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**REMOTE SENSING AND AERIAL PHOTOGRAPY:  
THE CONFLICT IN THE BRAZILIAN LEGISLATION**

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## The Importance of Remote Sensing

Nowadays, as never before, remote sensing has a wide range of applications such as observation, reconnaissance and monitoring of productive areas (relating to agriculture, cattle, fishing and industry); deforestation assessment; monitoring of natural resources; prevention of natural disasters; transportation infrastructure (such as highways, railways, ports and airports); traffic control; meteorological and tourism services; and urban planning, among others.

**As a huge country, Brazil obtains many benefits from remote sensing applications, especially data regarding the deforestation in the Amazon region.**

## Remote Sensing in Brazil

In 1971, INPE bought its own aircraft equipped with aerogrammetric instrumentation;

built an earth station in Cuiabá in order to track the Earth Resources Technology Satellite (ERST-1), the original name of the NASA Landsat Program;

installed a processing image system in Cachoeira Paulista - SP;

started operating a remote sensing system in large and small scale.

## Remote Sensing in Brazil

Between 1980 and 1983, INPE's experts participated in the design and development of a reception and data processing system for Landsat 4 and 5.

In 1981, a statistical study carried out in the U.S.A. and published by the countries involved in the Landsat system, showed that Brazil was the third greatest user of images from this satellite, after the U.S.A. itself and Canada.

In 1988 INPE started working with Spot data, after adapting its signal reception and image processing systems in Cuiabá and Cachoeira Paulista.

## Remote Sensing in Brazil

One of the best examples of fruitful South-South space cooperation was the program China-Brazil Earth Resources Satellites (CBERS), established in 1988.

On 28/Sep/2009, INPE reached the incredible milestone of one million images from CBERS distributed free of charge.

On 24/Aug/2016, the Brazilian Senate approved the Additional Protocol, signed between the Governments of Brazil and China, on the development of Satellite CBERS-4A, enabling the continuation of the Program. The launching of CBERS-4A is scheduled to the second semester of 2019.

## Regulation of Space Activities in Brazil

In Brazil, there is not a national legislation on space activities. Currently, such activities are carried out in accordance with two Directives issued by the Brazilian Space Agency.

- i) Directive # 05, of 21/Feb/2002, which approves the regulation on procedures for obtaining authorization to carry out space launching from the Brazilian territory; and
- ii) Directive # 120, of 26/Aug/2014, which approves the regulation on procedures and the definition of requirements necessary for the request, evaluation, issuance, control and follow-up of licenses for carrying out space launching activities in the Brazilian territory.

## Decree-law # 1.177, of 21/Jun/1971

It establishes the procedures related to aerial photography in the Brazilian territory.

Article 3 defines aerial photography as the set of aerial or space activities of measurement, computing, and registering of data from the ground using sensors and proper equipment, as well as the interpretation of collected data or their translation under any form.

According to Article 4, the Ministry of Defense is in charge of controlling aerial photography activities in Brazil.

Decree # 2.278, of 17/Jul/1997

It regulates the Decree-law # 1.177

Article 1 establishes that aerial photography is divided in two phases: i) an aerospace phase of collecting and registering data, and; ii) a subsequent phase related to the interpretation and translation of collected data.

Article 2 states that the aerospace phase involves the collecting data from the Brazilian territory through the use of sensors installed in aerial or space platforms.



## The UN Space Treaties

Brazil has already ratified the Outer Space Treaty, the Rescue Agreement, the Liability Convention, and the Registration Convention.

Despite the non-adherence to the Moon Agreement, Brazil has already ratified four of the five UN Space Treaties. Brazil is fully committed with the international legal framework related to space activities.

## The Concept of Remote Sensing

According to Principle I “a” of the 1986 UN/Principles Relating to Remote Sensing of the Earth from Outer Space, the term "remote sensing" means the sensing of the Earth's surface from space by making use of the properties of electromagnetic waves emitted, reflected or diffracted by the sensed objects, for the purpose of improving natural resources management, land use and the protection of the environment”.

## The 1967 OST x Decree # 2.278

Article 1 of OST states that the “exploration and use of outer space, including the moon and other celestial bodies, shall be free for exploration and use by all States without discrimination of any kind, on a basis of equality and in accordance with international law, and there shall be free access to all areas of celestial bodies”.

**However, according to Decree # 2.278 (Article 6, II) a company should get an authorization from the Brazilian Ministry of Defense to undertake remote sensing activities in Brazil.**

## The 1967 OST x Decree # 2.278

The Decree does not deal with remote sensing activities, but with aerial photography, i.e., pictures of a terrestrial area taken from planes, helicopters, drones, etc.

According to the Decree, remote sensing activities are wrongly treated as aerial photography and the unique difference is the place where the sensor is installed: in a plane, for instance, or in a satellite.

The Decree contains dispositions which are inappropriate, because they contradict the principle of free exploration and use of outer space foreseen in Article 1 of OST.

## The 1967 OST x Decree # 2.278

Aerial photography is an activity carried out in airspace, where the State's sovereignty prevails.

The Decree is not applicable to space activities, such as remote sensing, because outer space is not under jurisdiction of any State.

In practice, it is impossible to prevent remote sensing satellites from taking pictures from any part of the Earth. Therefore, the Decree is ineffective.

## Decree # 9.279, of 06/Feb/2018

It establishes the Committee for the Development of the Brazilian Space Program whose main objective is to enhancing the development of space activities in Brazil.

The Committee had originally 9 technical groups dealing with several subjects, such as, human and financial resources for space activities; technological safeguards, the commercial use of CLA; national governance related to outer space.

## Directive # 71, of 28/Aug/2018

Issued by the Cabinet of Institutional Security  
of the Brazilian Presidency

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**It nominates the members of CDBSP's Technical Group whose  
purpose is to elaborate the Brazilian general space law.**

## Contributions to CDBSP's Technical Group

- i) To update Decree-law # 1.177 and Decree # 2.278, in order to remove from their scope any reference to space activities. These legislations should be restricted to aerial activities which are submitted to the national sovereignty.
- ii) To establish a Brazilian national law for space activities, taking into consideration the draft which was elaborated in 2014 by the Brazilian Association of Air and Space Law (SBDA), through its Centre of Space Law Studies (NEDE).



**THANK YOU VERY MUCH**  
**MUITO OBRIGADO**

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