



End of Studies Project Memoir

ABSTRACT

Land Registration is a difficult subject in Brazil and a constant issue. All real estate which belong to the Brazilian Federal Government are, in first place, managed by Brazilian Real State Secretariat – *Secretaria de Coordenação e Governança do Patrimônio da União (SCGSPU)* and are listed in Brazilian Federal Constitution of 1988.

Airport sites are classified as properties of special use according to their destination and must be registered in the official national system named Special Use Property Management System – SPIUNET.

The property of airport sites were usually managed by the Military before the creation of Brazilian National Civil Aviation Secretariat (SAC) in 2011. Since then, the management of these airport sites used by civilian aviation has become a legal competence of SAC.

In addition, considering the long time gap, many airports sites ended up outdated in terms of property register (or registration) and this need for updating has increased with the advent of the Federal Airport Concession Program.

The aim of these work is to propose a methodology to update airports site limits, real estate property registers, properties valuation and then, keep SPIUNET updated in order to reach better management of these properties.

Keywords: *airport sites, real estate, regularization, management, methodology, cadastre.*

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CHAPTER 1

INTRODUCTION

1.1. Background

The Brazilian land issues, and consequently, land real estate registration issues, began with the ownership relations between the Portuguese Crown and those who came to brave the New World, even until today. Currently, Brazil does not have a full and detailed knowledge of properties that belong to the Brazilian Federal Government.

Currently, the Federal Union's properties are described in the Constitution of the Federal Republic of Brazil, CRFB/1988 (BRAZIL, 1988), and Federal Union's real estate in the Decree Law nº 9.760 (BRAZIL, 1946).

The management of these assets is, in the first instance, the legal competence of Brazilian Coordination and Governance of the Real State Secretariat – *Secretaria de Coordenação e Governança do Patrimônio da União* (SCGPU) or just Brazilian Federal Real State Secretariat (SPU) linked to the Ministry of Economy (ME).

This responsibility is shared with the agencies that use or are responsible for the public policies that have an impact on these public assets. In Brazil, there is not a single entity responsible for land registry and public buildings of the Federal Administration.

The Brazilian Federal Real Estate Secretariat (SPU) delegates the real state responsibility to other agencies by using a document named “Delivery Term”, an instrument that formalizes the delivery of property liability for administrative, operational and commercial for civil aviation activities.

These responsibilities of managing over the properties used as airport sites and affected areas to service airports, used to belong exclusively to the then Ministry of Aeronautics, now the Aeronautics Command - COMAER of the Ministry of Defense (MD). With the institutional changes, especially after the creation of the Brazilian National Civil Aviation Agency - Agência Nacional de Aviação Civil (ANAC) in 2005, and with the creation of the Civil Aviation Secretariat – *Secretaria de Aviação Civil* (SAC) on March 2011, public policies related to civil aviation were transferred to SAC, among them, the management of real estate of those airport sites used by civil aviation.

To accomplish this purpose, the “Coordenação-Geral de Patrimônio” (loosely translated in English: General Management Office for Real Estate), CGPAT, was created within the then Department of Grants, now the Department of Grants and Real

Estate, to deal specifically with the issue of real estate of airport sites management, and thus promote the property supervision of these assets owned by the Federal Government and affected to the civil airport infrastructure.

According to the National Civil Aviation Agency – ANAC (ANAC, 2021), Brazil has, as of February 2021, 529 public civilian airports, 152 of which are airport sites considered as real estate properties owned by the Brazilian Federal Union, according to information provided by the Aeronautics Command – Comando da Aeronáutica (COMAER).

As stated at the Brazilian Aeronautical Code - CBA (Brazil, 1986), airports constitute universalities, equated to federal public property, as long as their specific purpose is maintained, although the Federal Union does not own all the real estate on which they are located.

Due to the complexity of the land issue, the problem centers on the fact that the boundaries of the airport site may no longer correspond with the Registry or in some cases never matched with those of the documents of the Registry. There are many cases of inaccurate or incomplete description of property limits in the registers such as overlapping property registers, multiple registers for the same area and so on.

It is important to point out that these concerns have not been properly addressed over the decades. For instance, there is a large number of lawsuits involving illegal occupations into or close to the airport sites and their incomplete expropriation processes for constructing more buildings or for expansion.

Moreover, with the advent of airport concessions in 2010, there was a requirement for the delimitation and definition of the current property situation boundaries of the airport sites granted to private initiatives. These initiatives have become essential in providing legal certainty on concession contracts.

For all these reasons, it is necessary to establish a methodology that allows the proper management of civil airport real estate and, subsequently, in near future, propose a system that is capable to store, manage and publicize airport information, while complying with legislation and promoting the provision of duly updated information to support public policies in the transport sector.

Considering these issues, the questions of this study are:

Why develop a real estate management methodology, and what are the advantages for the society?

1.2. Scope and Justification

The scope of this work is to present a methodology to manage the property related to Civil Aviation. Furthermore, it includes studying and organizing real estate data of 152

airport sites owned by the Brazilian Federal Government, with special attention to those under the Federal Airport Concession Program.

To achieve this objective, it is initially necessary to contextualize territorial and registry concerns in Brazil, which would explain and justify the legal entanglement derived from this long time ago situation, which affects the definition of public policies aimed at territorial management and, consequently, of the register properties of this country of continental dimensions.

In this sense, it is also necessary to present the legal framework that guides institutional limits of each stakeholder of the aviation sector in the current national scenario. In this paper will clarify, the responsibilities attributed to the main manager of the Federal Government's assets, the need for land regularization and, real estate and property valuation.

After that, organizing and spatializing cartographic documents and property registry data from those airport sites will be undertaken. Sometimes, it is necessary, in some cases, when the size of property is very big to make a new topographic surveying and propose a resizing of the airport site regarding aviation needs, such as a project for airport expansion.

In other cases, monitoring the outcome of expropriation processes that have not been finished, or those irregular occupations (people and cities) and other concerns.

The official property management system is the Special Use Property Management System - SPIUNET, which will be replaced in near future by another system capable of dealing with geospatial information named SPUNET.

In order to comply with regulations as well as to facilitate, systematize and standardize the property management of real estate used as airport sites, and keep the official management platform updated, it is proposed to initially search for data from each airport to identify their current situation, update its geospatial information through georeferenced vector files that can be spatialized and, in the future, organize a geospatial database to manage airport property information.

This is an internal demand of the National Civil Aviation Secretariat, whose importance will be accentuated with the end of the Federal Airport Concessions Program, probably after 7th Round to be held in 2022.

Another expected benefit from this work would be providing transparency of real estate information of airport sites and making information public, maybe, it could prevent improper occupations and property speculation around airports.

It could be also expected, as benefit, the greater legal certainty for airport operators, for the Federal Government (properties' owner) and for third parties.

1.3. Objective

The main objective of this study is to propose a roadmap to correctly manage property of 152 airport sites owned by the Brazilian Government under National Civil Aviation Secretariat of the Ministry of Infrastructure - MINFRA's institutional competences.

The objective of this thesis is to describe the management, in this case, it refers to updating the current limits of properties, and afterwards, registering the property in compliance with registration, inserting required data to the official national system named Special Use Property Management System - SPIUNET and keeping information updated. Management System - SPIUNET and keep information updated.

1.4. Thesis Report Organization

This thesis report is organized as follows.

Chapter 2 presents the personal introduction and the work environment where the internship took place. Chapter 3 covers the State of Art research concerning the land historical context, a brief of property register, Federal Government assets and real estate of airport sites. Chapter 4 brings the methodology chosen. Chapter 5 presents the results/solutions of the internship, the work done and the solutions that could be reached. The last part of this thesis report, Chapter 6, highlights the main conclusions, recommendations for future works and tasks still to be done.

CHAPTER 2

PRESENTATION OF WORK ENVIRONMENT

This Chapter brings a personal introduction and the work environment where the internship took place.

2.1. Personal Introduction

I am graduated in Cartographic Engineering from São Paulo State University (Unesp). I am also hold a master's degree in Remote Sensing from Federal University of Rio Grande do Sul (UFRGS).

Academically, my areas of interest have been Remote Sensing, Photogrammetry, Geodesy, Surveying and Geoprocessing.

I have worked at electrical sector in hydroelectric projects, always within the scope of my cartographic engineering background, with the technical specification of topographic surveys for the implementation of hydroelectric power plants.

Currently, I am a federal civil public servant at the National Institute for Colonization and Agrarian Reform (INCRA), where I initially had the opportunity to work at Land Regularization Program in Legal Amazonia (Terra Legal).

Since 2014, I have been working at SAC with airport characterization, regularization and real estate.

2.2. Introduction of the Internship Company

Due to the Coronavirus Pandemic, I performed my internship at the same company I work (Department of Grants and Real Estate - *Departamento de Outorgas e Patrimônio*).

2.3. Brief of National Civil Aviation Secretariat and Department of Grants and Real Estate

The National Civil Aviation Secretariat is one of the four Secretariats of the Ministry of Infrastructure - MINFRA. It was created in 2011 March 18, with the purpose of defining public policies, coordinating and supervising actions aimed at the strategic

According to MINFRA's Ordinance n° 124/2020 (MINFRA, 2020), DEOUP is composed by two General Management Offices: The Office for Grants and the Office for Real State, as it can be seen in the DEOUP's organization chart, Figure 2, below:

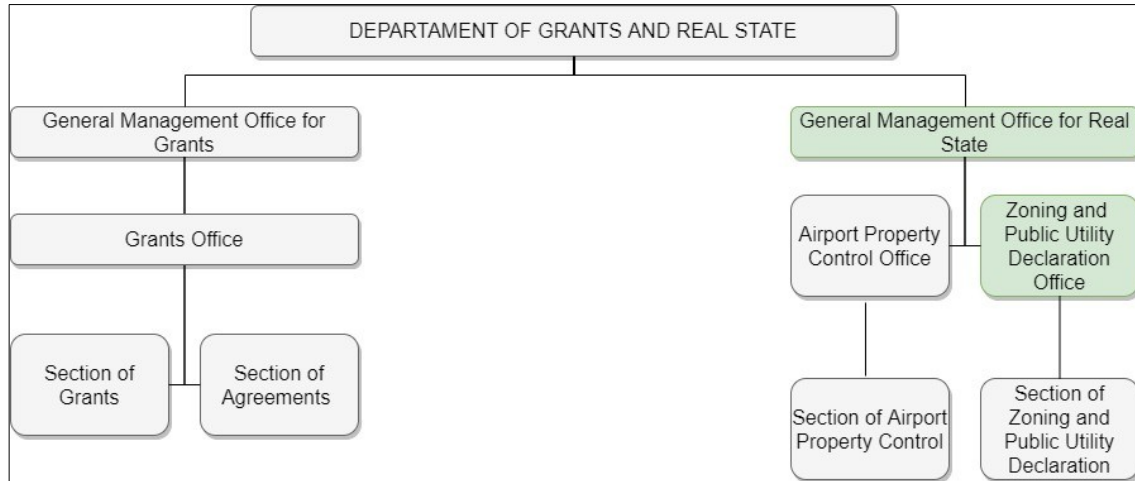


Figure 2- DEOUP's organization chart
Source: own elaboration

2.4. Internship tutor and duties

As long as I performed my internship at the same place I usually work with my direct supervisor, a lawyer, I would say I got a great learning at Laws's field, specially with Register Law.

During the internship I had the opportunity to have focused time to research, study and organize the proposal of management of properties under legal competence of this Secretariat.

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CHAPTER 3

STATE OF ART

This Chapter presents an in-depth of study of the subject.

First, it is necessary to briefly narrate the History of the territorial formation of Brazil since the discovery and some decisive historical facts in order to have a better understanding of the weight of the model adopted for the exploration of the country have impacted on the land registry.

3.1. Historical Contextualization

The Brazilian property issue dates back to the discovery of Brazil in 1500. Since the Treaty of Tordesillas, signed in 1494, which divided the New World (America) between the Crown of Castile (now Spain) and the Kingdom of Portugal.

The treaty defined the meridian 370 leagues west of the island of Santo Antão in the Cape Verde archipelago as the demarcation line. The territories east of this meridian would belong to Portugal, and the territories to the west, to Castile. The treaty was ratified by Castile on July 2 and by Portugal on September 5, 1494. A few decades later, the other side of the Earth would be divided, assuming as demarcation line, to the east, the corresponding Tordesillas meridian, by the Treaty of Zaragoza, on April 22, 1529.

The Figure 3, below, illustrates the Treaty of Tordesillas:

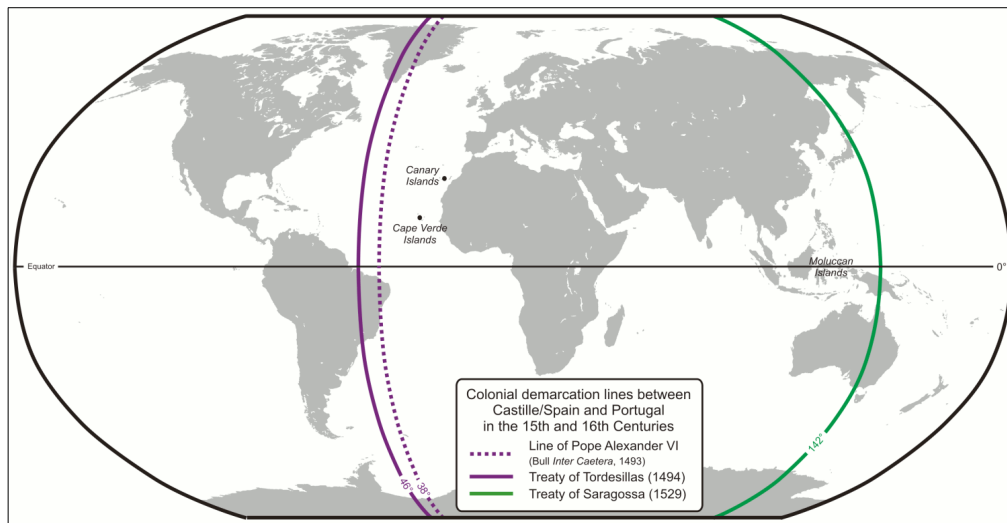


Figure 3- Treaty of Tordesillas

Source: Lencer (2021)

On January 13, 1750, King John V of Portugal and Ferdinand VI of Spain signed the Treaty of Madrid, in which both parties sought to establish the borders between Brazil and Spanish America, admitting that the Treaty of Tordesillas, as it had been envisioned in 1494 had been superseded, and was considered void. Spain was acknowledged sovereignty over the Philippines, while Portugal would get the territory of the Amazon River basin. Portugal would relinquish the Colony of Sacramento, on the northern bank of the River Plata in modern-day Uruguay, while getting the territory of the Seven Missions.

Following the Guarani War, the treaty was annulled by Spain and Portugal in the Treaty of El Pardo in 1761. The border was eventually settled in the First Treaty of San Ildefonso in 1777, with Spain acquiring territories east of the Uruguay River and Portugal acquiring territories in the Amazon Basin..

The Brazilian history is usually divided in three main periods: Colony, Empire and Republic.

The most important event within the Colonial period was the arrival of the Royal Portuguese Family in 1808, fleeing from Napoleon Bonaparte's troops, brought about a real change in Brazil. Several institutions were created in Rio de Janeiro, such as the Royal Library, the Botanical Garden and the Military Academy.

In order to increase Brazil's status, Dom João elevated it to the category of United Kingdom in December 1815. The royal family's stay was decisive in maintaining Brazil's territorial unification, as it brought together some of the elite and the population around the figure of the sovereign. Dom João's political and administrative measures led England to increase its interest in trading with Brazil.

This condition became clear with the opening of the ports to friendly nations. The

process caused Portugal to lose its monopoly on trade with Brazil, and the agrarian elite began to dream of Independence. On the other hand, Brazil became a promising consumer and supplier market for England.

In the Portuguese Crown's portion, in 1534, the area was initially divided into 14 hereditary captaincies, divided into 15 lots, the beneficiaries of which were twelve members of the Portuguese nobility.

The system of captaincies was initially implemented in Brazil with the donation, to Fernão de Noronha, of the island of São João (today Fernando de Noronha Island), by Royal Letter of Dom Manuel I (r. 1495-1521) dated February 16, 1504. However, the systematic use of the captaincies was established only in 1532, although their implementation only began in 1534.

From north to south the initial hereditary captaincies on the continental territory can be seen in Figure 4, below:

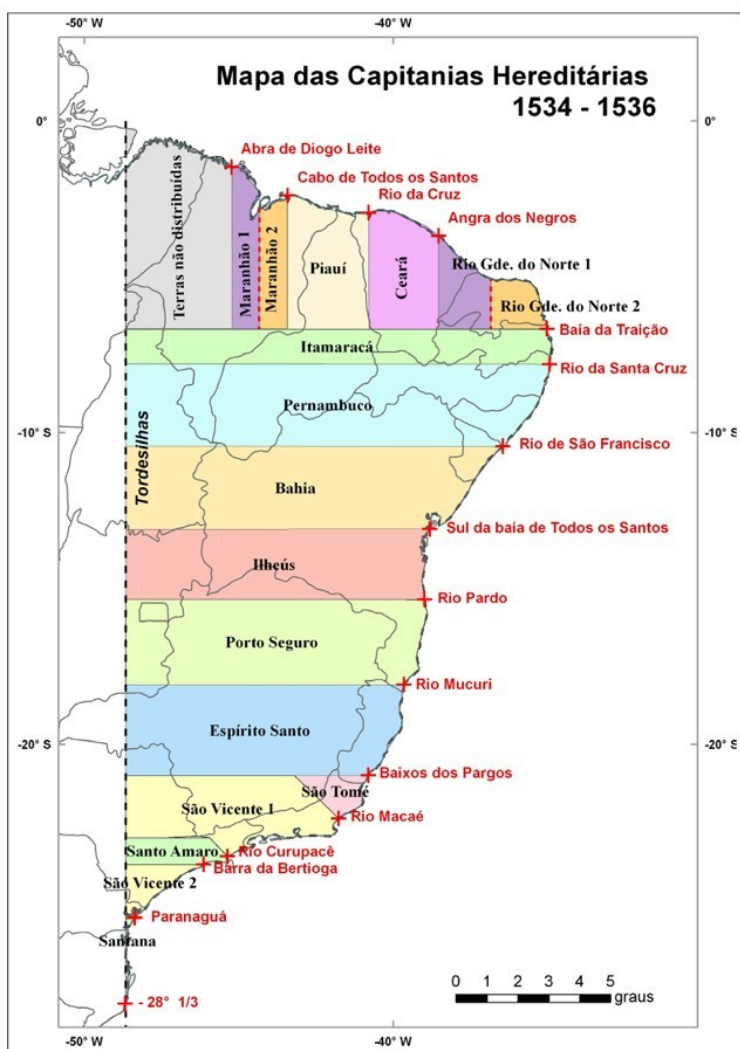


Figura 10 – Proposta do novo mapa das capitânicas hereditárias. Desenho do autor.

Figure 4- Map of Hereditary Captaincies

Source: Cintra (2020)

Land registrations emerged in Brazil shortly after the establishment of hereditary captaincies, with donations from sesmarias. The oldest documents of the captaincies date from 1534.

These land records serve to present some information such as where people lived; reveal personal and family information; whether the property was inherited, donated or occupied and what were its limits; whether there were workers and how the workforce was constituted; in what region such property was located; and so on.

According to São Paulo Public Archives (2020), all possessions and sesmarias formed were legitimized in public records carried out with the local Parishes. The Catholic Church, in that period of the Colony, was officially united to the State. In this way, the vicar (or parish priests) of the churches were the ones who registered the land or certificates, such as birth, marriage, and so on. Only with the proclamation of the Republic, in 1889, State and Church were separated.

In this way, so-called property records or deeds were developed. The “sesmarias” were registered in this way and are examples of notary documents. Most of these sesmarias letters are in Public Archives. The Governmental Archives (Ministry of Justice and Public Security, 2021) have collections of letters of donations from sesmarias and land registers.

Many donation letters can also be found in the Portuguese archives. These documents assist for the purpose of legal proof of possessions and allow the study of the land system. Such documents demonstrate how the process of using and donating the land was carried out, which often occurred in a disorganized and irregular manner.

The captaincies were immense tracts of land that were distributed among gentry gentlemen, businessmen, bureaucratic and military officials. Among the captains who received donataries, there are overseers, treasurers of the kingdom, royal squires and bankers.

The captaincy would be a military and economic establishment focused on foreign defense and the increase of activities capable of stimulating Portuguese trade.

The captain-general and the governor represented the king's powers as administrators and delegates, with jurisdiction over the Portuguese or foreign settler, but always Catholic. In fact, this was one of the requirements for land donation.

The captain and the general could establish villages and develop trade. Trade with the “Gentiles”, the natives indigenous, was permitted only to residents of the captaincy, with severe penalties for offenders.

The entire territory became part of Portuguese Crown. The Portuguese colonization adopted the system of concession of sesmarias for the distribution of land, through the hereditary captaincies: to the colonizers wide tracts of land were crossed with the obligation, to these to measure, demarcate and cultivate them, under penalty of land

reversion to Portuguese Crown.

The distribution of land was done through the Sesmaria concession system. Sesmaria was a parcel of land distributed to a beneficiary, in the name of the king of Portugal, with the aim of cultivating virgin lands. Originated as an administrative measure in the late Middle Ages in Portugal, the concession of sesmarias was widely used in the Brazilian colonial period. Begun with the constitution of the hereditary captaincies in 1534, the concession of sesmarias was abolished only when there was the process of independence, in 1822.

It is important to mention that devoluted lands, which are public lands without destination by the Public Power and never integrated the patrimony of a private individual, even though they are irregularly under their possession. The term “vacant” refers to the concept of land returned or to be returned to the State.

3.2. Brief of the Property Registry History

According to Lamana Paiva (2014), the Property Real Estate Registry system came in 1864, and produced only acts of declarative effect. In 1890 the first system that produced acts with a constitutive effect emerged - Torrens - which was, however, an optional character. After Civil Code of 1916, the country adopted a mixed Registry System (producing acts with constitutive and declarative effects) and of a universal and obligatory character. The current Civil Code, Law nº 10.406/2002 maintained the last system.

From April 22, 1500 until the Independence of Brazil in 1889, all the possession over the discovered territory belonged to the King of Portugal, as an original domain of the State. The King invested this landlord, in 1532, determined the administrative division of the territory in 15 captaincies. From march of the same year, the first letters of donation began to be delivered to the beneficiaries.

Although the territory, in the first administrative division of Brazil, was divided into 15 parts, whose shares were delimited and the prerogatives inserted in the respective Letters of Sesmarias, the original domain of the State began to split, beginning private ownership of land.

From Independence, in 1822 until 1850, the land was occupied by taking possession without any title. At the end of that period, in which there was only possession, the Mortgage Registry was created, created by Budget Law 317, dated October, 21, 1843, with the strict purpose of registering mortgages but, at the same time, was the starting point and gave guidelines for the formation of the Property Registry as known it today.

The Property Registry in Brazil has its origin set by Law 601, dated from September 18 1850 and its regulation was given by Regulation 1.318, dated from January 30 1854, when the land tenure/possession started to be recognized before the Vicar of the Catholic Church. For this reason, this law came to be known as “*Registro do Vigário*” -

"Vicar Register" and it was made in the parish of the situation of the property. The effect of this registration was merely declaratory and its purpose was to differentiate the private domain from the public domain. The referred Law 1,237 replaced the tradition of the thing with the transcription of the title as a way of acquiring the property, the contract continuing, before it, to generate only obligations.

In addition, it expanded the competence of the Property Registry with the transmission of real estate by intervening acts and the constitution of real encumbrances, thus establishing the principle that the transmission of the property only operated through the registration and from its date. Although this law did not induce proof of mastery, it regulated the mortgage inscription, whether legal or conventional, declaring the transcription indispensable, for validity against third parties.

It can be seen, therefore, that the credit institute preceded the title of the property. The registration of the mortgage preceded the transcription of the property, which only came to be instituted with the aforementioned law, which transformed the Registry of Mortgages into "General Registry". It was the one that gave rise to the Property Registry, given its scant loan for credit.

Until then, the rules of the Parochial Registry were in force, only declaratory and related to possession, whereas the notion of registration was already known, but only of guarantee rights on properties resulting from obtaining credit. It is also verified that the three systems - Mortgage Registry, Registry of the Vicar and Registry of Real Estate - keep identity with each other regarding the reasons for their emergence: the social desire to provide legal certainty to the rights over real estate - guarantee, possession and ownership - through the publication of acts, facts and legal transactions.

Law 3,272, dated October 05, 1885, followed; Dec. 169-A, dated January 19 1890, and Dec. 370, dated May.22 1890, which introduced changes to the 1864 Statute and proclaimed that the contract, before being transcribed, only conferred personal rights on the contractors. Still in the year 1890, an attempt was made in Brazil to adopt the Australian system, known as the Torrens Registry, under the terms of Dec. 451-b, dated 05.31.1890, regulated by Dec. 955-A, dated 05 November of the same year.

The Torrens Registry constituted an attempt to lend security and liquidity to the acts of the registration of immovable property, making the registered securities indisputable. This would be the situation of the Germanic registers. It was admitted in Brazil for certain cases of legalization of rural property. This system, although it has an affinity with the Germanic, is originally from Australia, idealized by the deputy and property registry officer Sir Robert Torrens, who lent his name to the process. This number is included in measures that provide exceptional security to real estate transactions.

In order to obtain registration or enrollment, at the Torrens Registry, the interested party must request it from the Judge, investigating the good origin, under the terms of Law of Public Register (Law 6.015/73), adding proof of the legitimacy of the domain by its title, duly affiliated.

Thus, it was a kind of purification process of the domain, declared legitimate in court. Thus, ownership would be unassailable *juris et de jure*. Once the regularity of the process has been verified and there is no challenge from third parties, the registration is promoted, with the documents presented being filed in a Notary Office.

3.3. Brazilian Civil Code of 1916

According to Lamana Paiva (2014), with the advent of the Civil Code established by Law 3071 issued in January 01, 1916, the transcription of property title, in the real estate registry of the situation of the property, became a requirement for acquisition of immovable property (article 530, CC/1916 = article 1.245, Civil Code of 2002).

The Civil Code of 1916 dedicated Section VI of Chapter XI of Title III, "On the right of things", to the Property Registry. It carefully regulated the matter, determining its function and scope. The previous legislation innovated in many points; it did work of wisdom and profit, remedying gaps in the previous regime.

The culminating points of the coding are:

- a) that real rights over real estate, constituted or transferred, by intervening acts are only acquired after the transcription of the referred title, in the Real Estate Registry (articles 532 to 676);
- b) that the real right is presumed to belong to the person in whose name it is inscribed, or transcribed (article. 859);
- c) that the acts subject to transcription do not transfer domain, but from the date on which they are transcribed (article 533).

Regarding real charges, it established related principles:

- a) that all mortgages will be registered in place of the property (article 831, CC / 1916 = article 1,492, CC / 2002), with no distinction between legal or conventional mortgages and abolishing hidden mortgages;
- b) that the order number determines the priority and this is the preference, among mortgages (article 853, sole paragraph, CC / 1916 = article 1,503, CC / 2002);
- c) that mortgages are only valid against third parties, since the date of enrollment and that, while not enrolled, they only remain among the contracting parties (article 848).

And determined that the Property Registry comprise:

- I - the transcription of the property titles, listed in art. 532;

II - the transcription of titles constituting real liens, on other people's things;

III - inscriptions of mortgages (art. 856, I to IV).

The Civil Code of 1916, regulating the registration matter, was placed among the most advanced legislation on the subject. In this way, the principle that “immovable property is only acquired through registration” was established, which is, thus, the form and the mode of acquisition, translated, in popular language, by the statement “who does not register does not own” .

Thus, the titles (contractual, administrative, judicial acts) started to have a preparatory character, since they only generate obligations between the contracting parties.

3.4. Subsequence Law and Decree

Also in accordance to Lamana Paiva (2014), the Civil Code required regulation with respect to registration matters and their specific services, which occurred through decrees. There was great progress in the matter when the transcription was erected in exchange for the solemn tradition of the transaction, which generates the real right for the buyer, with the transfer of the domain.

However, with the country's socioeconomic and legal development, the flaws and deficiencies of the real estate system began to emerge. The Civil Code established a common but mandatory real estate registration system, covering all judicial and extrajudicial acts, since previously those were excluded from the records, making the system unsafe.

But the Torrens System was not abolished, with two simultaneous systems being left: one common and mandatory (instituted by the Civil Code), with relative presumption of dominance and the other optional (the Torrens Registry), with absolute presumption of dominance. Even today, the double registration of certain properties in localized regions persists.

These two decrees were in force for more than 30 years, contemplating new legal figures, such as the allotment of urban and rural land, for sale by installments; the promise to sell and buy the subdivided and non-subdivided property; the rural pledge contract; the condo in apartment buildings.

This was followed by Decree-Law 1,000, dated November 21, 1969, which updated the rules of the previous legislation. This Decree-Law, after its validity was extended several times, ended up being definitively revoked, despite its undeniable merits. It was noted for its effort to simplify the procedures of notaries, dispensing, for useless, certain settlements, such as those of the Book-Bead.

It also allowed the registration books to be replaced by index cards or the loose-leaf system, susceptible of being typed. He took care to shorten unnecessary measures,

making the task of clerks and assistants easier. Thus, it followed the progress of technology, in the matter of bookkeeping of the acts of registration, in line with the progress of bank, commercial and public bookkeeping. He tried to remove the time-consuming, intricate and obsolete processes from the Justice Services.

In place of this Decree-Law, the current Law 6,015, dated December 31, 1973, amended by Law 6,216, dated July 30 1975, was drafted. Within the guidelines of Law 6,015, it excelled for greater simplification, condensing in Title V the matter related to the Property Registry (arts. 167 to 299). The principle of territoriality applies for registration purposes in the country. As a rule, each Municipality has a real estate registry, the isolated body, with no connection to the others, and the competence to perform the acts is absolute. If the registration is promoted in a different circumscription, the act is considered non-existent.

The main and most transcendent is in the registration institution for each property on its sheet, in which the records and annotations of the titles that have the object linked to are made, chronologically, radically modifying the traditional registration system, providing the future registration real estate, bringing us very close to the German cadastral system, considered the most perfect by all experts in the field.

Moreover, the enrollment (*real folio*) is distinguished from others in sister countries, since the Brazilian one maintains all the previous requirements. An authentic curriculum vitae of real estate.

The drawback is that it was only instituted from January 01 1976, transferring the existing acts previously (transcriptions and inscriptions) without the legal obligation to transfer all interested parties to the new system. Because of this, we currently have properties titled under the auspices of transcription, whose obsolete and manuscript books remain and are handled, and we have properties already launched in open enrollments under the auspices of the new law, using existing data.

This causes great difficulties in the handling and control of the acts, either due to the lack of space or the corrosion of time. The transfer to the new system, with the consequent opening of registration, is mandatory only when practicing an act subject to registration.

Judicial Acts are subject to registration, even those of a cautionary nature, e.g, alienation protests. But there is a constant struggle between the registry and the jurisdictional activity, with some magistrates understanding that the effectiveness of their acts cannot be conditioned to registration, as the sovereignty of the verdicts would be harmed.

The great characteristic that exists in Brazilian practice is the so-called purchase and sale promise contracts, made by private instrument. With great territorial extension, the property in Brazil was divided without any programming. The rural exodus precipitated the parceling of the land, which happened through pre-contracts, hence the birth of informal property.

In courts, possession is valued. Today, in Brazil, about 40% to 50% of occupied properties, with a consolidated legal status, are not titled. The promises were granted an enforceable right in rem. and even without a definitive title, the promising buyer has the thing. It is a social reality. Courts are crammed with demands from private instruments, and without registration and possession is valued as a social factor, to the detriment of the registration system that provides legal certainty.

The Civil Code of 2002, instituted by Law 10,406 of January 10, 2002, maintained all the discipline enshrined in the Civil Code of 1916 in relation to the Registration System, especially with regard to the constitutive character of the Registration System, in accordance with the content of Article 1.245, maintaining, thus, the successful model.

The Brazilian registration system is constitutive (property is only acquired with registration). It is decentralized, with more or less 3,500 Real Estate Registries distributed throughout Brazil, the registrar being a professional of the Law, remunerated by the party (privatized system) and its entrance will be given through a public contest carried out by the Judiciary, which supervises its acts, pursuant to the Law 8.935/94, which regulates registration activity. But this system still requires improvement.

The historic vocation of the Real Estate Registry is to provide legal certainty for the enjoyment of real estate rights and for the realization of business involving real estate. Hence the popular maxim, previously mentioned, "who does not register is not the owner!", because only the Real Estate Registry is able to confer certainty about the real estate property and the other rights related to it or derived from it.

The Brazilian Registry System, being mixed (constitutive and declarative), is intended to constitute, declare, modify and extinguish rights, generating publicity, authenticity, legal security and effectiveness.

3.5. Brazilian Federal Real Estate Secretariat - SPU

According to SPU (SPU, 2021a), the real estate properties owned by Federal Government are the responsibility of the Brazilian Federal Real Estate Secretariat – Secretaria do Patrimônio da União (SPU) which was created on January 30th, 1854, in Imperial Brazil, when Decree nº 1.318 regulated Law nº 601, from September 18th, 1850 and created the "General Department of Public Lands", the first institution in charge of organizing the land issue in the country. Since then, the Secretariat went through several reformulations, until its current configuration, as part of the structure of the Ministry of Economy, which is responsible for the administration of the Federal Union's real estate assets.

Law No. 601, of September 18, 1850, in its Article 21 established that the General Department of Public Lands was in charge of directing the measurement, division, and description of vacant lands, and their conservation, supervising the sale and

distribution of them, and promoting national and foreign colonization. After the promulgation of the Republic, a new organ was created, by Law nº 2.083, of July 30th 1909, to take care of public lands, called *Diretoria do Patrimônio Nacional* (National Heritage Board). In the course of time, new denominations succeeded each other: Board of the Union Domain (Decree No. 22,250/32), Service of the Union Assets (Decree-Law No. 6,871/44) and, by force of Decree No. 96,911, of October 3, 1988, the Secretariat of the Union Assets was established, when it was still part of the structure of the Ministry of Finance.

In 2003, the Inter-ministerial Working Group on the Management of the Federal Estate was created (Presidential Decree of September 11, 2003), which made significant changes in the principles of the management of the public estate, highlighting the following text: "guaranteeing the fulfillment of the social and environmental function of the Federal Estate, emphasizing its articulation with the social inclusion policies and its balance with the tax collection function". For instance, the Circular Memorandum 90/2010, which reinforces this idea, when it states: "Based on the paradigm launched by the Federal Constitution of 1988, the idea of "public land, land without owner" is substituted by "public land, land for all".

Thus was configured the contemporary understanding and expectation that demands the fulfillment of the "social-environmental function of the real estate assets". Another important point to highlight are the guidelines present in the Presidential Decree of September 11, 2003, which presents the idea of the constitution of a Unified Registry of the Federal Government's Real State.

Currently there are two registers of Federal Government properties managed by SPU, which are characterized by being only descriptive, without a cartographic base (geospatial information) related to the data, the Integrated Patrimonial Administration System - SIAPA is destined to the dominial properties, and the Special Use Properties Management System - SPIUNET.

According to SPU (2021b), the formulation, implementation, and evaluation of the National Policy for the Management of the Federal Union's Properties (PNGPU) is one of SPU's main competencies, along with the incorporation, characterization, and destination of the Federal Union's real estate properties and the management of the revenues from the use of these properties.

In conclusion, SPU is responsible for managing the real estate of the Federal Government and overseeing its conservation; proceeding with the identification, demarcation and registration of properties, adopting the necessary measures for the regularity of the ownership of these assets; evaluating, inspecting and controlling their use and occupation; proceeding with the incorporation of new properties to the Federal Government; establishing the guidelines for the design and use of these assets; authorizing their occupation, in accordance with the law, and; promoting the collection of taxes.

3.6. The Brazilian Federal Government Properties

It is SPU's job to take care of the Federal Government real estate properties, from river and sea shores to public buildings, from archaeological sites to indigenous lands. Through its actions, which aim at fulfilling the social-environmental function of the Union's real estate.

SPU is in charge of allocating public lands for the construction of social interest housing, granting properties for the implementation of ports, hydroelectric plants, airports, and highways; for the construction of universities and hospitals; and for the creation of parks and environmental reserves, thus guaranteeing improvements in the quality of life of the Brazilian people and contributing to the recovery of citizenship.

The Constitution lists in Article 20 as property of the Union: unoccupied lands essential to the defense of borders and the preservation of the environment, rivers, islands, sea beaches, natural resources of the continental shelf and the exclusive economic zone, territorial sea, marine land and its extensions, land with potential to generate hydroelectric power, mineral resources, natural underground cavities, archaeological and prehistoric sites, and lands traditionally occupied by Indians.

In Brazil there is not a single entity responsible for land registry, and the public buildings of federal administration are in the same situation, since there is more than one agency involved in its management. The land register may be established for fiscal purposes (valuation and equitable taxation), for legal purposes (conveyancing), to assist in land management and land use (eg, for other administrative purposes and planning) and enables sustainable development and environmental protection.

According to Brazilian Federal Real Estate Secretariat – SPU (SPU, 2021c), the goods that belong to the Union are defined in art. 20 of the Federal Constitution of 1988, and in Decree-Law nº 9.760/1946, and can be classified in three types, due to the destination that can be given to them:

a) Goods for common use by people:

They are those necessary to the community and, therefore, their use must be available to all citizens. Examples are rivers, squares, public roads and beaches.

b) Properties for special use

This is the real estate that is destined to the execution of administrative services or to the rendering of public services in general, such as public office buildings. A building that houses a public hospital or a public school also falls into the category of special use property. airports fall into this category.

c) Dominial assets do not have a specific destination, like the previous ones. Therefore, they can also be made available for private use, according to the destination

instruments foreseen in the legislation. The private use of the Union's dominial assets entails, however, the payment of a monetary retribution for the private use of an asset that is public. The resources generated in this way are known as property revenues.

The types of Union goods for common use by the people are:

The marine land is the demarcation comprises a strip of 33 meters measured horizontally towards the continent, counted from the mean Preamar Line (LPM) of 1831.

The Additions of Marine are also assets of the Union. They are portions of land that were previously covered by the sea (mirrors of water) or were mangroves, beaches or maritime channels, which were filled in after the reference year for determining the PML

Allodial Land is adjacent to privately-owned Navy Land.

The demarcation of the Mid Preliminary Line (MPL) is an administrative procedure, declaratory of ownership, defined in the Decree-Law nº 9.760, of 1946. This demarcation is carried out by Brazilian Federal Real State Secretariat - SPU, consisted of technical studies based on plants, maps, historical documents, wave and tide data.

The private occupation of the Marine Lands, as well as the marine additions, whether by private individuals, businesses, or industries, entails the payment of a retribution for the use of a public asset, that is, an asset that belongs to all Brazilians.

Depending on the regime of occupation of the land, the person responsible must pay an annual rent or occupation fee. In addition, the laudeme tax must be collected whenever a property is sold on Marine Land. The resources collected in this way are known as "property revenue" on each type of revenue

These type of goods can be seen in Figure 5, below:

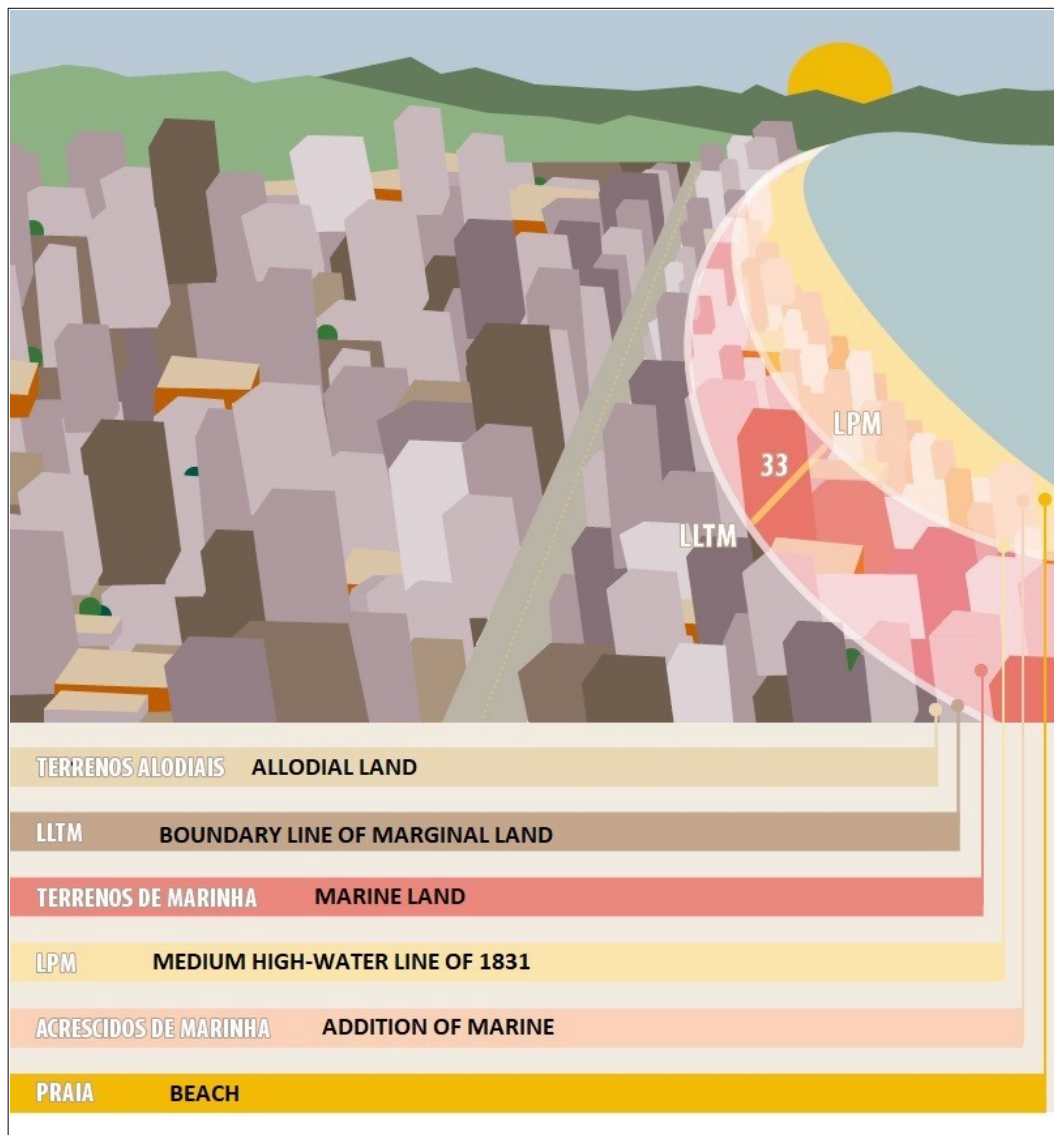


Figure 5- Types of Goods
Source: SPU (2021c)

The permanent fluvial (rivers) and lake (lakes) islands belong to the Union when they are located on the border with another country; or when they are located in an area where the influence of the tides is felt (art. 1, c, of Decree-Law no. 9,760, of 1946, combined with art. 20, I, of the Federal Constitution)

Lowland Islands are also assets of the Union, that is, areas subject to flooding at certain periods of the year. They belong to the entity that owns the river or lake in which it is found, and it cannot be considered as an asset that may have different dominance from the riverbed or the lake of which it is an integral part.

Maritime Islands are also goods of the Union, which can be classified as oceanic (outside the continental shelf) or coastal (linked to the platform).

Conservation Units (UC)

Federal public domain conservation units is classified as:

- **Integral Protection Conservation Units:** These areas cannot be inhabited by man, and only the indirect use of their natural resources is permitted, for example, in scientific research and ecological tourism activities. Such areas will necessarily be of public domain (federal, state or municipal, as the case may be). There are at least five types of Comprehensive Protection UC: ecological stations; biological reserves; national parks; natural monuments; and wildlife refuges.
- **Conservation Units for Sustainable Use:** These areas admit the presence of residents. They aim to make nature conservation compatible with the sustainable use of natural resources. Such areas can be public or private. They are created by means of a presidential decree and, in the case of those whose property is publicly owned by the federal government, it will be the responsibility of the Real Estate Secretariat (SPU) to regularize the patrimonial situation of the area and to hand it over to the Chico Mendes Institute for Biodiversity Conservation (ICMBio).

ICMBio is the body responsible for its administration and the granting of concession titles to ensure the permanence of traditional communities. Sustainable Use UCs are divided into at least seven types: areas of environmental protection, areas of relevant ecological interest, national forests, extractive reserves, fauna reserve, sustainable development reserves, and Private Reserves of natural heritage.

Rural Land Properties

The National Institute for Colonization and Agrarian Reform (INCRA) is the Brazilian government responsible for the discrimination and collection of federal vacant lands, that is, public lands without destination by the Public Power and that at no time integrated the real estate of a private individual. INCRA is responsible for the real estate registration of such areas in the name of the Federal Government keeping the National Rural Cadastre System (SNCR).

Indigenous Land

The demarcation of indigenous lands is the responsibility of the National Indigenous Foundation (FUNAI) and the administrative demarcation process, after the elaboration of an anthropological study, is submitted to the scrutiny of the Ministry of Justice and Public Security.

According to Indigenous Statute, the demarcation must still be approved by the Presidency of the Republic and registered in a specific book of the Federal Real Estate Secretariat (SPU) and real estate registry of the competent district.

The Federal Constitution guarantees to indigenous people the right to exclusive enjoyment of the lands they traditionally occupy and defines that these lands are assets of the Union.

The rural land properties (I - private owner, II – public), rural settlements, indigenous land and Conservation Units can be seen in Figure 6, below:

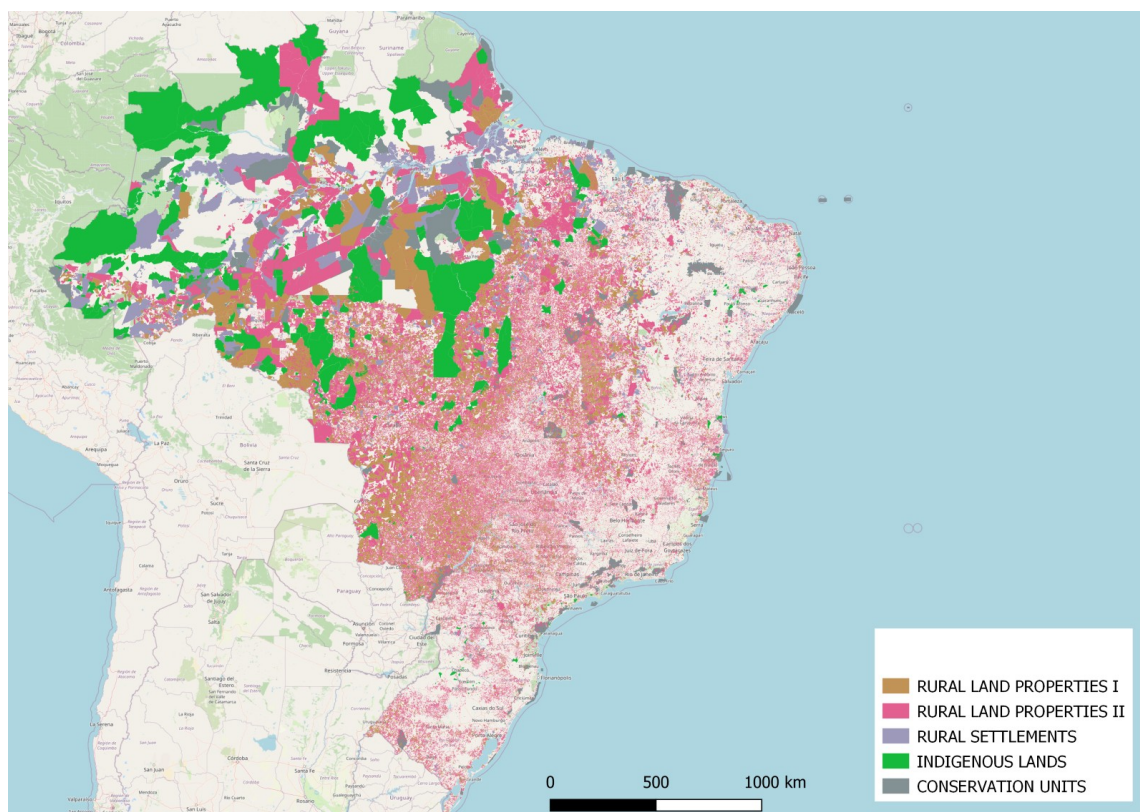


Figure 6- Conservation Units (UC), Rural land properties and Indigenous Lands
Source: own elaboration

The Other Goods

Examples of this last case are the properties of the extinct National Department of Roads and Highways (DNER); the extinct Federal Railway Network S/A (RFFSA); the extinct Brazilian Legion of Assistance Foundation (LBA), among others.

For this reason, it may happen that the Federal Government owns properties that are not intended for the installation of public bodies or for the implementation of public policies. Properties with this characteristic may be included in the Federal Real Estate Sale Program, and may be acquired by individuals or legal entities, through a bidding process.

3.7. The SPIUNET System

The properties destined for airport activities are considered to be Special Use Properties of the Federal Government.

According to SPU (2021d) the properties for Special Use of Federal Government must be registered in SPIUNET, thus generating a Property Real Estate Registry - RIP, which is subdivided into: Property RIP - Corresponds to the property's registration in total, resulting in the sum of the Utilization RIPs. Utilization RIP corresponds to the use of a property or part of it by a specific Management Unit (UG). If the same property is used by more than one Management Unit (UG), a Utilization RIP must be created for each one. Management Unit (UG) is responsible for the administration (management) of the resources destined to the performance of Government activities.

Considering that SPIUNET also records the values of the property and its improvements, this information must be accounted into Integrated System of Federal Government Financial Administration - SIAFI.

The Integrated System of Federal Government Financial Administration (Ministry of Economy, 2021) is a computerized system for processing and controlling the budget, financial and asset execution of Agencies of Direct and Indirect Federal Public Administration. It's the primary tool used in federal government budget and financial management. The system provides support to central, sectoral and executive public management entities, among which are included all of those organs belonging to the direct administration, semi-autonomous agencies and foundations, state-owned companies, joint capital companies and entities pertaining to the legislative and judicial branches.

In SPIUNET, the RIP Property contains the information regarding the property and the RIP Utilization contains information regarding the improvements of the property. SPIUNET,

As mentioned above, the SPU and National Treasury of Brazil (STN) systems are integrated and work in such a way to facilitate the control and implementation of real estate assets on the Federal Balance Sheet. Several ordinances and regulations of the STN and SPU are published together with the aim of providing guidance on the measurement of real estate.

The Figure 7, below, presents the home screen of the system:



Figure 7- SPIUNET
Source: SPU (2021d)

In 2012, the Project for the Modernization of the Management of the Federal Estate was initiated. The Integrated Management System for Federal Public Real Estate Properties (SPUNET) is the main project under development and was originated within this project co-financed by the Inter-American Development Bank (IDB) between 2012 and 2019. It is not yet finalized, but it will unify in a geospatial database the four cadastral bases of public properties owned or used by the Brazilian Federal Union, Federal Autarchies and Federal Public Foundations.

According to SPU (SPU, 2021e), SPUNET, which will replace two real estate data management systems (SIAPA and SPIUNET) and one for the electronic application for real estate in the Union (SISREI), is divided into modules, with blocks of features for various processes real estate management: incorporation of areas and properties (physical and notary registry); treatment and administration of geoinformation; Customer Service; destination/allocation of real estate; valuation and accounting; equity income; and inspection and control.

The classes of these properties, according to their destination, are of the following types:

Special Use Properties - affected by the direct and indirect federal administration (autarchies and foundations), here the properties are managed by indigenous, environmental, rural public policies, among others.

According to the SPU (SPU, 2021f), the rights to use the Federal Union's real estate, whether buildings, lands, waters or public forests, can be assigned by the Federal Real Estate Secretariat (SPU) to public or private agents, with a view to fulfilling the social and environmental function of this patrimony, in harmony with the nation's strategic programs.

There are different instruments for this transfer of rights. The application of the instrument depends on the vocation of Leach property for the city where it is located and the public interest in the use proposed by public and private agents

The main instruments are Leasehold, Alienation/Disposal, Authorization of Use, Free Use Assignment, onerous use assignment, Assignment under Special Conditions, Provisional Assignment, Concession of Real Right of Use - CDRU, Concession of Special Use for housing purposes - CUEM, Declaration of Interest of the Public Service, Delivery, Provisional Delivery, Provisional Guard, Registration of Occupation, Use Permit, Sustainable Use Authorization Term - TAUS and Transfer (free of charge).

In the case of Dominial Properties, these are those allocated by private individuals under some instrument of assignment such as TAUs, CDRU, CUEM, leasing and occupation.

In this sense, it is justified that the properties used for civil aviation should also follow the standards established for the SPU systems, since there will be the insertion of geospatial information. Therefore, it is necessary to standardize this geospatial data to facilitate interoperability through geovisualization platform.

According to the SPU (2018), there would be a total of 693 thousand properties owned by the Union, of which 638 thousand would be dominial properties, 55 thousand classified as Special Use Property and the rest as Common Use of the People. It is worth point that 152 airport properties (special use) represents only 0.27% of the total amount of real estates. It could be considered as a small number of properties among the universe of real estate under SPU's management.

3.8. Property Management in the Aviation Sector

The properties used by aviation, as previously mentioned, are classified as special use property and must be registered and updated in the SPIUNET System.

Most of the real property used by aviation today were donated by States and Municipalities through expropriation processes that began more than 60 years ago. These properties were donated to the then Ministry of Aeronautics, today the Aeronautics Command - COMAER, linked to the Ministry of Defense (MD).

The Department of Civil Aviation (DAC) was created to study, guide, plan, control, encourage, and support the activities of public and private Civil Aviation. Initially called the Department of Civil Aeronautics, it was directly subordinated to the Ministry of Transportation and Public Works. In 1941 it became part of the Ministry of Aeronautics. In September 1969 its name was changed to Department of Civil Aviation (DAC), remaining under the Aeronautics Command until March 2006, when it was replaced by the National Civil Aviation Agency.

Until the creation of the National Civil Aviation Agency in 2005, aviation-related activities were almost exclusively military.

The National Civil Aviation Agency (ANAC, 2020), one of the country's federal regulatory agencies, was created to regulate and supervise civil aviation activities and the aeronautical and airport infrastructure in Brazil. Instituted in 2005, it started operating in 2006, replacing the Civil Aviation Department (DAC). It is a federal

autarchy under a special regime and is linked to the Ministry of Infrastructure. ANAC's actions fall under the macroprocesses of certification, inspection, regulation and institutional representation.

The National Civil Aviation Secretariat was created in 2011 in order to transfer legal assignments of civil aviation from Ministry of Defense (MD), The National Civil Aviation Agency (ANAC) and from Brazilian Airport Infrastructure Company - Empresa Brasileira de Infraestrutura Aeroportuária (INFRAERO), in special, the real estate properties management.

The National Civil Aviation Agency - ANAC has the purpose to regulate and supervise civil aviation activities, as well as to adopt the necessary measures to serve the public interest. In addition, its mission is to encourage and develop civil aviation, and the country's aeronautical and airport infrastructure.

The Ministry of Defense is responsible for the coordination of the Army, Navy and Air Force, which now act with strategic objectives based on common guidelines.

The Airspace Control is part of the aeronautical infrastructure. DECEA - Department of Airspace Control -, subordinated to the Air Force, is the central agency of SISCEAB - Brazilian Airspace Control System, and is responsible for planning, regulation, compliance with international agreements, standards and rules concerning the airspace control activity, as well as the operation, updating, revitalization and maintenance of the entire infrastructure of means necessary for communication and navigation essential to national and international aviation circulating in the Brazilian airspace.

Its job is to ensure the fluidity, regularity and safety of the air traffic in the country, managing the movement of aircraft, both military and civilian, in the airspace under Brazil's responsibility and, simultaneously, contributing to the tasks inherent to the air defense activity of our territory.

DECEA incorporates the activities of air traffic management, meteorology, communications, aeronautical information, flight inspection, cartography, information technology, training, leveling and improvement of human resources for the system, as well as the logistics of infrastructure implementation and maintenance of air navigation aids, approaches and landings.

Brazilian Airport Infrastructure Company – INFRAERO is a state-owned Company of indirect administration linked to the Ministry of Infrastructure. It was founded on December 12, 1972, through Law nº. 5862 issued on December 12, 1972. In the past, all federal airports in Brazil were operated by INFRAERO, which is administratively and financially autonomous and is responsible for implementing, managing, operating, and exploring the federal airport and air navigation support infrastructure.

INFRAERO arises from the possibility of the Federal Government to grant, through law, the exercise of the exploitation of the airport infrastructure, provided for in Article 21, item XII, letter 'c' of Brazilian Federal Constitution.

In 2011, then with 66 airports, INFRAERO handled more than 180 million passengers, besides having 81 air navigation support units.

It is important to remark that INFRAERO is currently undergoing a restructuring process, and it is not possible to say, at this time, what public policy will be adopted for the Company, whether reconfiguration or extinction, considering that the air navigation services provided by the company has been migrated to NAV Brasil Serviços de Navegação Aérea S.A. (NAV Brasil), created by Law No. 13.903/2019.

3.9. Brazilian Federal Airport Concession Program

According to the Brazilian National Civil Aviation Master Plan, named as *Plano Aeroviário Nacional* - PAN 2018/2038 (PAN, 2018), the Federal Airport Concession Program began in 2011 with the concession of São Gonçalo do Amarante - RN Airport (ICAO: SBSG). In February 2012, the Federal Government conducted a new round, in which it granted the airports of Brasília - DF (SBBR), Guarulhos - SP (SBGR) and Viracopos/Campinas - SP (SBKP).

In December 2012, the Federal Government launched the Logistics Investment Program (PIL): Airports, with the aim of improving the quality of airport services and infrastructure, expanding the supply of air transport to the Brazilian population. As measures of this Program, the airports of Galeão - RJ (SBGL) and Confins - MG (SBCF) were granted, whose auctions took place in November 2013.

At the same time, investments in regional airports were announced. Subsequently, in June 2015, the 2015-2018 Logistics Investment Program (PIL) was launched, which included four new concessions, Round 4, to the private sector for airports in the cities of Fortaleza - CE (SBFZ), Salvador - BA (SBSV), Porto Alegre - RS (SBPA) and Florianópolis - SC (SBFL). These actions consolidated and significantly increased the capacity of the main hubs of origin and destination of air transport, besides the clear increase in the quality of services offered to the Brazilian population, expressed in satisfaction surveys with the users of the sector.

Subsequently, the 5th Round was held, with 12 airports, divided into three Regional Clusters. The Northeast Cluster was composed by the airports of Recife - PE (SBRF), Maceió - AL (SBMO), Aracaju - SE (SBAR), João Pessoa - PB (SBJP), Campina Grande - PB (SBKG) and Juazeiro do Norte - CE (SBJU). The Midwestern Cluster was composed of Airports of Cuiabá - MT (SBCY), Barra do Garças - MT (SBBW), Alta Floresta - MT (SBAT), Rondonópolis - MT (SBRD) and SINOP - MT (SBSI).

The 6th Round of Federal Concessions, in progress, will have 22 airports to be granted in three regional clusters: 6 airports in Central Region as Santa Genoveva Airport - Goiânia (SBGO), Brigadeiro Lysias Rodrigues/Palmas Airport - TO (SBPJ), São Luís International Airport - Marechal Cunha Machado (SBSL), Teresina Airport - Senador Petrônio Portella (SBTE), Imperatriz Airport - PI (SBIZ) and Petrolina Airport - PI

(SBPL); 7 airports in North I Cluster as Manaus International Airport – AM (SBEG), Porto Velho Airport - RO (SBPV), Cruzeiro do Sul Airport - AC (SBCZ), Rio Branco Airport - AC (SBRB), Tabatinga Airport - AM (SBTT), Tefé Airport - AM (SBTT), Boa Vista Airport - RR (SBBV); and South Cluster with 9 airports, Curitiba – Afonso Pena International Airport – PR (SBCT), Foz do Iguaçu - Cataratas International Airport – PR (SBFI), Bacacheri/Curitiba Airport – PR (SBBi), Governador José Richa - Londrina Airport – PR (SBLO), Lauro Carneiro Loyola – Joinville Airport – SC (SBJV), Ministro Victor Konder International Airport - Navegantes - SC (SBNF), João Simões Lopes Neto – Pelotas International Airport – RS (SBPK), Rubem Berta – Uruguaiiana International Airport – RS (SBUG) and Comandante Gustavo Kraemer - Bagé International Airport – RS (SBBG).

In terms of property ownership, only three airports are not real estate of Brazilian Federal Government: Rondonópolis – MT (SBRD), Sinop - MT (SBSI) and Confins - MG (SBCF).

The Figure 8, below, illustrates the 44 airports that will be granted until the end of 2021:

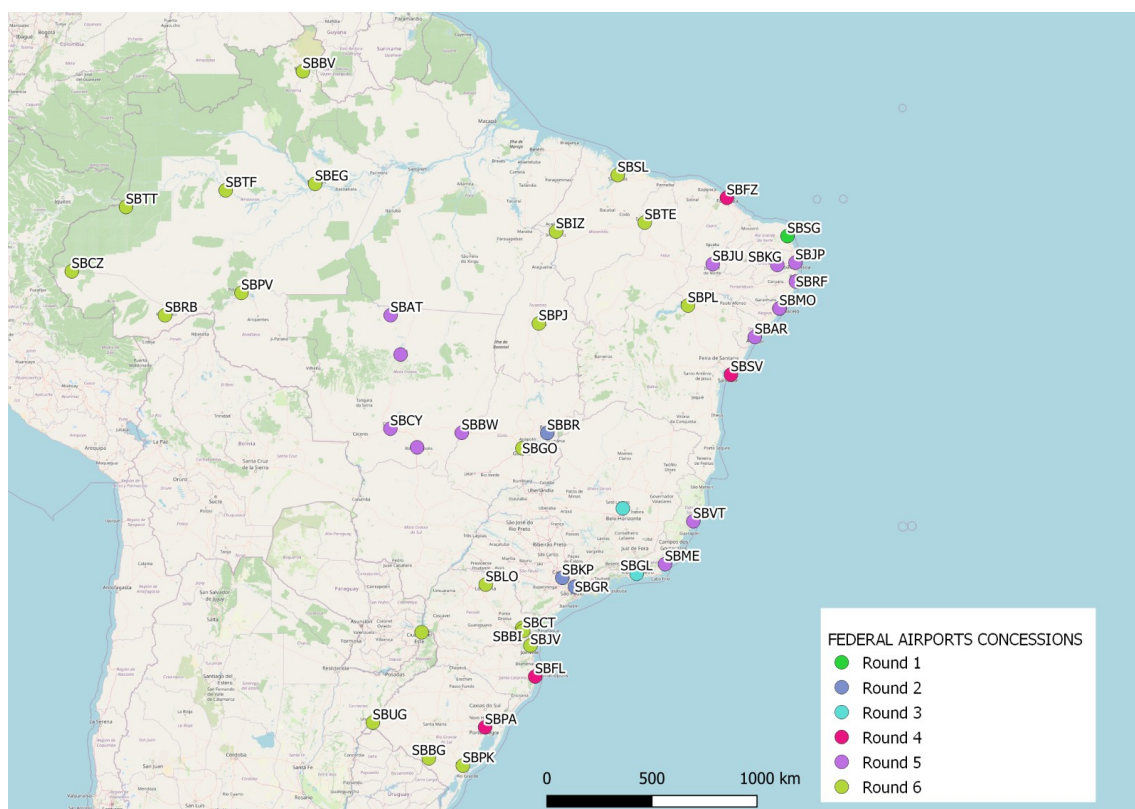


Figure 8- Brazilian Federal Concession Program

Source: own elaboration

CHAPTER 4

METHODOLOGY AND IMPLEMENTATION

This chapter presents the project planned on the objectives settled in paragraph 1.3 considering the main objective.

The Figure 9, summarize the methodological steps taken:

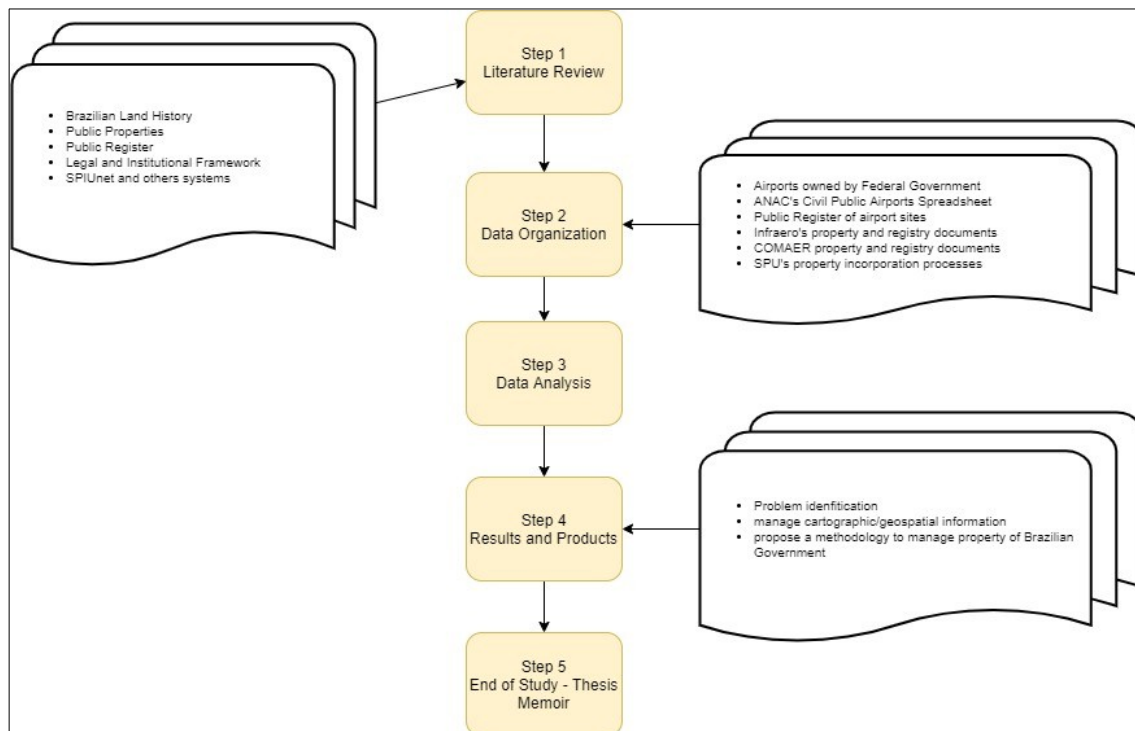


Figure 9- Methodological steps
Source: own elaboration

Most of airport sites properties were incorporated to real estate of Federal Government by donation, expropriation, exchange, land collection and so on.

Considering collection data obtained by General Management Office for Real Estate (CGPAT), provided by the Aeronautics Command - COMAER in 2012 and summarized into a powerpoint presentation, and data of airports managed by the INFRAERO, the study and organization of these documents could have been started.

These documents were composed of plants, maps, descriptive memorials, delivery terms from the SPU to the COMAER, delivery of administration and operation terms from the COMAER to the INFRAERO. It must be emphasized that the COMAER did not grant real estate property management to the INFRAERO or to another airport

operator with they (COMAER) signed a Delegation Agreement Term. Due the to the fac that the COMAER is the Management Unit – Unidade Gestora (UG) at SPIUNET System, the INFRAERO used to provide information to update data in SPIUNET whenever requested.

The analysis procedure was based on documents received from the COMAER, from some of Regional Offices of Superintendencies of the Real State Secretariat in 26 States and in Federal District of the Brazilian Federation, from the Brazilian Airport Infrastructure Company - INFRAERO and the database of public civilian airports, available in ANAC’s website.

It should be considered that some property information is physically stored in data collection (specially old plants and maps) at SPU in Federation States and the access to documents of incorporation process and destination processes, until today, was limited to those airports under concession process as long as they were considered priority ones.

Combining data from the General Management Office for Real Estate (CGPAT) to the ANac’s public civilian airports spreadsheet, with the use of Pentaho data integration tool, as shown in Figure 10, it’s possible to join the geospatial information to Federal Airport sites:

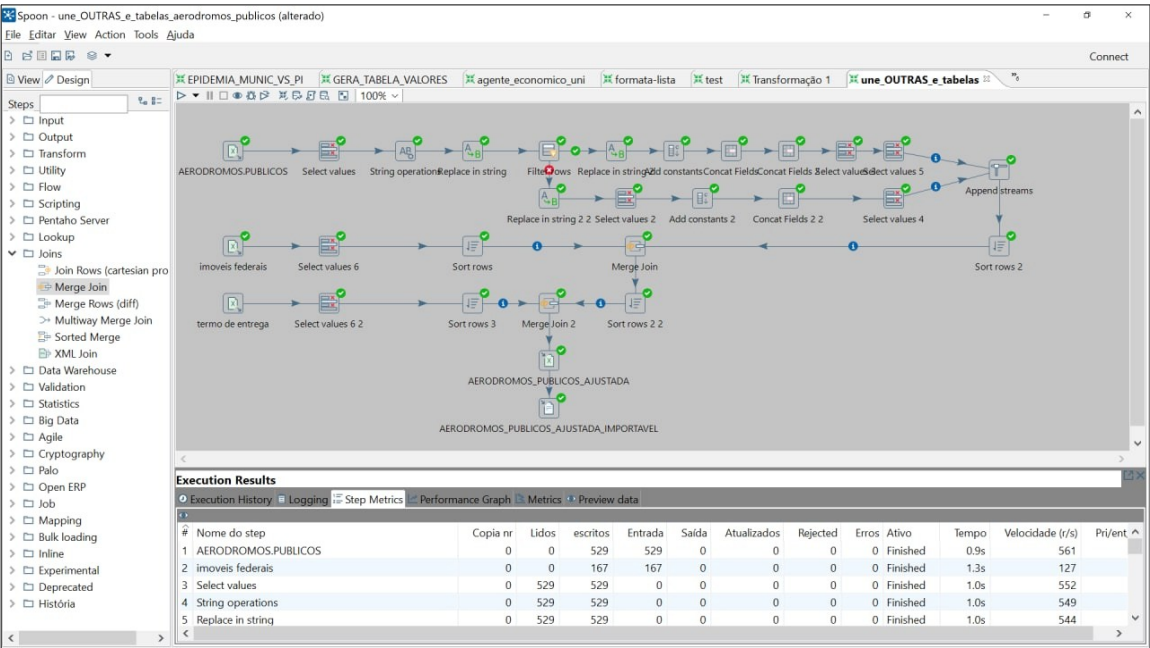


Figure 10- Data extraction
Source: own elaboration

From 529 public civilian airports, 152 of which are airport sites owned by the Brazilian Federal Union, its corresponds to almost 28% of all public civilian airport sites. The spatial distribution of these airports can be visualized in Figure 11, below:

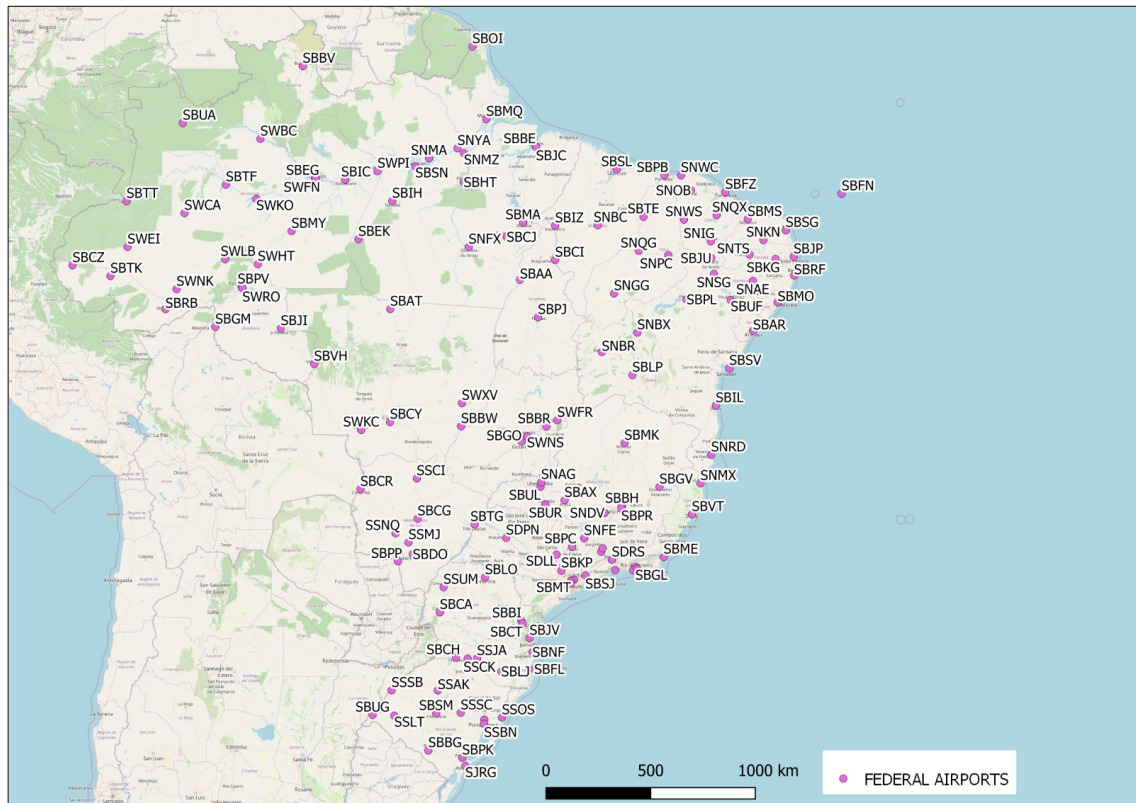


Figure 11- Civil Public Airports
Source: own elaboration

So, in order to have an overview of the work, the main object is always the aerodrome itself and its relationship with stakeholders. At this point, Figure 12, below, illustrates the possible actions that can be taken:

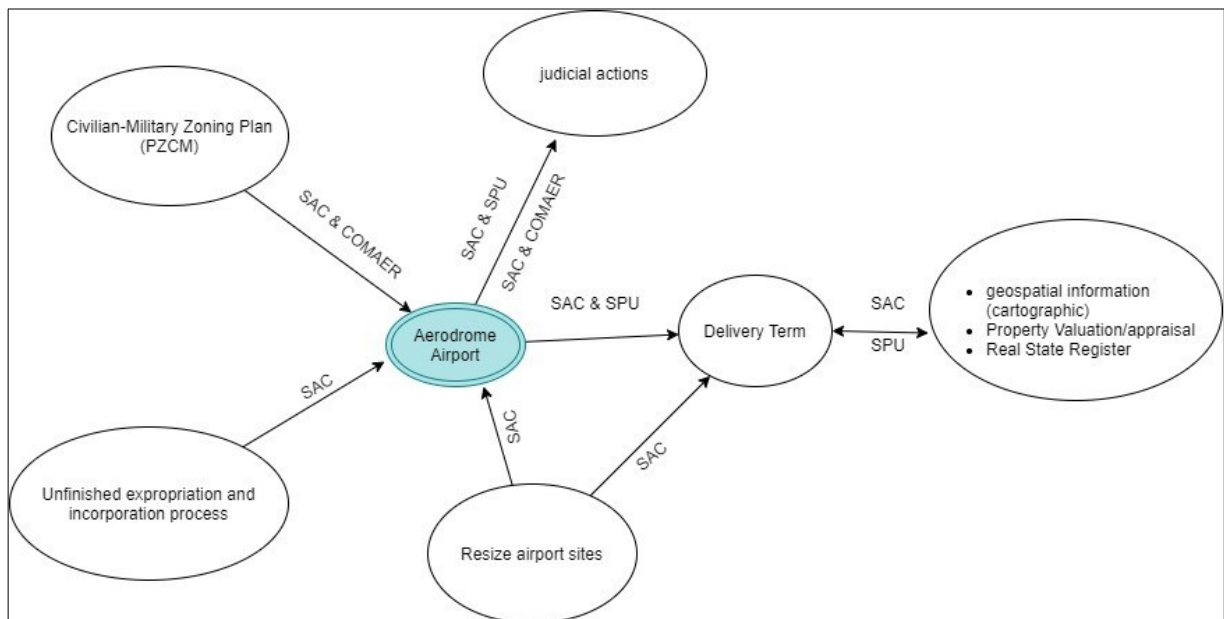


Figure 12- Aerodrome possible situations
Source: own elaboration

4.

4.1. Civilian-Military (joint-used) Airports

For those Joint Civilian/Military (joint-used) airports, Civilian-Military, Zoning Plan (PZCM) is defined by Joint Ordinance signed by Ministry of Infrastructure and by Aeronautics Command to define areas for shared use of facilities and delimitation for each part, presented in maps and descriptive memorials. This legal assignment is given by Inter-ministerial Normative Ordinance No. 24/2014 (BRAZIL, 2014).

Since 2014, Joint Civilian/Military Airports with Civilian- Military Zoning Plans (PZCM) were signed for 20 airports. The Guarujá Air Base - (BAST) had the civilian-military areas adjusted in 2015 and again in 2018. Noting that 12 of those airports will be granted until the end of 2021, which represents 60% of all airports with PZCM.

It is also important to observe that, for airports granted before 2014, the PZCMs were defined only by Aeronautics Command Ordinances, as can be seen in International Brasília Airport - DF (SBBR), International Guarulhos Airport – SP (SBGR) and International Galeão/Rio de Janeiro Airport – RJ (SBGL) cases.

The Figure 13, shows the Airports with PZCM, below:

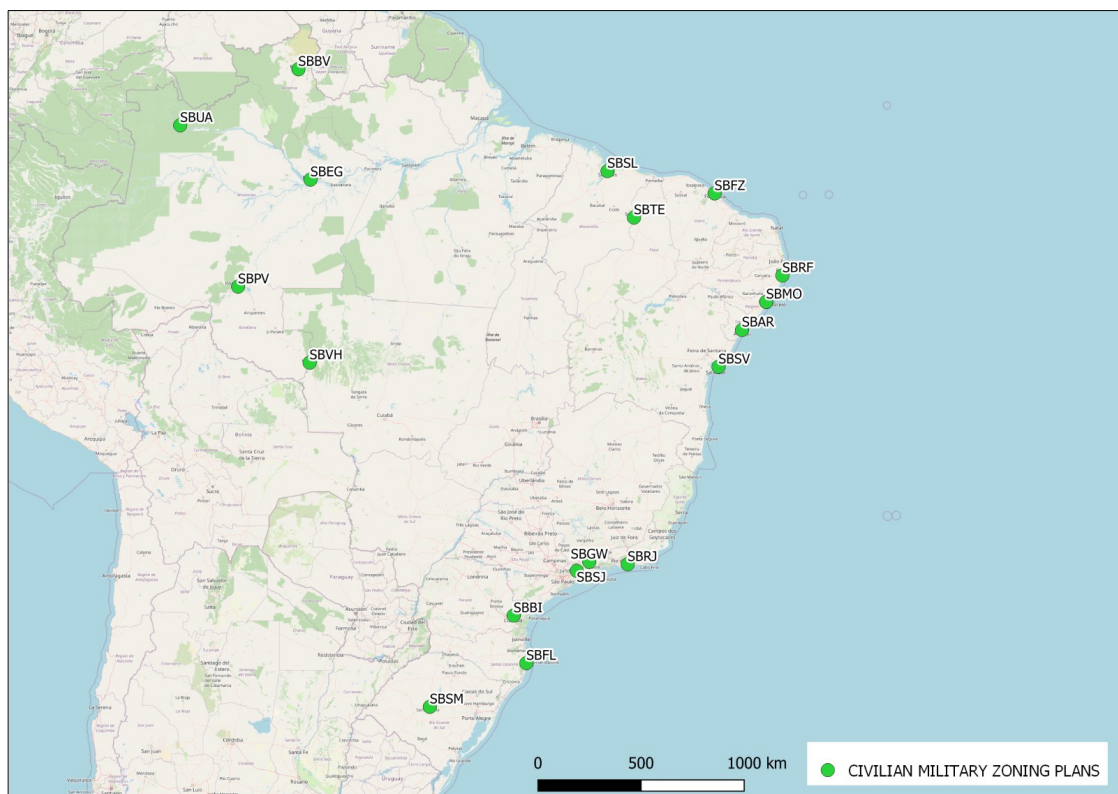


Figure 13- Airports with PZCM after 2014

Source: own elaboration

4.2. Resizing Airport Sites

The cases of resizing of airport sites normally occur in aerodromes located in the North region of the country, for which extensive areas were reserved more than fifty years ago. When promoting the study of required area for the airport activities, the limits of the site were readjusted considering the needed area for the future expansion, returning the remaining area to SPU in order to give it another destination.

The confused land ownership in the Amazon is a historical heritage of the disorganized territorial occupation. Since the policy of distribution of sesmarias, land acquisition in the Amazon has been made through possessions. The rubber cycles, colonization under the military government, the gold rush in the 1980s and now the expansion of cattle ranching all involved irregular appropriation of public land.

According to the Brazilian Institute of Geography and Statistics - IBGE (2021), the Legal Amazon comprises 52 municipalities in Rondônia State, 22 in Acre State, 62 in Amazonas State, 15 in Roraima State, 144 in Pará State, 16 in Amapá State, 139 in Tocantins State, 141 in Mato Grosso State, as well as 181 municipalities in the state of Maranhão State located west of the 44° meridian, 21 of them are partially integrated into the Legal Amazon. It has area of 5,015,067.749 km², corresponding to approximately 58.9% of Brazilian territory.

The problems begin with the identification of federal public lands in the Office Register. Many rural property registers are imprecise. Another problem is the number of false titles issued in the Amazon. It is common to find two or three titles issued for the same land. In 2010, the National Council of Justice (CNJ), Office Registers' supervisor, determined the cancellation of more than 5 thousand false land titles registered in Registry offices in Pará State.

The land title regularization project for the Legal Amazon, named *Terra Legal* (Legal Land), established by Law No. 11.952/2009 (BRAZIL, 2009), aimed to regularize the occupations occurring on lands located in Federal Government areas, through sale and concession of the right in rem to use the properties. The eligible areas for regularization are listed in Article 3 of that Law, such as federal public lands, vacant lands located in the borderland strip and those registered in the name of National Institute for Colonization and Agrarian Reform (INCRA). Art. 4 lists those that will not be subject to alienation or concession of right of real use, such as those reserved for federal military administration and other purposes of public utility or social interest under the responsibility of the Union, those traditionally occupied by indigenous people, public forests or those that contain accessions or federal improvements.

Air transportation together with fluvial transportation have become the main ways to access to the urban centers of the Amazon Region. Additionally, the lack of cartographic mapping in adequate scale may have had an effect on the delimitation of the areas destined for airports, probably done over maps in the scale 1:250:000. Note

that the areas reserved were enormous and in a natural way, the surroundings of these airports were occupied.

The eleven resized airports are: Cruzeiro do Sul – AC (SBCZ), Barcelos – AM (SWBC), Coari – AM (SWKO), Lábrea - AM (SWLB), Manicoré - AM (SBMY), Tefé - AM (SBTF), Tabatinga – AM (SBTT), Itaituba – PA (SBIH), Jacareacanga – PA (SBEK), Guajará - Mirim – RO (SBGM) e Ji-Paraná - RO (SBJI). Among them, SBCZ, SBTF, SBTT will be Granted in the 6th Airport Concession Round.

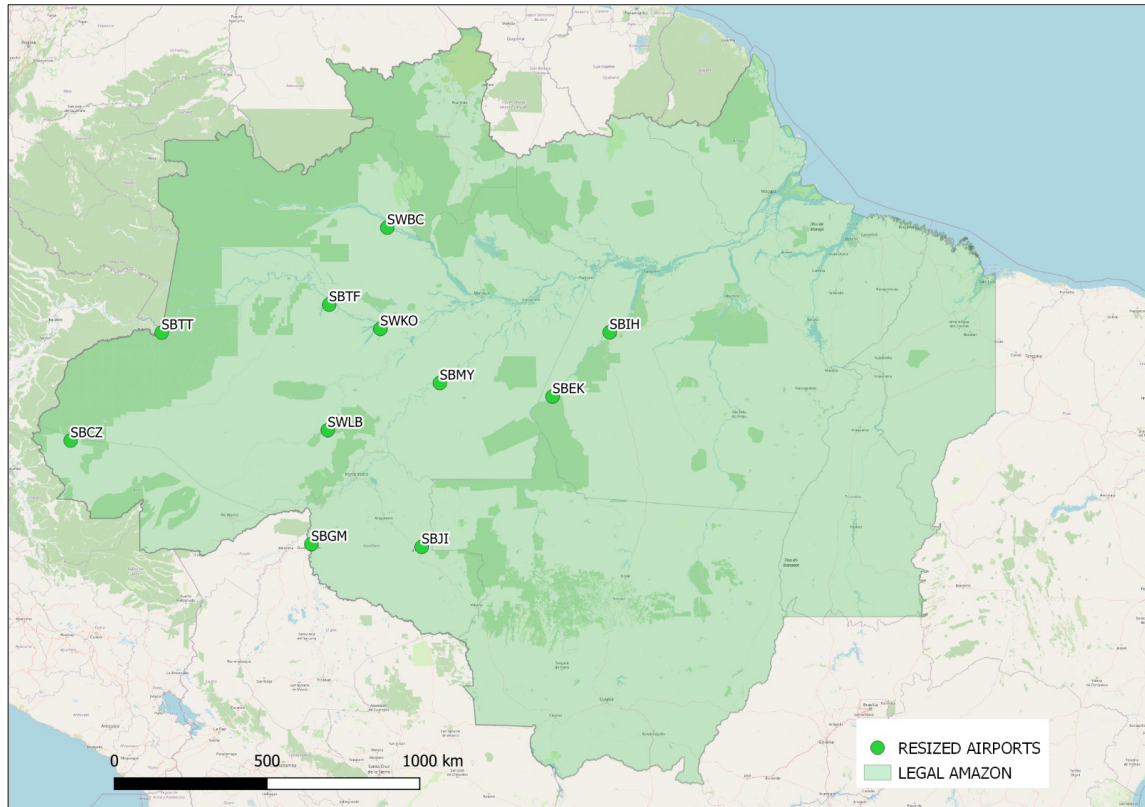


Figure 14- Resized Airports
Source: own elaboration

Some of these airports were also selected to receive investments of the National Civil Aviation Fund (FNAC) coordinated by the Investment Department (DINV) of this National Civil Aviation Secretariat (SAC) within the scope of the Regional Aviation Program, for projects of renovation and expansion of the civil airport infrastructure.

The airport sites of Barcelos - AM (SWBC), Manicoré - AM (SBMY), Guajará-Mirim - RO (SBGM), Ji-Paraná - RO (SBJI) have irregular occupations began more than twenty year ago inside the Federal Government properties. In all the resizing proposal studies, the civil aviation regulations are taken into consideration regarding the basic noise zoning plan, future airport reform and expansion projects and the possibility of excluding as many irregular occupations as possible identified inside airport site for

civilian infrastructure. In Barcelos airport's case (SWBC), the homologation of the extrajudicial agreement still pending to be signed. Some families will be relocated to areas far from the airport security areas.

4.3. Unfinished incorporation processes and Judicial Acts

An emblematic case of judicialization is Brigadeiro Lysias Rodrigues Airport/Palmas Airport - TO (SBPJ), whose area was donated by the State of Tocantins (TO) and incorporated to the Federal Government's property. However, the State had donated part of an area owned by third persons. The registers overlapped and the case was taken to Federal Justice. INFRAERO, the airport operator, conducted the negotiations that resulted in a Judicial Agreement composed by exchange of the area owned by the State of Tocantins with the third persons, implementation of property fencing and with the commitment of the State of Tocantins to donate the delimited area for the new airport site to the Federal Government's real estate, which will be granted in the 6th Round of Concessions in progress.

Examples of inconcluded expropriation processes are Viracopos/Campinas - SP Airport (SBKP) and São Gonçalo do Amarante/Natal - RN (SBSG) Airport. In the second example, SBSG, the airport was built in an area expropriated by Rio Grande do Norte State with the final commitment of donation of these properties to the Federal Government's real estate. That State signed a Technical Cooperation Agreement with INFRAERO.

With the rebidding of this airport, many unfinished expropriation processes came to the knowledge to this National Civil Secretariat (SAC), which has, since then, been monitoring the progress of these processes. The SBSG case is one of thirteen airports with expropriation processes for expansion of INFRAERO's airport sites previously identified as unfinished.

4.4. Airports with Delivery Term

On the other hand, there are identified cases of incorporation processes, whether through donation or expropriation, that were not finalized or that did not follow all the necessary procedural rites for incorporation into the Federal Government assets. These are the cases of Property Real Estate Registers (RIPs) classified as non legalized.

There are three possible status to airport sites according to incorporation processes: non legalized, legalized and regularized. Not legalized refers to airport whose incorporation process has not been finished. The legalized one is that incorporated and registered in Register Office as ownership of Federal Government but not delivered to responsible body for its administration. And, finally, the airport site with regularized status is that was incorporated, registered and with Delivery Term.

The lawsuits can deal with ownership repossession requests in cases of irregular occupations, disputes over values in cases of expropriations processes in progress,

cases of overlapping property boundaries with third parties, cases of request for land regularization, among many others.

The edition of Joint Normative Instruction No. 1, issued in 2017 (SPU, 2017b), enabled SPU, in a more agile and efficient way, to carry out the delivery areas of Federal Government domain necessary for the administrative, operational and commercial activities of civil aviation and to public civil airport infrastructures to SAC, which has the legal competence for management of the public civilian airport policy.

The Normative Instruction brings the model of the Delivery Term to be signed, and also brings, among its clauses, the obligation of update the properties limits and valuation of the these properties according to Normative Instruction No. 2/2017 (SPU, 2017a).

Regarding to airports with Delivery Term to SAC, from 152 airports, 22 are already registered in SAC's UG at SPIUNET System. In these case, SAC can access only the properties in its UG, so, it is only possible to manage these airport real estate into the system.

These airports can be visualized in Figure 15 below:

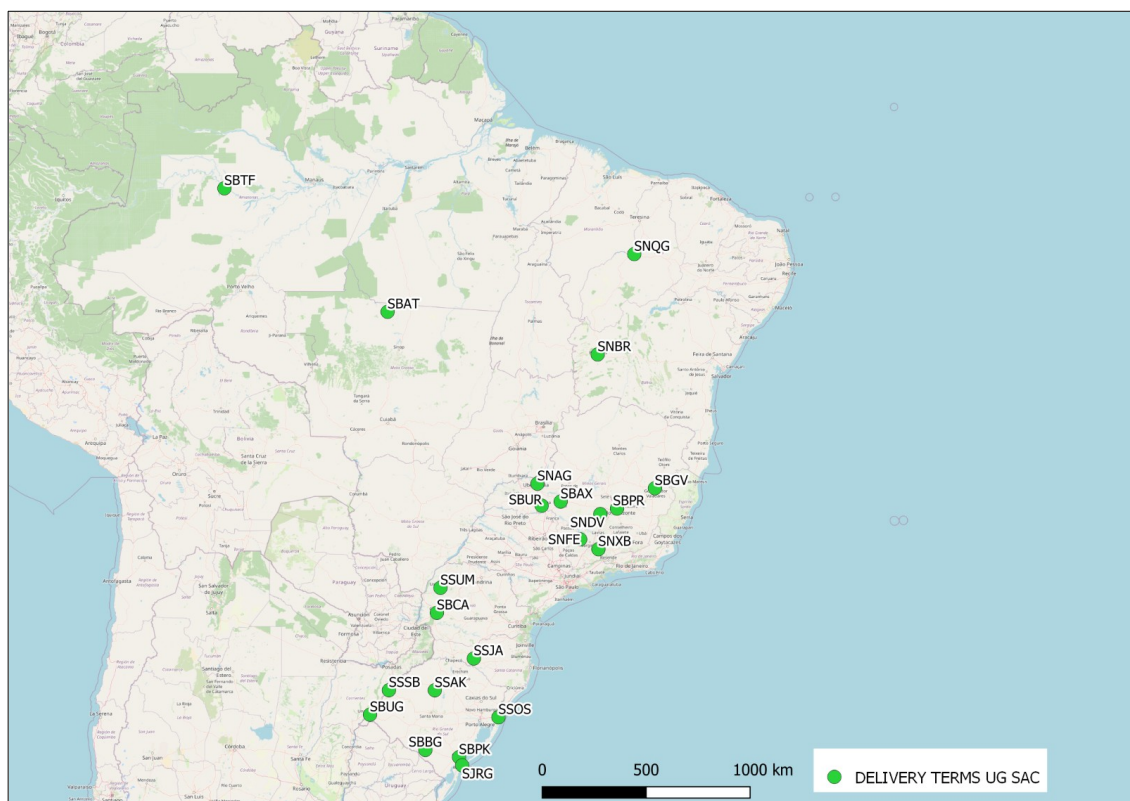


Figure 15- Delivery Terms SAC's UG in SPIUNET
Source: own elaboration

4.5. Proposed Methodology

Remembering that the most problems related to land management can be grouped as those related to uncertainty of property limits of the airport site (cadastre) and those related to Property Register (rights).

If the registry is a legal institution aimed at guaranteeing the publicity, authenticity, security and efficacy of legal transactions, indicating rights and determining the legal status of property, the cadastre is a public inventory of methodically organized data relating to the survey of the limits and confrontations of territorial areas. Both focus on the same object, but with different attributions. While the first is interested in rights, answering the questions: who is the owner? And how was the property acquired?, the latter provides solutions to other questions, such as where is the property located? And how much does it measure?

Diagnosis of the situation of real estate owned by the Brazilian Federal Government can be listed as: properties with incomplete incorporation process; irregular occupations; properties with enormous dimensions located especially in the North region of the country (Legal Amazon); real estate register outdated, or with incomplete, imprecise description that makes impossible to spatialize the limits; overlapping or non-existing property register; multiple property register for the same area; mismatch between register and current used area of airport site (register x cadastre).

Considering aerodromes as object of study, many situations make each of them a single and a specific case. But some analysis and steps can be standardize in order to create a roadmap to deal with most of all cases at first steps.

Thus, the first methodological step for problem solving is the identification of real state situation of each airport site according to initial found documents. After, giving the correct treatment to spatialize cartographic description whenever it is possible.

The next step of this process would be the ground survey according to the regulations given by the Brazilian Institute of Geography and Statistics (IBGE), National Institute for Colonization and Agrarian Reform (INCRA) and Federal Real Estate Secretariat (SPU) for the airport site actually occupied by civil aviation infrastructure, comparing it to the spatialization of the registry document.

In the end, choose an appropriate platform to store, process, visualize and disseminate (publicize) information such as an open source softwares for Geographic Information System (GIS) as QGIS, PostgreSQL, PostGIS and GeoServer.

Thus, the following real property management project basic steps suggested:

- a) identification of the incorporation processes and technical documents;
- b) obtain registration documents and updated or other notary document;
- c) Search for plants, maps, descriptive memorial;
- d) identification of irregular occupation into the property;
- e) identification of inconclusive expropriation processes;
- f) search for lawsuits;

- g) Technical visit;
- h) Topographic ground survey for updating the boundaries limits and improvements;
- i) Property valuation;
- j) Elaborate technical documents to present to SPU;
- k) Update SPIUNET;
- l) Update Registry;
- m) Geopatial database.

By proposing a methodological roadmap for management of Federal Government's airports database, the objective is also to promote the appropriate use of the land destined for civil airport activities with updated information of boundaries limits, updated registry and, as result, provide the legal security of these properties.

Regarding to the boundaries of the airport site, this delimitation seeks to eliminate the problems of registry with precarious descriptions. For instance, the Transcriptions, in this case a unique property can have have many of them. On the other hand, the Registry is unique for each property. In this sense, the alteration Public Registry Law (Law 6.015/1973) through Law no. 10.267/2001, known as the Law of Georeferencing of Rural Properties, included the obligation to georeference the properties for its unequivocal identification of its boundaries with geodetic coordinates referenced to the Brazilian Geodesic System in order to comply with Objective Specialty Principle (Art. 176 of the Law of Public Registries).

INCRA is responsible for the management and maintenance of the database systems of rural properties, rural settlements, land tenure regularization, among others. It is also responsible for the process known as Rural Property Certification, in which the agency ensures that the technical services performed to delimit the rural property complying with the legislation and do not overlap with any other property belonging to the database on the date of submission. The Land Management System - SIGEF was designed to automate the analyses previously performed on paper.

Due to rural properties cases, the systems have also been modernized with the possibility of consulting on internet the land holdings, including private and rural properties, rural settlements and Federal Public Land.

It is also important to mention that property information should be managed through a geospatial database system that will be compatible with the SPU's new systems, the SPUNET, with other Public Administration systems.

CHAPTER 5

PRESENTATION OF POSSIBLE SOLUTIONS

This chapter describes solutions achieved during the internship.

The first assessment from this work was the identification of airports situation related to ownership, civilian-military zoning plans (PZCM), resized airport site, Delivery Term from SPU to SAC/MINFRA.

They are described below:

- 0,27 % of special use property are destined to civil aviation.
- 28% of public civilian airport sites belongs to Brazilian Federal Government
- Almost 35% of airport sites are owned by Municipalities;
- Joint Civilian/Military Airports with Civilian - Military Zoning Plans (PZCM) since 2014: 20 airports, 12 of them granted, i.e, 60% of all airports
- Resized Airport: 11, which 3 of them will be granted in 6th Round of Federal Airport Concession
- Delivery Terms from SPU to SAC's UG : 22 terms

Taking in account that 44 of airports are already granted to private initiatives, six of them (SBSG, SBGR, SBGL, SBCF, SBBR and SBKP) had not been previously analyzed because these concessions took place before 2014. It's important to keep in mind that the real estate of Confins Airport (SBCF) belongs to Minas Gerais State. However, the rebidding of the airports of São Gonçalo do Amarante/Natal - RN (SBSG) and Viracopos/Campinas (SBKP), will permit the study and update of their property documents in order to compose the object of the concession.

It is important to point that, after 2014, the granted airports already have a previous analysis of their registry documents, specially the airports of 6th Round, in progress. For this round, ground surveys were conducted to identify the property limits with the geometric description, as well as the identification and study of their registry documents. These technical services were executed by Laboratory of Transport and Logistics of the Federal University of Santa Catarina (LabTrans/UFSC) under the Technical Cooperation Agreement, which, among other studies in the sector, provides support to SAC in Survey and Geoprocessing subjects.

The second objective, the methodology itself to management real estate of airport sites, it should be said that this proposed methodology is already in use by SAC to delimit the airports sites under Federal Airport Concession. Considering the activities of the methodology, the property valuation and further steps still outstanding.

Considering the methodology, it's important to set the stakeholders and how the project can be implemented. The States and Municipalities may, as airport operators of small and medium-sized airports, collaborate with this demand providing ground surveying of the limits of airport site and the collection of properties information due to their proximity to the Land Registry Office.

Moreover, there would be the possibility of hiring a company specialized in land regularization and property valuation. Furthermore, there is the possibility to make technical cooperation agreement with SPU or another institution with expertise in cadastre and property management areas should also be considered.

In order to property management of the civil aviation being successful, it is necessary to transform it into a project to be developed into SAC, with a defined scope, documentation of all the stages for its execution in order to be continuously improved. To achieve this goal, it is necessary training programs to public servants responsible for project and technological resources.

At the end of this process is expected, as a final product, a database (cadastre) of federal airport sites.

The risks, perhaps, would be associated with the financial resources to carry out the cadastral topographic ground surveys and the research and surveys needed to carry out the real estate valuation of the properties owned by Brazilian Federal Government.

The opportunities associated to update property registration are having qualified information of airport sites for decision making, possibility of database integration with other entities and organizations, for instance, SPU, FUNAI and INCRA.

CHAPTER 6

CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

This work was the first step within SAC/MINFRA to design a regularization project for real estate management of airports considering that each airport is a unique case and will require specific actions.

The work was initially conceived to create a spatialized database of the property registry of the 152 airport sites owned by the Brazilian Federal Government. It can be said that the initial planned project was wider and too extensive to be accomplished during the internship phase and under adverse and unexpected conditions. So, the project had to be readapted to reality within the possibilities of execution.

So, the study was adapted to examine the property data available, listing the main problems and proposing a roadmap methodology to manage the property data for airport sites.

Some difficulties can be addressed to COVID-19 Pandemic scenario that limited the possibility of performing internship in a different company. In addition, the difficult with lack of data access to all the airport sites and, the most relevant, enough time to implement all the steps of methodology proposed to create the database for airport sites.

The subject of this master's thesis is strictly related to developed activities in the Department of Grants and Real Estate (DEOUP). Although the subject complexity, its demands time and should to be worked on in several aspects.

Thus, it would be important to highlight this subject as a project of the General Management of Office for Real Real Estate, with a view to preparing not only with technical and technological resources, but also investing in human resources regarding necessary technical knowledge in engineering, cartography, geoinformation, property valuation and registry law areas. To achieve this purpose, it is necessary to plan the offer of training courses regarding the areas above mentioned.

The effort to integrate geoinformation is also taken, not only within the Ministry of Infrastructure, but throughout all the Federal Government. For this, it is necessary to standardize the data and procedures.

The standards already in use could also be applied to other properties affected to the airport infrastructure, regardless their ownership. At this point, considering that land and registry chaos is not restricted to public properties, it is hoped that this work might

help, to organize this issue.

Thus, it must be considered the modernization of SPU's systems from SPIUNET to SPUNET would impact the way in which the real estate data should be inserted in this new system.

Therefore, this proposed methodology of real estate management is the consolidated database with reliable information to be included in a Geographic Information System (GIS) capable to integrate to others from Public Administration.

Remembering the initial propose of this work and the question made:

“Why develop a real property management methodology and what are the advantages for society?”

The main reason is to have an updated reliable data, including the definition, demarcation and delineation of boundaries of the airport sites and, consequently, the Registry.

As long as the airport sites are delimited with landmarks and/or fences, all available documents to define the limits and then update the boundaries of the airport site to current situation in order to promote the use of the land for civil aviation purposes and the reliability of this information.

For society, an expected benefit from this work would be providing transparency of property information of airport sites and making information public, it could prevent improper occupations affecting airport security and property speculation around airports.

Moreover, the expected benefits of the civilian airport cadastre and its management could be summarized:

- updated boundaries limits in order to delimit precisely the land used and affected to airport infrastructure;
- updated register;
- promote legal certainty specially to concession contracts;
- create a standard for receiving and managing real estate properties;
- correct valuation property;
- correct value of properties for Public Accounting – SIAFI System;
- promote transparency and accountability;
- reliable information to decision making;
- enables sustainable development and environmental protection;
- protect of airport land reserves to limit impact of illegal occupation affecting aircraft safety and for future expansion of airports.

Consequently, this will bring greater legal certainty for airport operators, the owner of the properties (Brazilian Federal Government) and third parties regarding to the properties allocated to airport infrastructure, also facilitating the exercise of SAC's legal competences related to real estate control of these assets.

6.2 Recommendations

After the results, some topics are important opportunities identified for future works. It is suggested that future work address issues related to the design of the systems necessary for storing the cadastral data of airport sites, as well as real estate valuation models for these type of properties.

About valuation methods, should be considered a research for suitable models that best values the property used as airport.

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GLOSSARY

ANAC	National Civil Aviation Agency
CBA	Brazilian Aeronautical Code
CDRU	Grant for Real Right of Use
CGPAT	General Coordination of Real Estate
CNJ	National Council of Justice
COMAER	Aeronautics Command
COVID-19	CO' stands for corona, 'VI' for virus, and 'D' for disease plus year 2019
CUEM	Concession of Special Use for housing purposes
DNER	National Department of Roads and Highways
FUNAI	National Indigenous Foundation
FNAC	National Civil Aviation Fund
GIS	Geospatial Information System
IBGE	Brazilian Institute of Geography and Statistics
ICAO	International Civil Aviation Organization
ICMBio	Chico Mendes Institute for Biodiversity Conservation
INCRA	National Institute for Colonization and Agrarian Reform
INFRAERO	Brazilian Airport Infrastructure Company
LabTrans	Laboratory of Transport and Logistics
LBA	Brazilian Legion of Assistance Foundation
MD	Ministry of Defense
MINFRA	Ministry of Infrastructure
PAN	Brazilian National Civil Aviation Master Plan
PIL	Logistics Investment Program
PZCM	Civilian-Military Zoning Plan
RFFSA	National Department of Roads and Highways

RIP	Property Real Estate Registry
SAC	National Civil Aviation Secretariat
SCGPU	Coordination and Governance of Real State Secretariat
SIAFI	Integrated System of Federal Government Financial Administration
SIAPA	Integrated Patrimonial Administration System
SISCEAB	Brazilian Airspace Control System
SIGEF	Land Management System
SISREI	Electronic Real Estate Application System
SNCR	National Rural Cadastre System
SPIUNET	Special Use Property Management System
SPU	Federal Real State Secretariat
SPUNET	Integrated Management System for Federal Public Real Estate Properties
STN	National Treasury of Brazil
TAU	Sustainable Use Authorization Term
UC	Conservation Unit
UFRGS	Federal University of Rio Grande do Sul
UFSC	Federal University of Santa Catarina
UG	Management Unit
Unesp	São Paulo State University

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