Chapter 74

Socio-environmental characterization of the environmental protection area of Itapiracó, São Luís - MA

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ABSTRACT
The present study seeks to characterize the Environmental Protection Area (APA) of Itapiracó, from the theoretical survey of published news, laws, documents and scientific articles in a bibliographical research. The APA do Itapiracó consists of a conservation unit for sustainable use, located in the State of Maranhão, between the municipalities of São Luís and São José de Ribamar. This conservation unit represents an important fragment of the Amazon rainforest, which is characterized by its high biodiversity. Over the years, the process of human occupation in the area accelerated, becoming more intense. The Itapiracó area is part of an urban area with high housing density in the surroundings. A complex with leisure and sport areas was built in the area. The study has its importance in the social and academic environment, as it presents relevant information about conservation units and environmental protection. Understanding the reality of the APA of Itapiracó is the initial step to carry out continuous work in the future that involves environmental measures in the search for protection of the environment, such as the implementation of environmental education for civil society.

Keywords: Environment, Conservation Unit, Environmental Protection, Itapiracó.

1 INTRODUCTION

The environment shows its richness in sociocultural diversity, in abiotic factors, which maintain so the appropriate conditions of life and conservation of biodiversity. The search to understand the phenomena that drive the study and exploitation of the environment and the great destructive potential of the human being generate a need to isolate natural areas in order to protect them from harmful interventions and protect local biodiversity. A protected area indicates the existence of an environment "especially dedicated to the protection and maintenance of biological diversity and associated natural and cultural resources, maintained through legal instruments or other effective instruments" (IUCN, 1994 *apudDEIROS*, 2006, p.41).

Based on the definition of the World Commission of Protected Areas adopted by the Ministry of the Environment in the country (MMA/CONAMA, 2010), a protected area consists of "a geographical area defined, recognized and intended for management, through a legal instrument or other effective means, with the aim of promoting the conservation of nature in the long term, associated ecosystems and cultural values." In these definitions, we take into account both the protection of natural aspects with the valorization of the cultural presence in the environment.

Protected areas also include important economic spaces for promoting environmental services, generating business opportunities and conserving socio biodiversity (MMA, 2018). These spaces delimited and defined as protected areas correspond to Conservation Units, Forest Mosaics and Ecological Corridors. For the protection of these spaces, preservation and conservation strategies are adopted.

The first area officially registered as a protected area was Yellowstone National Park, created in 1872 in the United States. The implementation of this area stimulated the creation of several other protected areas in various locations of the world. Brazil has indeed begun to implement the protected areas in its territory at the end of the 1930s. Under the influence of discussions that began at the end of the 19th century and beginning of the 20th century in Brazil, the former Code Florestal was published, established by decree no. 23,793 of 1934 (BRASIL, 1934). This document was considered "the first Brazilian protection instrument to clearly define typologies of areas to be specially protected" (MEDEIROS, 2006, p. 50), dealing for the first time in legislation on the conservation of forest areas and the creation of Parks (Unities of Conservação - UC of Integral Protection).

In this ancient legislation, forests were classified as protective, remnants, model and yield. The so-called protective forests were areas of private domain with the function of protecting the natural elements. The creation of parks was due to the demarcation of remaining forests, considered areas declared by the federal, state or municipal government. There were also the forests of model and yield, in which the management of natural resources was allowed, such as the extraction of wood.

The first conservation unit was created in Brazil three years after the promulgation of the old Forest Code of 1934. Through decree no. 1,713 of June 14, 1937 (BRASIL, 1937), approved by the government of Getúlio Vargas, the lands that belonged to the Viscount of Mauá, located between the states of Rio de Janeiro and Minas Gerais were transformed into the Itatiaia National Park. Then, the Iguaçu National Park in Paraná was created through decree no. 1,035 of January 10, 1939 (BRASIL, 1939).

At the time of the Military Dictatorship, the Forest Code of 1934 was replaced by a new Codeestablished by law no. 4,771 of September 15, 1965 (BRASIL, 1965). With this Codeof Forestry Laws of 1965, the four categories of protected areas declared in the 1934 legislation were repealed. In place, the protected areas were categorized as National Forest, National Park, Permanent Preservation Areas (APP) and Legal Reserve (RL).

Forests and National Parks were considered areas of public interest with the function of safeguarding natural attributes,being prohibited any kind of exploitation of resources. The Permanent Preservation Areas (APP) were treated as untouchable spaces, of a completely preservationist character. And legal reserves were determined as private areas, whose landowners should be responsible for protecting. Subsequently, this Forest Code was repealed during the government of Dilma Rousseff, by law no. 12,651 of 2012 (BRASIL, 2012), which governs the protection and recovery of vegetation cover in rural properties and deals specifically with legal reserve and permanent preservation areas.

In 1967, Decree-Law No. 289 (BRASIL, 1967) created the Brazilian Institute for Forest Development (IBDF) in order to manage the protected areas existing in the country. In the 1970s, after the Stockholm Conference, Decree No. 73,030 of October 30, 1973 (BRASIL, 1973), created the Special Secretariat for the Environment (SEMA), at the federal level, which began to manage and supervise, together with the IBDF, the protected areas in Brazilian territory. The SEMA became important in the context of environmental policies, assisting in the creation of new protected areas not yet existing at the time. Thus, Medeiros (2006, p. 54) states:

> This process resulted, after a few years of study, the initial proposition of four new types of areas protected by SEMA: ecological stations (ESEC) and Environmental **Protection Areas (APA)** in 1981, in addition to ecological reserves (RESEC) and Areas of Relevant Ecological Interest (ARIE) in 1984. Later, in 1996 and already with SEMA elevated to the status of Ministry, were created the Private Reserves of Natural Heritage (RPPN), a new typology that allowed the recognition of a protected area in the private domain (MEDEIROS, 2006, p.54, our griffin).

With law no. 6,902/81 (BRASIL, 1981), environmental protection areas (APA) and ecological stations (ESEC) were created in the country. An important advance for the protection of natural areas occurred at the beginning of the 21st century. Federal Law No. 9,985 of July 18, 2000 (BRASIL, 2000) established the National System of Conservation Units (SNUC). By law, The SNUC defines, categorizes and regulates conservation units at federal, state and municipal levels. First, in article 2, chapter 1, SNUC defines the conservation unit as:

> Territorial space and its environmental resources, including jurisdictional waters, with relevant natural characteristics, legally established by the Public Power, with conservation objectives and defined limits, under the special administration regime, to which appropriate guarantees of protection apply (BRASIL, 2000).

The conservation units are divided into two groups, and may be Integral Protection (UPI) or Sustainable Use (UUS) units. The Integral Protection Conservation units are created with the aim of preserve nature. In these units, occupation and human activities that promote the consumption, collection, damage or destruction of natural resources are not allowed, unless for educational purposes and scientific research. On the other hand, the Sustainable Use units seek to make conservação compatible with theustentability, and human activities such as public visitation are allowed.

Currently, there are 2,256 conservation units distributed throughout Brazil at the federal, state and municipal levels, 721 of which are full protection and 1,535 are sustainable. In the state of Maranhão, 41 conservation units are included in the National Registry of Conservation Units (CNUC) of the Ministry of the Environment, within which are the areas of environmental protection, state parks, national parks, extractive reserves and private reserves of natural heritage (BRASIL, 2018).

This study highlights the Environmental Protection Areas (APA), where the development of economic activities is allowed in a sustainable way. Based on law no. 9,985/2000, art.15, inciso I, THE apa

were defined as conservation units for sustainable use. This means that there may be a certain degree of human occupation, provided that the biological diversity of the site is protected:

> **Art. 15**. The Environmental Protection Area is an area generally extensive, with a certain degree of human occupation, endorsed with abiotic, biotic, aesthetic or cultural attributes especially important for the quality of life and well-being of human populations, and has as its basic objectives to protect biological diversity, discipline the process of occupation and ensure the sustainability of the use of natural resources (BRASIL, 2000, p.16).

In relation to the APA, there are 339 units in Brazil, 37 at the federal level, 194 at the state level and 108 at the municipal level. In the State of Maranhão, 11 environmental protection areas (APA) were defined. Since quantitative, only three environmental protection areas have been created in the municipality of São Luís (MA), including the Maracanã APA, the Upaon-açu APA and the Itapiracó APA (BRASIL, 2018). In view of this context, the present study has its importance in the social and academic environment, because it presents relevant information about the Conservation Units and the protection of the environment. The objective of this research is to characterize the APA of Itapiracó, verifying the main changes since its creation.

2 METHODOLOGICAL THEORETICAL CONTRIBUTION

The study consists of a qualitative, exploratory-descriptive research of the bibliographic type. The research that follows a qualitative approach allows the deepening of questions about the investigated phenomenon and its relationships, from a data analysis that does not focus on the quantification of a sample. The perceived environment is considered as part of a context, enabling concern with meanings in an inductive analysis process.

The current research is characterized by being exploratory in the sense of exploring alternatives, discussing ideas and situations in the search to clarify and generate more information about the reality investigated. With the data collected, the study is also considered descriptive, as it describes characteristics under the geographical, social, political and ecological scope about a specific conservation unit.

In order to achieve the central objective of this research that seeks to characterize the APA of Itapiracó, the information was obtained from a theoretical survey of published news, laws, documents and scientific articles in a bibliographic research. For Fonseca (2002, p. 32):

> The bibliographic research is done from the survey of theoretical references already analyzed, and published by written and electronic means, such as books, scientific articles, web pages. Any scientific work begins as a bibliographical research, which allows the researcher to know what has already been studied on the subject. However, there is scientific research that is based solely on bibliographic research, seeking published theoretical references with the objective of collecting information or previous knowledge about the problem about which the answer is sought.

3 CHARACTERIZATION OF THE ITAPIRACÓ APA

Based mainly on the National System of Conservation Units (SNUC), municipal law no. 4,669, which establishes the master plan of the municipality of São Luís (MA) made available, among other issues,

the organization of protected areas, categorizing them into units of integral protection or sustainable use (SÃO LUÍS, 2006). The units of sustainable use, in which the Environmental Protection Areas (EPA) belong, are available as follows:

> **Art. 29**. Sustainable Use Areas are areas designed to ensure the perenity of renewable environmental resources and ecological processes, maintaining biodiversity in a socially just and economically viable manner. **§ 1.** The objective of sustainable use areas is to make nature conservation compatible with the sustainable use of natural resources.
> **§ 2.** They compose the Sustainable Use Area: I. Maracanã Environmental Protection Area; II. **Itapiracó Environmental Protection Area**. III. The Jansen Lagoon Ecological Park; IV. The Santa Eulalia site; V. The Urban Parks of Bom Menino, Diamante and Rio das Bicas; VI. Beach areas; VII. Aquifer Recharge Areas (SÃO LUÍS, 2006, Cap. III, Art.29; our griffin).

The Environmental Protection Area (APA) of Itapiracó is located in the north of the State of Maranhão, between the municipalities of São Luís and São José de Ribamar. This conservation unit covers an area of 322 hectares with the geographical coordinates bordering between latitudes 2º00'00" S – 2º31'58,69" S and longitudes 44º11'19,12" W – 44º13'15,69" W do estado maranhense (MARANHÃO, 1997). This conservation unit of sustainable use represents an important fragment of the Amazon rainforest that is characterized by presenting a great biodiversity. The APA of Itapiracó is part of the Legal Amazon, belonging to theAmazonian omínio (AB'SÁBER, 1970).

Of utmost importance, the Amazon is considered the largest Brazilian biome. According to the report of the Federal Court of Auditors (TCU, 2014), the Amazon biome occupies an area of 4.2 million km², representing 49% of the Brazilian territory. In this biome there is 1/5 of the world's availability of drinking water, 1/3 of the planet's tropical forests and an important sample of biological diversity. In Brazil, the Amazon biome encompasses nine Brazilian states in the North, Central-Eastand Northeast regions of the country, among which is thestate of Maranhão. In order to plan the economic development of these regions in Brazil, the concept of "Legal Amazon" was created. Through law no. 1,806 of January 6, 1953, Maranhão at the 44th west of the meridian was politically incorporated into the Brazilian Amazon (BRASIL, 1953).

The importance of the Amazon biome is not only limited to maintaining the biological diversity of a single locality, but becomes essential in the various aspects worldwide. Due to the continuous deforestation of the Legal Amazon, the creation of protected areas has become a viable strategy to combat biodiversity loss, discussed and established by the countries that participated in the United Nations Convention on Diversity Biological (MMA, 2000). Before the United Nations (UN), Brazil has also made a commitment to create protected areas. Thus, a good part of the Amazonheritage is protected in conservation units.

According to embrapa's diagnostic report (2013), the Project for conservation and sustainable use of Brazilian Biological Diversity (Probio) conducted between 1997 and 2000 a broad consultation with the purpose of defining priority areas for conservation in the various Brazilian biomes such as the Amazon, Caatinga, Cerrado, Pantanal, Atlantic Forest, South Fields, Coastal Zone and Marine Zone. In thestate of

Maranhão, 49 priority areas were identified, covering a total area of 16,758,383 hectares. Much of it was concentrated in the Amazon biome with an area of 10,883,225 hectares (EMBRAPA, 2013).

There are currently 15 Conservation Units in the State of Maranhão declared by the State Department of Environment (SEMA), in a public hearing on March 17, 2018, 8 of which are identified and published in a Report of the State Court of Auditors (TCE/MA, 2013) as belonging to the Amazon biome. Among a list of Amazonian units (Chart 1) is the Itapirac O APA

Table 1: Amazonunits of Maranhão

Conservation Units	Belonging Group
APA Itapiracó, APA da Baixada Maranhense, APA Maracanã, APA Upaon-Açu Miritiba Alto do Rio Preguiças.	Sustainable Use
Bacanga State Park; Ranger State Park.	Comprehensive Protection

Source: Adaptation - TCE/MA (2013).

The APA of Itapiracó, as a part of this Amazon Forest, is characterized by presenting a vegetation typically of terra firme with several species recorded and disseminated in the literature (PINHEIRO; TEIXEIRA, CALDAS, 2014; PANTOJA, 2017) such as janaúba (*Himatanthus drasticus*), andiroba (*Carapa guianensis*), bacuri (*Platonia insignis*), buriti (*Mauritia flexuosa*) and ipê (*Tabebuia* sp.). In the local fauna, species such as the boa constricto stands out, *laziness* (*Bradypus variegatus*), spread-wings (*Mionectes oleagineus*), among many others. The difficulty in the bibliographic search for these species found in the APA reveals a need for the realization and publication of more in-depth research, with specific surveys, more comprehensive and updated to identify species of local flora and fauna.

In the APA of Itapiracó, there are many species of the Amazon biome. However, there are also typical cerrado species such as cashew (*Anacardium occidentale*), candeia (*Gochnatia polymorpha*) and mango (*Mangífera indica*) plants. The forests of galleries that surround the Itapiracó stream represent, for example, a tree and shrub vegetation typical of the Cerrado that protects the margins of bodies of water against silting, besides providingshelter and food to the native fauna. The Itapiracó stream provided shelter for aquatic animals such as fish, in addition to providing water that quenchs the home of terrestrial animals. The three springs of the Itapiracó stream, whose pollution conditions have been alarming for decades, are inserted in the Paciência River Watershed.

The name Itapiracó has indigenous origin and means place where there is pointed stone (Ita = stone/hill; pyre = tip/cliff; co = place). This name refers to the Itapiracó stream. Studies (MARQUES, 2008; MATOS, 2014) found that at the beginning of colonization there were 27 Tupinambá villages in places named with indigenous names such as Itapiracó, Turu, Camboa and Bacanga. The first occupations were indigenous peoples who inhabited areas of extensive and dense vegetation. The origin of the name "Itapiracó" may have arisen by the ancient indigenous peoples, when they designated the stream located in that region. The presence of pointed stones on the banks of this stream would have possibly caught the attention of the indigenous people who populated the region, calling it Itapiracó.

In a period of great progress in the Brazilian economy, in the 1960s, research in various sectors was encouraged. At this time, the itapiracó area was considered a gleba of 435.60 hectares of vegetation cover, corresponding to an area higher than the 322 hectares proposed in the decree that subsequently institutes the APA. In legal terms, gleba is considered a place that is judicially divided. The land was granted to the Ministry of Agriculture under a regime of comodato. The lending consists of a type of contract established to sign a loan for irreplaceable goods. This means that the land was granted to the Ministry of Agriculture as a form of loan by the Department of Heritage of the Union (DPU). After the contract established, the Ministry of Agriculture carried out on site several scientific research in the fields of citrus, fruit, pig farming and aviculture.

The Itapiracó area functioned as an experimental field of the Ministry of Agriculture. Some fruit and species exotic to the habitat were introduced on the site. The area initially had a primary vegetation of the Amazon Forest, that is, the predominant vegetation was still an unaltered fragment of the Amazon biome. With the implementation of the Field, experimental tests for research purposes were carried out. At this moment, brazil nuts (*Bertholletia excelsa* H.B.K) and eucalyptus (*Eucalyptus grandis*), as well as fruit species such as mango (*Mangifera indica*), jackfruit (*Ariocarpus heterophyllu* Lam) and cashew (*Anacardium occidentale*) were introduced in this area (PANTOJA, 2017). On site they also raised animals such as birds, pigs, oxen and horses.

Under strong influence of human activities, the area could no longer be represented as an unchanged fragment of the Amazon. Gradually the vegetation ceased to be primary to become secondary. Secondary vegetation is characterized as "resulting from natural succession processes, after total or partial suppression of primary vegetation by anthropic actions or natural causes" (BRASIL, 1994). The Decree of creation of the APA considers that more than 70% of the area in 1997 already had a very altered vegetation cover.

During the period of the military dictatorship with the government of General Medici, the experimental field of Itapiracó was deactivated due to the cut of funds, having worked until the 1970s. With the deactivation of this field, the land was returned to the Department of Heritage of the Union (DPU). As a way to compensate workers who became unemployed, the Ministry of Agriculture has given more than 80 hectares of land, in the area corresponding to what is now The Farm of Itapiracó (PANTOJA, 2017). The employees of the experimental camp began to occupy the surroundings.

Over the years, the process of human occupation in the area has accelerated, becoming more intenso. The city of São Luís was expanding more and more, under the influence of developmental policies, the Housing Financial System (SFH) and the financial resources of the now defunct National Housing Bank (BNH). Housing Cooperative Systems (Cohab) and other institutions began to be implemented, giving rise to the first housing estates. In the 1990s, Maranhão construction companies financed by Caixa Econômica Federal delivered new housing, beginning the process of occupying the Parque Vitória neighborhood, around the APA do Itapiracó.

In 1992, State Law No. 5,405 instituted the Environmental Protection Code and boosted the creation of the State System (Sisema) and The State Council (Consema) of Environment (MARANHÃO, 1992). Provided for in the text of the law, the state policy encourages the participation of community representatives for the control and supervision of the environment and situation of ecological interest, among many other attributions. After the enactment of the Law establishing the State Code of the Environment (Law No. 5,405/92) and under the influence of the National Policy (Law No. 6,938/81), Decree No. 13,150 of July 9, 1993 created the Itapiracó State Park, in which it is part of the group of integral protection units.

The area functioned as an Environmental Park for only four years. On June 23, 1997, Decree No. 15,618 repealed the previous decree and created the Itapiracó Environmental Protection Area (APA), considered by SNUC law as a conservation unit for sustainable use. According to the apa creation document, the area did not meet several criteria to constitute itself as an Environmental Park. Its territorial extension was much lower than the established limit.

It was alsofoundthat more than 70% of its vegetation cover was already constituted by secondary vegetation. Thus, it did not meet the criterion on primitive vegetation cover that should be corresponding to more than 80% of the entire area. Another important factor that enabled the transfer of the Environmental Park to aPA is related to anthropic pressures. When the region was decreed as APA do Itapiracó, the urbanization process around the area was already advanced. The area suffered strong anthropic pressure, as there were already many occupations in the surroundings. The itapiracó area is part of an urban area with high housing density in the surroundings, which allows a greater human influence on the site.

Article 2 of the decree of creation also states that the APA covers the Gallery Forest that protects the springs of the Itapiracó stream. In the document of ordinance no. 129 of 2017 says that "considerando the decree of creation of said Environmental Protection Area - APA of Itapiracó provides for the need to preserve natural attributes still remaining" (MARANHÃO, 2017, p. 2). One of the objectives of the creation of the APA would be the protection of natural resources such as the Itapiracó stream. However, over the years, media and literature records point to a reality of continuous degradation of this stream. Studies (COSTA et al, 2006; MAFRA; LIMA; DINIZ, 2010; TORRES; SHAH; COSTA, 2017) record anthropic impacts that directly affected the Itapiracó stream, such as the presence of waste from sewage and non-biodegradable sediments.

The APA of Itapiracó with its vegetation cover is important for the maintenance of the local microclimate that generates a thermal sensation more pleasant to the region (PINHEIRO; TEIXEIRA, CALDAS, 2014). The presence of a vegetation cover in the area softens the heat. During the day, plants absorb carbon dioxide that reacts with water to produce enough glucose for their growth, in a process called photosynthesis. This allows for a reduction of carbon dioxide particles in atmospheric air.

With the fragmentation of vegetation cover for equipment construction and the intense flow of cars resulting from urban expansion, the concentration of carbon dioxide and other polluting gases in

atmospheric air increases considerably. The increase in this concentration allows a change in the temperature of the environment that causes a thermal sensation of heat, contributing to global warming. Thus, the presence of vegetation in the area has a significant role in the climatic conditions of the city, helping in a mild temperature and thermal sensation more pleasant to people.

Thus, the protection of this conservation unit is important to maintain the local biodiversity of species of flora, fauna and other living beings, protect natural resources such as the presence of the Itapiracó stream and soften the temperature of the environment by performing biochemical processes of vegetation cover. Some plant species found in apa may have therapeutic properties that need to be researched with greater caution. Other species provide fruits that can serve as food for the population. In general, the APA of Itapiracó becomes fundamental for the survival of many living beings and also has its social importance. In the APA do Itapiracó, a complex was built with leisure and sports areas (Figure 2) that value the region and encourage the visitation of people.

Based on the determinations of the initial decree of creation of the APA (no. 15,618/97), the legally protected area is limited to the north by the Parque Vitória Residential Complex, to the south by the Itapiracó Condominium, to the west by the Ipem Turu Housing Complex, to the east by the Cohatrac neighborhoods (I, II, III and IV) and the Soterra Allotment (MARANHÃO, 1997). According to Pantoja (2017), the surroundings of the APA also includes the neighborhoods Turu, Cohab Anil, Parque Aurora, Jardim de Fátima, Chácaras do Itapiracó, Planalto Anil, Novo Cohatrac, Residencial Matões, Canudos and Terra Livre (Figure 1):

Figure 1: Google Earth map, indicating the APA of Itapiracó and its surroundings

Source: PANTOJA (2017)

Figure 2: Leisure and sport spaces of the APA Complex of Itapiracó

Source: Self-authored records (2018).

More than 10 years ago, in 2006, there was already talk of the process of Revitalization of the APA of Itapiracó. The news of *Jornal Pequeno* of March 26, 2006 reports the official launch of the Revitalization Project, in which it was scheduled to be completed by October of that same year. The idea of revitalization would arise with the intention of tinced the protection of the area to its sustainable use. From the idea of this project, the APA of Itapiracó would become a green area with adequate infrastructure to receive public visitation. The revitalization project initially included the implementation of spaces for environmental education activities, bathrooms, outpost of the Battalion of Polícia Ambiental (BPA), square and parking with capacity for 300 vehicles (JORNAL PEQUENO, 2006). Then, the revitalization project began to include the construction of trails, soccer fields, sports court, skate circuit, artificial lake and new sema's new head.

The first stage of the environmental complex revitalization project was scheduled for the end of 2014. The work under the responsibility of SEMA with an investment of R$ 26 million from the State Conservation Unit Fund collected by the Environmental Compensation Law, already provided for the installation of the administrative headquarters of SEMA, Embrapa, IFMA, Forestry Battalion, Environmental Police Station, in addition to the construction of spaces for sports, recreational and educational activities such as the implementation of family squares, (IMIRANTE, 2014). Codevasf's headquarters would also be built, along with the other administrative headquarters. However, the construction of these buildings did not continue, only the spaces focused on sports and recreational activities to the population.

In an interview *with Jornal O Imparcial*, in mid-2017, the Secretary of State for the Environment at the time commented on the works of the Itapiracó Complex that would be completed and inaugurated on July 29, 2017. The APA of Itapiracó had been treated as the largest Leisure Complex in the State of Maranhão with the construction of squares, soccer fields, covered sports court, playgrounds, skate circuit, areas for sand soccer and foot volley and thirteen small squares that guarantee access to the trails, the larger squares and the exits in The Itapiracó And Canudos Communities and Free Land (O IMPARCIAL, 2017).

Over the years, the local community has organized itself into movements and associations in defense of the APA of Itapiracó. The Community Council of the Cohatrac Complex (Comunica) was created in 2004, being one of these organized movements. Comunica carried out the action "SOS Itapiracó" (LINHARES JUNIOR, 2005). In commemoration of the Dia Mundial da Água, the event was marked by various activities such as cultural presentations, public acts and ecological tours in order to mobilize the population on the need to protect the Itapiracó APA and its natural resources.

In November 2008, the Non-Governmental Organization Abará was created, which means "Environmental Resource Support Association". The NGO Abará would have raised the whole sociological issue and the land issue of the EPA. Currently this NGO is not active in the area for unknown reasons destthe research. In a public hearing held on March 17, 2018, the State Department of Environment (Sema) was requested to contact Abará in order to make available the entire photographic collection, research and survey on the APA of Itapiracó.

The APA complex of Itapiracó had four pavilions, where Abará carried out, mainly in the years 2009 and 2010, educational and training activities with children, young people and adults from the surrounding community. Educational activities included craft, cooking and music courses (SOUZA, 2011). Together with the community of Hortas street and São Pedro street, Abará also participated in the community task force for the construction of the Juçara bridge. This bridge (Figure 3), which is near the Itapiracó stream, was inaugurated on April 11, 2010:

Figure 3: Juçara Bridge next to itapiracó stream, built in a community task force

Source: SOUZA (2011); TV BRAZIL (2015)

In search of mobilizing the population on the problems of the APA of Itapiracó, the community movement Moderi held the event that became known as "A hug in the Itapiracó reserve" on March 20, 2010. Moderi then promoted an awareness-raising action in defense of the Itapiracó stream. The Movement in Defense of Itapiracó (Moderi) also managed to ban works, on the grounds that the installation of large real estate developments could mischaracterize the APA Itapiracó, causing negative impacts of great magnitude such as the suppression of vegetation cover and the destruction of fauna. The Moderi fact sheet (Figure 4) questioned about such problems:

Figure 4: Moderi Newsletters

Source: MODERI (2010)

In addition to the fight against the construction of large projects in the APA of Itapiracó, residents were concerned about the problems of solid waste in the area. In 2015, residents of cohab, cohatrac and adjacent neighborhoods gathered to form the Community Forum of the Cohab/Cohatrac Complex (Focco), which conducts discussion and debate activities.

Residents concerned about the situation of the APA Complex also gathered to set up the Association of Defenders of the Itapiracó Complex (Adecoi). This association of residents develops works that seek results in defense of this Conservation Unit and its surroundings. In partnership with the Municipal Department of Public Works and Services (Semosp), Adecoi sought to solve the problem of solid waste identified at the main entrance after a religious event. Adecoi also supports projects such as the Environmental Voluntary Brigade, which includes young people from the community.

4 FINAL CONSIDERATIONS (OR FUTURE CONCERNS)

Conservation units arise in order to protect local biodiversity and the natural resources of the environment. According to SNUC Law No. 9,985/00, there are integral protection units and sustainable use units. Itapiracó's environmental protection area is configured as a unit of sustainable use, which aims to

protect remaining natural attributes. Over time, the APA of Itapiracó has undergone numerous changes. A complex with leisure and sports areas was built, increasingly encouraging the visitation of people.

The Itapiracó APA is part of an urban area with high population density. Studies (COSTA et al, 2006; FILE; DINIZ, 2010; TOWERS; SHAH; COSTA, 2017) record anthropic impacts such as itapiracó stream degradation, problems with solid waste and fragmentation of vegetation cover. Although the local community has organized itself in defense of the Itapiracó APA in various situations over the years, numerous problems currently prevail in the region. The APA do Itapiracó comprises an area with the soil waterproofed and with the vegetation increasingly fragmented. In the surroundings, the problem of solid waste is still pertinent.

To reflect beyond what was discussed, one asks: is there a relationship with the cultural issue of the population with the area? Are only public policies sufficient to protect this fragment of the Amazon? What can be contributed to protecting this important environment? Understanding the reality of the Itapiracó APA is the initial step to answer such questions and carry out ongoing work in the future involving environmental measures in the search for environmental protection, such as the implementation of environmental education for civil society.

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