, the Ministry of Aeronautics remained until 1997 competent for dealing with "the national civil and military aerospace policy". That legislative mistake allowed – certainly more for inertia than for any other reason – the coexistence of excludent rules. This was repaired in the new 1997 text, that defined as competence of the Ministry of Aeronautics only "the formulation and implementation of the National civil and military Aeronautics policy and contribution to the fomulation and implementation of the National Policy of Space Activities Development", as well as "the strategic planning and execution of actions related to the internal and external defence of the Nation, in the aerospace field".

8) Arrangement among the Brazilian Space Agency, the Ministry of Aeronautics and the Infraero Enterprise, of November 1rst, 1996. It defined Infraero as the national state enterprise responsible for the international commercialization of the Brazilian Launching Center of Alcantara (CLA).

Through this arrangement, good for 15 years, Infraero became in charge, among others, of the following obligations:

- Administrate CLA areas destined to the implantation, by others, of spacecraft launching areas with peaceful purposes;

- Execute engineering construction and services complementary for CLA's development, including those for the airport amplification and modernization and those of interest for the concession and use, by others, of spacecraft launching areas with peaceful purposes.

- Execute engineering specialized technical-professional services; and

- Administrate the improvements and systems resulting from the engineering complementary construction and services, including operation, security and maintenance.

### 5. First Memorandum of Understanding

As a first concrete result of its new mission, Infraero signed, in April 7, 1998, a Memorandum of Understanding with the Italian company Fiatavio and the Ucradians Yuzhnoe and Yuzhny, for the creation at CLA of the necessary conditions that will allow commercial launching of the Ukrainian rocket Cyclone.

Fiatavio and Yuzhnoye (in the name of two Ucravian companies) already signed an alliance strategic agreement to constitute a *joint venture* designed to commercialize Cyclones's commercial launches. Cyclone was constructed from an intercontinental missile, and it is expected to provide efficient performance and high profitability.

Because of this potential, the two companies proposed to Motorola, that owns Iridium global cellular telephone network, to launch 60 of its satellites from Alcantara, between the years 2001 and 2011. The proposal seems to be very attractive, since it presents some seductive elements in times when the secret of success is in lowering down launching

costs and enhancing the levels of efficiency and security.

In order to close this business, it is necessary to conclude an agreement with Infraero for the construction, at CLA, of the infrastructure and the special platform for Cyclone launchings. The objective is to assemble an enterprise that will last for at least 15 years, making at least six launches per year. During this time, Infraero would give priority (not exclusivity) to Cyclone launches.

The first letter of intention from Fiatavio to Infraero on the use of CLA for Cyclone launches was dated in December 17, 1997. Still in December, Infraero presented to Fiatavio a first cost estimate of the construction necessary to improve Alcantara and construct the Cyclone launching pad.

The Understanding Agreement was elaborated in February and firmed in the beginning of April. It is very detailed for a still preliminary document, with a short deadline for the end of 1998 (although it can be amplified by agreement signed between the two countries).

In the same pace, the Memorandum created the "Cyclone Project Working Group", constituted by representatives from the three parties, given them tasks and obligations suitable for someone who is seriously decided to take the business ahead. And it already included a detailed estimate of the expenses to set Alcantara ready for the launch of the first Cyclone in the year 2001: US\$ 200 million, with 150 in charge of Fiatavio, and 50 million from Infraero.

#### 6. Urgently needed legislation

Therefore, Brazil has yet a general legal base to implement the project of commercialization of CLA, but the existing legislation is far from being sufficient to this end. It is necessary to approve as soon as possible a specific regulation on the commercial launching activities.

The Brazilian federal authorities are just working out these bill as essential legal conditions to conclude a number of international agreements and private contracts regarding the use of the CLA. Some drafts have been prepared by different specialized sources. A task force group of the Brazilian Society of Aerospace Law has elaborated recommendations on the new law as a contribution to the Government.

The very final agreement between Infraero and Fiatavio is depending on the new law, which shall regulate space activities associated with Brazilian facilities and entities including granting of launch permits and the conditions of operations for launch permits.

The irreplaceable role of the Brazilian Government in commercial launching activities is to ensure safety, security, protection of the infrastructure needed for successful operations, as well as confidence for foreign investments in the CLA.

The new regulation shall define crucial topics, as the following:

- 1) The Brazilian Federal body empowered (competent) to grant launch certificate and authorization in CLA;
- 2) The launch licensing process: obtaining a space license, operations approval and launch permit;
- 3) Rights and obligations of launch entities (having in

mind to create the most favorable conditions to foreign investors, they could be, for instance, exempted from the bidding system;

4) Rights and obligations of entities that build infrastructure facilities in CLA;

5) The legal regime of CLA infrastructure;

6) The liability for damages caused by space objects including the payment of compensation and the third party liability of damage caused to other man-made space object;

7) The insurance and other financial requirement imposed on the entities which are granted launch authorization and permits;

8) The registration of space objects (in this relation, Brazil must sign and ratify as promptly as possibly the 1975 Convention on Registration of Objects Launched into Outer Space);

9) Civil penalties for breaches of the legislation.

This way, Brazil can become the 7<sup>th</sup> country to adopt such kind of legislation, after the USA, the United Kingdom, Sweden, South Africa, Russian Federation and Australia.

#### 7. Some remarks to conclude

It seems evident that Brazil could have arrived earlier to the era of space commercialization. Certainly the country lacked a deeper and more accurate view of the historical trends, as well as political determination to respond in a competent way to the new demands of a fast changing world, especially in the space field. The old national security and full autonomy doctrines, if ever had some positive aspects in a certain time – mainly in the formation of human resources –, ended up blocking innovative and faster attitudes.

Brazil took too long to realize the enormous commercial potential of its Alcantara launching center, that offers advantages as seductive and safe as those of Kourou base, at the French Guyana, also next to the Equator Line.

But there is still time to recover the lost time. And the Brazilian law, under preparation, must be an inseparable part of a new dynamics to be pursued by the country in order to use, at the right time, the excellent opportunities presently opened at the world market for commercial launches.

At the end a very painful question: is the Brazilian leadership effectively decided to face this challenge, which is at the same time the great chance of success, in spite of all present and future difficulties? That is what we will see very soon.

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