

**ANALYSIS OF THE REGULATIONS AND  
KNOWLEDGE OF THE RIPARIANS ON  
ACCESS TO FRESH WATER, FISHING  
AND ASSOCIATED RESOURCES IN THE  
TAPAJÓS RIVER BASIN**

**December 2020**

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**TNC**

**Executive Director: Ian Thompson**

**Conservation Director: Rodrigo Spuri**

**Director of Science: Edenise Garcia**

**Manager for Public Policy and Government Relations: Karen Oliveira**

---

**General Coordination**

**Karen Oliveira**

**Manager for Public Policy and Government Relations**

**Scientific Coordination**

**Edenise Garcia**

**Science Director**

**Mariana Soares**

**Science Specialist**

**Technical Coordination**

**Juliana Simões**

**Institutional Development Specialist**

**Lucilene Amaral**

**Conservation Specialist**

**This Report is part of the Tapajós River: Engaging Communities and Protecting Reshwater Ecosystems Project**

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**TECHNICAL TEAM**

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**Ádria Oliveira dos Santos (INIAMA)**

**David McGrath (Earth Innovation Institute and UFOPA)**

**José Heder Benatti (Professor UFPA)**

**Renã Margalho (Doctoral student PPGD/UFPA)**

**TECHNICAL SUPPORT**

**Antonia do Socorro Pena da Gama (UFOPA)**

**Review: Sâmela Cristima da Silva Bonfim**

**Translation: Everaldo de Souza Martins Neto**

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## 1 INTRODUCTION

Water is an invaluable natural resource and is vital to the planet's biological cycles and environmental balance. The Amazon region holds 20% of all fresh water on the planet (AZEVEDO-RAMOS, 2001). Therefore, the use and conservation of this stock of water resource essential to life must be strategic in the Amazonian model of sustainable development.

Most of the world's water conflicts are due to scarcity, but in Brazil, paradoxically, some disputes occur due to high supply (RIBEIRO et al., 2019). In the case of the Amazon, construction of hydroelectric dams, mining and deforestation are pointed out as some of the activities that generate conflict. They bring as consequence the displacement of population contingents, changes in the cycle of water bodies and contamination of rivers, among other conflicts with local populations that live next to rivers, lakes and streams that depend on quality water to maintain their customs and quality of life (CAVALCANTE; HERRERA, 2017).

In the last decades, watersheds have gained importance as a planning and environmental management unit due to their environmental peculiarities, huge demand for water resources and their connection with human activities (ALBUQUERQUE, 2015; BIRTH, 2010; 2014; TUCCI; MENDES, 2006; RODRIGUEZ; SILVA; LEAL, 2011). Primordial natural cells for the full functioning of environmental systems, the hydrographic basins are defined in Federal Law 9.433/1997, which institutes the National Water Resources Policy and creates the National Water Resources Management System, as the physical-territorial units for the planning and management of water resources (SILVA et. al., 2016).

### 1.1 The Tapajós River basin and its occupation history

The Tapajós River is one of the main tributaries of the eastern part of the Amazon basin. It occupies a strategic ecological position in the contact zone between the cerrado and Amazon biomes, and in the Amazonian frontier of agribusiness that advances from central-western Brazil towards traditional Amazon.

#### 1.1.1 Occupancy zones.

The history of occupation and the socioeconomic and environmental dynamics allow us to classify the Tapajós River basin into three large distinct zones (Figure 1):

(i) Upper Tapajós Zone: This zone begins with the waterfalls on the Tapajós River and extends to the limits between the states of Pará and Mato Grosso;

(ii) Middle Tapajós Zone: The stretch of river that begins above the Tapajós Lake and extends to the zone of rapids and waterfalls that make navigation impossible. The reference point of this region is Itaituba, capital of the middle and upper Tapajós mining area. This region is also marked by the meeting of the Transamazon highways and the BR-163 highway, characterized by the large area of settlements on dry land; and

(iii) Lower Tapajós Zone: The Lower Tapajós includes the region of the Tapajós River lake up to the point where the river is restricted to the main channel. The Lower Tapajós is integrated in the Traditional Amazon, along the Amazon-Solimões River and the lower part of its main tributaries. In this region, practically the entire riverside area is integrated in conservation units.

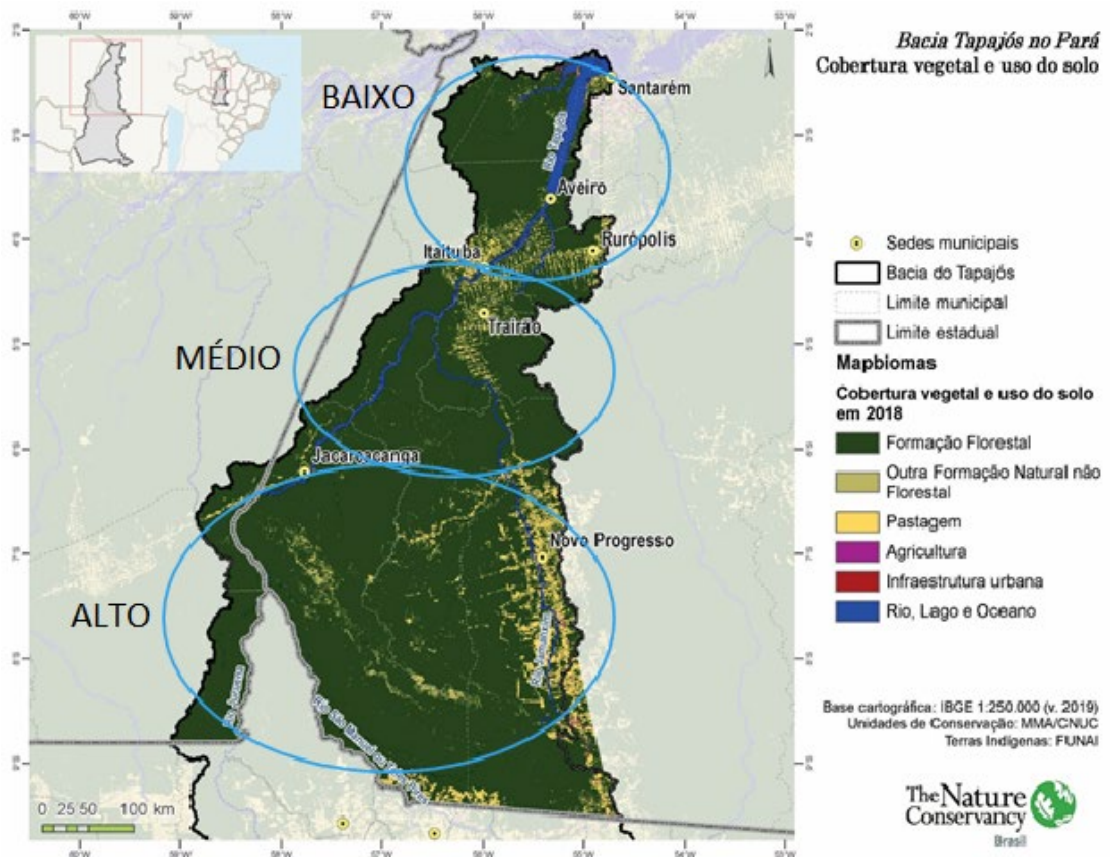


Figure 1 - Classification of the Tapajós River basin zones according to their occupation history and socioeconomic and environmental dynamics.

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### 1.1.1 Occupation history

The lower Tapajós was historically occupied by river dwellers, extractivists and the native indigenous population who mingled and, more recently, have demanded recognition. While the middle and, especially, the upper Tapajós were indigenous areas for centuries: a buffer zone of lands isolated from Brazilian society by the central highlands of Brazil and the traditional Amazon by the rapids and waterfalls between the middle and upper Tapajós.

This situation that characterized the occupation of the basin began to change definitively in the second half of the 20th century. The program of road construction linking the Amazon River with the Midwest and Southeast of Brazil and the advance of the agricultural frontier and colonization following the highways began to transform the upper and middle Tapajós, shifting the focus of human occupation of the river to the road network under construction. In the traditional Amazon, initially far from the agricultural frontier, another process was underway, transforming the avian society by the Liberation Theology movement, led by the Catholic Church and its grassroots organizations such as the Movement for Basic Education (MEB) and other movements. It was during this phase that the river dwellers were made aware of the values of Liberation Theology, organized in communities and trained to mobilize in regional movements to conserve forests, rivers and fishing resources and the way of life they supported.

In the second phase the two processes were concentrated in different axes of the basin: a) the agricultural frontier was concentrated along the roads and b) the riverine occupation was concentrated in the forests along the rivers. Currently, the third phase of occupation and transformation of the basin is in progress, and now the expansion is on both axes with the logistics of agribusiness, advancing with the transformation of the rivers, projects for the implementation of hydroelectric dams to generate energy, the feasibility of river navigation in the upper reaches of the rivers, gold mines extracted from river sediments, and the construction of logistics infrastructure to transport grains from the Midwest to the port of Santarém. In this way, the advance of the border is impacting and threatening the riverside communities, the viability of traditional occupation and development strategies of low socioenvironmental impact, like cultural ecotourism.

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### 1.1.3 Historical characteristics of socioeconomic and environmental dynamics

The middle and upper Tapajós are marked by the presence of pre-existing traditional and indigenous populations, occupied by roads by the headwaters of the basin and in recent decades by immigrants from other regions driven by garimpo, livestock and formal and spontaneous colonization. The main territorial characteristics of the middle and upper Tapajós are the following:

(i) Indigenous World for centuries;

(ii) World of mining during much of the Luso-Brazilian occupation and extraction of non-timber forest resources, including hunting;

(iii) Logic of the society and economy of *aviamento*<sup>1</sup>, paternalistic employer/client and hierarchical/vertical relations;

(iv) From the 1960s/1970s occupation by extensive ranching, formal colonization, exploitation of timber forest resources and intensification of garimpo;

(v) Marked by land infrastructure with construction of the highway network to connect the cities of the traditional Amazon to the Midwest and Southeast of Brazil;

(vi) 20th Century: expansion of the agribusiness front. Strong integration with the Center-South and creation of the Mato Grosso-Itaituba-Santarém export corridor;

(vii) Route of large dams/hydropower plants in the Amazonian rivers, but still little implemented in the Tapajós river basin and river navigation with a focus on transportation of commodities and expansion of agribusiness;

The lower part of the basin is organized by the logic of the navigable river system, with the relations between cities and communities, having as reference Santarém (capital of the Lower Amazon), the cities along the Amazon River and the capitals Belém (east) and Manaus (west). Territory historically organized in the aviary

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<sup>1</sup> System of anticipated supply of goods by means of credit. System employed in the colonial period and consolidated in the period of the Rubber Cycle in the Amazon. In this system the pedestrian/customer (worker) was kept under permanent dependence on the employer.

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system, based on vertical patron/customer relations, for the production of commodities, forest resources (rubber, nuts, non-timber forest products) and dried fish, among others.

#### 1.1.4 Strengthening socio-environmentalism in the Tapajós River basin

The United Nations Conference on Environment and Development (ECO 92/L Earth Summit) held in Rio de Janeiro in 1992, strengthened the forest protection movement in Brazil with the creation of the Tropical Forest Protection Program (PPG7) and promoted socio-environmentalism in the Tapajós River basin. PPG7 promoted concrete actions to implement the rights of Indigenous Peoples and Traditional Communities and to value these territories as strategic protected areas for the conservation of the Amazon. During this period, the Munduruku Indigenous Territory was demarcated. In addition, the process of recognizing the rights of Indigenous Peoples and Traditional Communities and valuing their territories also had an effect in the lower Tapajós. During this period, the rights of the traditional communities of the Tapajós National Forest were recognized with the implementation of the Project to Support Sustainable Forest Management in the Amazon (ProManejo) and the creation of the Tapajós-Arapiuns Extractive Reserve.

#### 1.1.5 Indigenous populations of the lower Tapajós: oppression, miscegenation and reorganization

As Tapajós and Medeiros (2019) point out, especially in the period of the pombaline directory, there was a process of homogenization with the objective of suppressing the differentiated existence of the Indians. This process was based on the Portuguese policy that for its long period of practice, accentuated miscegenation, as well as the decrease of cultural signs, renaming the native population as "caboclos". It should also be noted that the construction of the symbolism of the "caboclo" image was decisive in the integration of native populations.

Briefly exposed to this historical process of domination, in the middle of the 19th century, indigenous ethnic groups from the Tapajós were considered extinct by the State, and from the end of the 20th century and with the promulgation of the 1988 Federal Constitution, which brought with it a guarantee of rights for indigenous peoples, these ethnic groups were reorganized. This reorganization is made explicit

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by anthropology within the concept of ethnogenesis, with regard to the transition "from a silent resistance to a public resistance of native peoples, who began to affirm and defend an identity once silenced" (TAPAJÓS, 2018).

The author also asserts that at the end of the 1990s there was a tendency to self-recognition of the indigenous peoples in the lower Tapajós, reaffirming their identities in several communities/villages, constituted by "ribeirinhos" or "caboclos", claiming that their rights established in the legislation in force were assured, demonstrating that they survived all the historical process of domination and colonial violence committed over the centuries. Information from the Tapajós Indigenous Council (CITA) shows that, in the lower Tapajós, there are currently at least 13 indigenous peoples (Tapajós, Tupaiú, Tapuia, Tupinambá, Munduruku-Cara Preta, Munduruku, Maytapu, Kumaruara, Borari, Jaraqui, Arara-Vermelha, Apiaká, and Arapium), which are distributed in 65 villages/communities belonging to the municipalities of Aveiro, Belterra, and Santarém.

## **1.2 Abundance of natural resources and the challenges of sustainable development in the Tapajós River basin**

The Tapajós River basin, in its Pará portion, concentrates a stock of natural resources with approximately 17.5 million hectares of standing tropical forest, with different degrees of conservation, mineral resources (mainly gold), biodiversity resources and water resources, having as main rivers the Tapajós, the Crepori, the Jamanxin and part of the Juruena and the Teles Pires with its lakes and hundreds of water courses (streams and streams). The water mass detected by the PRODES system monitoring satellite totals 696,000 ha and Santarém is the municipality with the largest water mass (388,780 ha) accounting for 56% of the total municipalities in the basin (INPE, 2020).

Although most of these natural resources are within protected areas (conservation units and indigenous lands, mainly), they are permanently threatened by illegal logging, land grabbing, uncontrolled expansion of livestock and grain agribusiness, poorly planned investments in large infrastructure projects (ports, highways, "Ferrogrão" railroad and Tapajós waterway), construction of hydroelectric dams, garimpos and mining companies. Therefore, it is a region under intense pressure, which has historically accumulated liabilities of predatory exploitation of its

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natural resources, without meeting as expected, the expectations for improvements of local populations.

In relation to deforestation, the survey conducted in the eight main municipalities of the Tapajós River basin, showed that it is permanent and with annual increases over the last 10 years, reaching the minimum annual value of 28,260 ha/year in 2010 and reaching 80,050 ha/year in 2019, i.e. an annual growth rate of 283%. By 2019, approximately 2.5 million hectares of forest have been deforested, Novo Progresso (649,000 ha), Itaituba (479,500 ha) and Santarém (458,600 ha) concentrate almost 70% of the total deforested areas of the basin (INPE, 2020).

Therefore, the Tapajós River basin is located in a strategic region of the Amazon, is still one of the most preserved in the Amazon region and is experiencing a decisive moment of its development. In order to design the planning and management of water resources with social justice it is essential to respect the rights of indigenous peoples and traditional and local communities as a central strategy for the use and conservation of fresh water in the Tapajós basin.

## **2 STUDY OBJECTIVES**

The objective of this study is to analyze the legal framework on the right of access to water, fisheries, and associated resources, and how these legal instruments interfere with the lives of riverine populations; and evaluate how these instruments are being applied and the capacity of riverine populations to order the access and use of these basic resources in the context of major transformations in the Tapajós River basin.

## **3 METHODOLOGY**

### **3.1 Study Areas**

The study is being conducted by a multidisciplinary team formed by researchers from the non-governmental organization (NGO) Instituto Iniciativa Amazônica - INIAMA in partnership with professors/researchers from the Federal University of Pará (UFPA) and the Federal University of Western Pará (UFOPA) , through a contract signed between INIAMA and The Nature Conservancy (TNC) Brazil under the global project "Realizing Socially and Ecologically Effective Community-Based Freshwater Rights and Associated Rights in Brazil".

The study area is the Tapajós River basin, in its portion belonging to the state of Pará, which is located in the central region of the Amazon basin and includes, wholly or partially, 11 municipalities (Novo Progresso, Trairão, Rurópolis, Placas, Jacareacanga, Itaituba, Aveiro, Belterra, Santarém, Juruti and Altamira) with a total area of almost 19 million hectares (Figure 2). Of this, 23% are areas designated for sustainable use conservation units, 11% are environmental protection areas, 9% are full protection conservation units, 17% are protected by indigenous lands, 11% are military and the rest of the territory (29%) is occupied by private properties, agrarian reform settlements, urban areas or have no defined land situation (TNC, 2018). The main means of regional integration are the Tapajós River and the federal highways BR 163 (Cuiabá-Santarém) and BR 230 (Transamazonica).

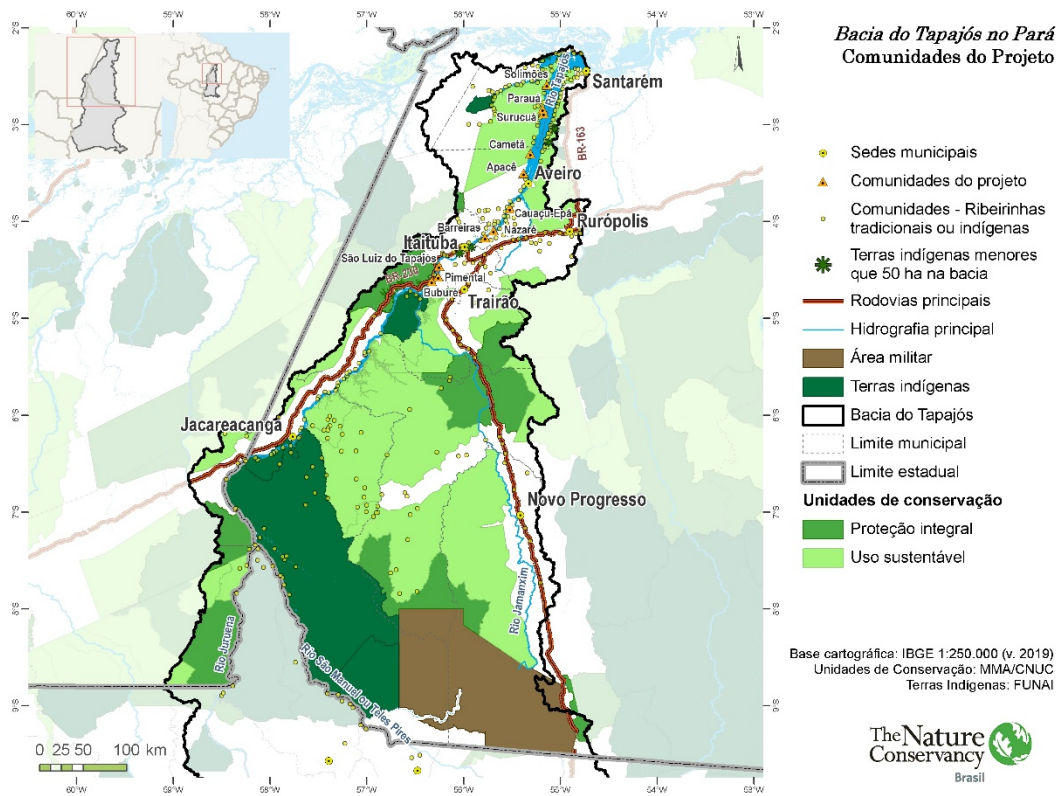


Figure 2 - Map of location of the Tapajós River basin in Pará with its land units, hydrography and main roads and communities.

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Considering the eight main cities of the basin<sup>2</sup>, the total estimated population for 2020 is 580,039 inhabitants, with slight male predominance (50.2%) and composed of 36% young people (up to 19 years), 55% adults (between 20 and 59 years) and 9% elderly (over 59 years) and Santarém (306,480) and Itaituba (101,395) concentrate 70% of this population (FAPESPA, 2020). The Municipal Human Development Index (HDI) of these eight municipalities in 2010 was 0.593, considered low on the development ranking scale and well below the average HDI of the state of Pará (0.646) and Brazil (0.699). As an international reference, the best HDI are from Norway (0.938) and Australia (0.937). Among the municipalities, Santarém (0.691) and Novo Progresso (0.673) present the best indicators, while Jacareacanga (0.505) and Aveiro (0.541) present the worst HDI. The HDI is based on three main indicators: education (schooling of the adult population and school flow of the young population), health (life expectancy at birth) and income (per capita income) varies between 0 and 1 and in the classification of the Brazilian Human Development Atlas (UNDP, Ipea, FVP, 2013). It is considered very low (0-0.499), low (0.500-0.599), medium (0.600-0.699), high (0.700-0.799) and very high (above 0.800).

The sum of the Gross Domestic Product - GDP that represents the sum of all goods and services produced by the economy of these municipalities was R\$ 8.6 billion and the average GDP per capita was R\$ 18,432.17 in 2018. It is worth noting the situation of the municipality of Jacareacanga whose GDP per capita value is R\$ 51,865.00 (an amount much higher than the others due to the income from power generation of the São Manoel hydroelectric plant and the low population recognized by the IBGE) and which partially deforms the average value of the municipalities in the basin. When this municipality is removed from the average calculation, the value reduces to R\$ 13,656.71 which is much lower than the average of the state of Pará (R\$ 18,522.00) and Brazil (R\$ 33,594.00) (FAPESPA, 2020).

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<sup>2</sup> **Municipalities of the Tapajós River basin included in the calculation of socioeconomic information: Novo Progresso, Trairão, Rurópolis, Jacareacanga, Itaituba, Aveiro, Belterra, Santarém. The municipalities of Altamira, Placas and Juruti were excluded from these calculations because they present very small areas within the Tapajós River basin.**

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## 3.2 Methodological Procedures

The study methodology was divided into three parts. In the first, a literature review and data survey on the importance, abundance and potential conflicts for water in the Tapajós River basin, the socio-economic and environmental context of the basin and the dynamics of regional development characterizing its actors and main threats and the definitions/concepts of freshwater rights and associated resources were performed

The second part consisted of a detailed survey and analysis of formal and customary legislation on community rights to water, fish and other associated resources, as well as water reserved for ecological results. To this end, a survey and systematization of international and national norms related to the subject, at the constitutional, legal and infralegal levels, at the federal and state levels, was conducted. The search criterion was based on the legislation dealing with water and traditional peoples and communities. Regarding water, the search was subdivided into watersheds, granting of water resources, fishing, navigation, mining, water-energy potential and land issues. In relation to traditional peoples and communities, specific norms were sought for indigenous peoples, quilombolas and other culturally differentiated groupings that would regulate territorial issues and assign exploitation rights to natural resources in their respective areas. The analysis subdivided the norms into specific (they deal specifically with indigenous peoples and traditional communities), abstract (they approach the theme in a general way, without giving specific focus to traditional peoples and communities), direct (they deal specifically with water and the resources extracted from it) and indirect - (they deal with water in an indirect way, inserted in other broader concepts, such as environment, natural resource, territory, among others).

Finally, two "case studies" were carried out in riverside communities of the Tapajós River considered to be of high and low socio-environmental vulnerability. For the case study, the community of Pimental, in the municipality of Trairão (high vulnerability) and the community/village Solimões, in the Tapajós-Arapiuns Extractive Reserve (RESEX), in the municipality of Santarém (low vulnerability) were selected.

Due to the COVID-19 pandemic that affects the study area and that prevents field visits to some communities, the information gathering methodology had to be adapted. In the Pimental community, an "on-site visit" (Figure 3) was carried out and

participatory mapping complemented by interviews (by telephone and in person) with local residents. These elements served to build the occupation history, brief socio-economic diagnosis, identification of basic social infrastructure (housing, water supply and distribution, health, education, transportation, energy and communication), use of water resources, land situation, forms of social organization, identification of main economic activities, local perception of current and potential socio-environmental impacts of the enterprises and level of knowledge of rights and legislation. In the case of the Solimões community/village, it was not possible to make an "on-site visit", due to the community's decision not to release access for visitors. But it was possible to hold a meeting with community members in the city of Santarém to collect socioeconomic and environmental information.



Figure 3 - Participatory mapping of the community of Pimental, municipality of Trairão.

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## 4 INDIGENOUS PEOPLES AND TRADITIONAL COMMUNITIES OF THE TAPAJÓS RIVER BASIN AND DEFINITION AS SOCIAL SUBJECTS<sup>3</sup>

The traditional peoples and communities that inhabit the Tapajós River basin are the indigenous, fishermen, quilombolas, extractivists and river dwellers who join with family farmers, agrarian reform settlers, farmers and agribusiness producers to form a complex mosaic of indigenous lands, integral protection and sustainable use conservation units, quilombo areas, communities, settlements and private properties.

This socio-cultural diversity and complexity in land use planning directly reflects the discussions about the future scenario of the Tapajós basin, which is accentuated by the planned implementation of infrastructure, logistics and other large projects proposed for the region.

The main social subjects of this study are the riverside communities that inhabit the Tapajós River basin. According to Neves (2005), the riverside communities are the traditional inhabitants of the river banks. They live with the conditions offered by nature itself, adapting to the rainy seasons. They have artisanal fishing as their main activity of survival, they also cultivate small subsistence land (their own consumption) and can practice extractive activities (collecting fruits, seeds, lianas and bark) and animal (hunting).

On the banks of the Tapajós River, small and medium-sized communities predominate (average of 62 families), many secular, originated from indigenous villages and formed by people with kinship. The communities have different degrees of social organization, a history of strong influence from the Catholic Church, and poor social infrastructure (housing, water supply and distribution, health, education, transportation, energy and communication). The families have a low-income profile

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<sup>3</sup> The Brazilian legislation also began to adopt the concept of "traditional peoples and communities" by inserting the term into the legal system through Decree No. 6040/2007 which instituted the "National Policy for Sustainable Development of Traditional Peoples and Communities" (PNPCT). According to the decree (art. 3, I), traditional peoples and communities are culturally differentiated groups that recognize themselves as such, that have their own forms of social organization, that occupy and use territories and natural resources as a condition for their cultural, social, religious, ancestral, and economic reproduction, using knowledge, innovations, and practices generated and transmitted by tradition. The Decree (art. 3, II) also brings the legal definition of traditional territories as the spaces necessary for the cultural, social, and economic reproduction of traditional peoples and communities, whether they are used permanently or temporarily, observing the rules of art. 231 of the Constitution and art. 68 of the Transitory Constitutional Dispositions Act regarding indigenous peoples and traditional communities, respectively.

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with a high presence of the federal government's Bolsa Família Program. Fishing, besides its importance for subsistence, accounts for 30% of the economic activities related to land use and is practiced in an artisanal way (with line, reed and the use of knitwear). The decrease in fish abundance, verified in almost 2/3 of the Tapajós communities, is mainly attributed to the conflict with dragnet fishing practiced by industrial fishing boats (AFFONSO et al., 2016).

#### **4.1 The Meaning of Indigenous Peoples and Traditional Communities Categories**

In the social sciences and public policies when referring to social groups in rural areas, the terms most commonly used until the 1970s were "family farmers, rural workers, small producers, squatters or peasants, they did not consider ethnic factors and the peculiar way of organizing themselves and producing in local communities as social markers of reference" (ALMEIDA, 2004). From the 1980s on, new collectivities emerged that expressed ethnically and culturally differentiated peasant segments that emerged in the national political scenario (LIMA; POZZOBON, 2005).

From the Amazon comes the Forest Alliance defending its way of life and against deforestation and predatory exploitation of natural resources under the leadership of Chico Mendes (SANTILLI, 2005). In the same period the Landless Movement (MST) emerges in southern Brazil.

Different categories are employed to classify indigenous peoples, quilombolas, traditional populations (riverine peoples, rubber tappers, chestnut trees, fishermen, babaçu coconut breakers, etc.). These expressions were not randomly created, but express a history of resistance linked to social struggles. Some definitions are related to institutional creation, as exogenous concepts imposed to characterize them.

That is why discussing the definition of traditional populations in the Social Sciences is somewhat complex due to the diverse ecological and social reality existing in Brazil.

The social groups called traditional populations or traditional communities differ from classic rural social movements in the way collective action and their identity were built. The main banner of struggle is not in agricultural production, but in defense of the forest and agroextractivist production. They did not accept conventional agrarian reform, whose recognition of the right to land was given by individual family plots, and demanded the inclusion of a collective area, without dividing up plots, but that would respect spaces for common use and family possessions. The identity manifested was

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not one of class, but of the activity developed (rubber tappers, fishermen, babaçu coconut breakers, etc.) in the place where they exploit natural resources (ribeirinhos) or another marker of identity (ALLEGRETTI, 2008, p. 42).

The qualification from traditional to population does not refer to what is old, here (traditional) is related to the way knowledge is produced and passed on between generations. They are practices of management and use of natural resources and agriculture transmitted orally, by custom and continued through transmission from generation to generation.

Briefly we can state that traditional communities, or traditional peoples and communities are characterized by being an open concept; linked to a determined territory; with social and political organization; related to nature and the use of renewable natural resources; that uses techniques of low environmental impact; has a small degree of involvement with the market and the surrounding society; and whose recognition occurs through self-identification (DIEGUES, 1994; CUNHA; ALMEIDA, 2001; LITTLE, 2004; ALMEIDA e RESENDE, 2013). As Barreto Filho (2006) reminds us, it is in the generality and fluidity of the term that traditional populations find their strength.

Similar categories are used by different laws to define or recognize traditional peoples and communities as subjects of rights. Law 9.985, of July 18, 2000 (SNUC Law), when dealing with public forests, sustainable development reserves and the possibility of resettlement, used "traditional populations" (art. 17, § 2, art. 20, 42, respectively). When regulating the extractive reserve, it has "traditional extractive populations" (art. 18).

The Convention on Biological Diversity (CBD), ratified in Brazil by Federal Decree 2.510, of March 16, 1998, adopted "local communities and indigenous peoples". Law 13.123, of May 23, 2015, which provides for access to genetic heritage, protection and access to associated traditional knowledge and the sharing of benefits for conservation and sustainable use of biodiversity, employs in Article 2, item IV, "traditional community", defining it as "culturally differentiated group that is recognized as such, has its own form of social organization, occupies and uses territories and natural resources as a condition for their cultural, social, religious, ancestral and economic reproduction, using knowledge, innovations and practices generated and transmitted by tradition". In art. 3, I of Decree 6.040, of February 7, 2007, which institutes the National Policy for the Sustainable Development of Traditional Peoples

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and Communities, there is a very similar definition, but it uses the term "traditional peoples and communities".

Given the difficulty of deciding which is the most appropriate term to define the social diversity that exists in the Amazon, particularly in the area of study of this work, we prefer to treat indigenous peoples and traditional communities as an open concept that has the following characterizing elements: the connection with a given territory, with a social and political organization, relationship with nature and the use of renewable natural resources, and a small degree of involvement with the market and the surrounding society (BENATTI, 2018).

Therefore, when referring to traditional communities or indigenous peoples, it is referring to indigenous peoples, quilombolas, ribeirinhos, quebradeiras de coco babaçu, seringueiros, faxinalenses, communities of pastureland, pomeranos, gypsies, geraizeiros, vazanteiros, piaçabeiros, artisan fishermen, pantaneiros, afroreligiosos and other emerging social subjects, whose collective identities are based on territorial rights and cultural self-awareness.

Thus, heterogeneity points to social, economic, and religious differentiations among these traditional peoples and communities, although they are in some measure united by political-organizational criteria, and by having differentiated modalities of common use of natural resources (SHIRAISHI NETO, 2007).

The criterion for definition as traditional peoples and communities is self-determination, as provided in ILO Convention 169. In this line of reasoning, the Federal Supreme Court (STF), in 2015, when analyzing Direct Action of Unconstitutionality 3.239, filed by the Democratic Party (DEM), where it sought the declaration of unconstitutionality of Decree 4887/2003 when referring to self-identification, stated that it is constitutional to self-determination.

In her vote, STF Minister Rosa Weber postulates that the Brazilian State has unified the ILO Convention 169 to internal law, consecrating the "consciousness of one's own identity" as a criterion for determining traditional groups. In her vote, the Minister stated that:

The election of the criterion of self-attribution is not arbitrary, nor is it unsubstantiated or vitiated. In addition to being a method authorized by contemporary anthropology, it embodies a public policy option legitimized by the Charter of the Republic, in that it seeks to interrupt the process of

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systematic denial of one's own identity to marginalized groups, an injustice in itself (STF, 2015, p.33).<sup>4</sup>

Therefore, self-attribution is an accepted criterion as defining indigenous peoples, quilombolas and traditional communities.

## 4.2 Riverine Populations

Specifically about the term riparian, we can say that it is the social subject who lives by the river, whether on land or on the island. His economic activity is not limited to fishing, as he plants and raises small animals. He is a fisherman, farmer, breeder, and extractive worker. He lives between the countryside and the city with his family because he is not alone in his life journey. He also lives in the community.

In this work we will deal with the term 'ribeirinhos' in its broad form, using as a reference some traditional communities living in the Amazon region, which define themselves as quilombolas, ribeirinhos, or in another way, considering the "[...] relationship with nature, in a form of communication, the use of representations of places, time, integration with water, and knowledge of the classification systems of fauna and flora, which are formed in an extensive cultural heritage" (CHAVES, 2001).

Ribeirinho, in this work, corresponds to several socio-cultural and political identities, related to ethnic origins, patterns of organization, production and management of natural resources, struggle for survival and access to social goods and services, and carry out activities in accordance with needs and available resources. (LIRA; CHAVES, 2016).

The use of the "ribeirinho" classification is permeated by "[...] ambiguities, where one crosses glances at the 'other' and little explains the specificities of work, its nature and its forms" (CASTRO, 1998). Thus, when we use the term riparian, we do not intend to limit, condition, or even define, but only to designate culturally differentiated peoples that make water a symbolic and necessary factor for the maintenance of their traditional way of life, represented as subjects of rights, being able to define themselves in several other ways.

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<sup>4</sup> ADI 3.239/STF. March 25th, 2015. p.33.

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### 4.3 Traditional Territory, Indigenous Peoples and Traditional Communities

An important category when discussing the rights of traditional peoples and communities is the definition of traditional territory or traditionally occupied lands. We can affirm that the territories of traditional peoples and communities are the expressions of the use, management of natural resources, which was built respecting the limits of nature.

Therefore, traditionally occupied territory or lands are categories used to express the spaces in which traditional peoples and communities have a connection with a specific territory. It is not only a place of use for nature, but also the place of construction of a social and political organization; the space that builds a relationship with nature in an empirical and generational way; internal and external relationships are built and with it a small degree of involvement with the market and the surrounding society (ALMEIDA, 2004; ARRUTI, 2006; DIEGUES, 1994). Traditionally occupied lands can be understood as those "that express a diversity of forms of collective existence of different peoples and social groups in their relations with the resources of nature" (ALMEIDA, 2004).

For Souza Filho et al., (2015), the territory of traditional peoples and communities is the "[...] place of production of culture and local knowledge that intends to affirm the differentiated character of the collective rights of traditional peoples and communities".

Traditional territories are expressed in the Brazilian Constitution as traditionally occupied land (art. 213, § 1 of the 1988 Federal Constitution), with indigeneity being the one that legitimizes the right to land. The right of indigenous peoples to their lands, the recognition of their original rights over them, enshrined in almost all Brazilian constitutions, as we briefly describe above, is based on the legal institute of indigenato, which has its origin in the Colonial Permit of April 1, 1680, confirmed by the Law of June 6, 1755. In short, indigenato "is the guarantee of land as the habitat of indigenous peoples, where indigenous communities have the space necessary for their physical and cultural reproduction, according to their uses and customs" (BENATTI, 2003).

Chart 1 describes the relationship between the type of ownership of traditional peoples and communities, the land situation, and the public body responsible for recognizing territorial rights.

Chart 1 - Social Groups, Types of Retirement and Land Situation in Federal Public Lands.

<b>SOCIAL GROUP</b>	<b>POSSESSION TYPE</b>	<b>LANDHOLDING SITUATION</b>	<b>PUBLIC AGENCY</b>
<b>Indigenous People</b>	Communal	Territory	Funai
<b>Quilombo</b>	Common	Territory	Incra
<b>Traditional Community</b>	Common	Territory	Incra ou ICMBio
<b>Family Farmer</b>	Familiar	Land	Incra

#### **4.4 Land Categories and the Recognition of Territorial Rights**

Therefore, the territorial rights of indigenous peoples are assured when indigenous lands are demarcated and ratified. In the case of quilombola communities, the recognition of their ownership guarantees the ownership and title of lands for the community.

Traditional communities have their lands traditionally occupied, recognized with the creation of conservation units of sustainable use - Extractive Reserve (RESEX) and Sustainable Development Reserve (RDS) - and environmentally differentiated settlements - Agroextractivist Project (PAE), Sustainable Development Project (PDS) and Agroforestry Projects (PAF). These are land categories whose areas are in the public domain, with enjoyment of land and renewable natural resources granted to traditional populations (BENATTI, 2011). The specific land category for each case must take into consideration the community's own use of natural resources.

Chart 2 - Legal category for the recognition of the seizure of indigenous peoples and traditional communities.

LEGAL CATEGORY	LEGAL DEFINITION
Extractive Reserve (RESEX)	<p>It is an area used by traditional extractivist populations, whose subsistence is based on extractivism and, complementarily, on subsistence agriculture and small animal husbandry, and has as basic objectives to protect the livelihoods and culture of these populations, and to ensure the sustainable use of the unit's natural resources. The Extractive Reserve is in the public domain, with use granted to traditional extractivist populations (art. 18 of Law 9.985, of July 18, 2000).</p> <p>The creation and regularization of land are the responsibility of the state or federal environmental agency, since it is a conservation unit of sustainable use (Federal Constitution of 1988, Art. 20 § 3; Decrees 1990, 1992, 1998. Law 9.985, 18.7.2000)</p>
Sustainable Development Reserve (SDR)	<p>It is a natural area that shelters traditional populations, whose existence is based on sustainable systems of exploitation of natural resources, developed over generations and adapted to local ecological conditions, and which play a fundamental role in protecting nature and maintaining biological diversity.</p> <p>The RDS is in the public domain, and private areas included in its boundaries must be, when necessary, expropriated, according to the law (art. 20 of Law 9.985, of July 18, 2000).</p> <p>The creation and regularization of land are the responsibility of the state or federal environmental agency. It is also a conservation unit of sustainable use.</p>
Quilombola Property	<p>The remnants of quilombola communities are considered to be ethnic-racial groups, according to criteria of self-attribution, with their own historical trajectory, endowed with specific territorial relations, with a presumption of black ancestry related to resistance to the historical oppression suffered. The characterization of the remnants of the quilombos communities will be attested through self-definition of the community itself (Art. 68 of the Transitory Constitutional Dispositions Act).</p> <p>The land occupied by the remnants of the quilombo communities is used to guarantee their physical, social, economic, and cultural reproduction (Decree 4.887, of November 20, 2003).</p> <p>The creation and regularization of land are the responsibility of the federal land agency - National Institute of Colonization and Agrarian Reform (INCRA).</p>
Agroextractivist Settlement Project (PAE)	<p>It is an area that seeks the exploitation of areas endowed with extractive wealth, through economically viable and ecologically sustainable activities, to be executed by the populations that occupy or will occupy the mentioned areas (Ordinance/INCRA/n.627, of July 30, 1987).</p> <p>The creation and regularization of land are the responsibility of the federal land agency - National Institute of Colonization and Agrarian Reform (INCRA).</p> <p>INCRA Ordinance No. 627, of July 30, 1987; INCRA Ordinance/P No. 268, of October 23, 1996; INCRA Ordinance/P No. 269, of October 23, 1996; INCRA Execution Standard No. 69, of March 12, 2008; INCRA Execution Standard No.</p>

	87, of November 26, 2009. INCRA Normative Instruction No. 99, of December 30, 2019.
Sustainable Development Project (SDP)	<p>It is a type of settlement project, of socioeconomic-environmental interest, aimed at populations that already develop or are willing to develop activities of low environmental impact, depending on the suitability of the area (Ordinance/INCRA/n.477, November 4, 1999).</p> <p>The creation and regularization of land are the responsibility of the federal land agency - National Institute of Colonization and Agrarian Reform (INCRA).</p> <p>Interministerial Ordinance MMA/MDA No. 01, of September 24, 1999; INCRA Ordinance No. 477, of November 4, 1999; INCRA Ordinance/P No. 1.032, of October 25, 2000; INCRA Execution Standard No. 69, of March 12, 2008; INCRA Execution Standard No. 87, of November 26, 2009. INCRA Normative Instruction No. 99, of December 30, 2019.</p>
Forest Settlement Project (PAF)	<p>The forest settlements are based mainly on wood extraction, edible oils and fuels, the cultivation of fruit pulp and medicinal herbs. They also provide for the management of wild animals and water resources. In areas where much of the forest has already been cut down, there will be reforestation, subsistence planting and the raising of small animals. The area must have enough wood for the removal of 20 to 30 cubic meters per hectare, be close to the markets to meet the demand of the timber sector and have infrastructure so that the production can have a quick flow and marketing.</p> <p>The creation and regularization of land are the responsibility of the federal land agency - National Institute of Colonization and Agrarian Reform (INCRA). INCRA Normative Instruction No. 99, of December 30, 2019.</p>
Indigenous Land	<p>Obligation of the Union in the demarcation of indigenous lands, in order to ensure the special territorial rights of indigenous peoples, with the Brazilian State (the Union through FUNAI) being responsible for the entire process of recognition of the right to indigenous territory (art. 231 of the Federal Constitution).</p> <p>The demarcation of indigenous land is regulated by Decree no. 1775/96. The Brazilian State (the Union through FUNAI) is responsible for carrying out the entire process of recognition of the right to indigenous territory.</p>

In the case of the riverside dwellers, the recognition of territorial rights will be made with the creation of RESEX or environmentally differentiated settlement. Individual titling may also take place, but traditional territory may not be named.

As water is an important natural element for the ribeirinho, and because it is an environmental asset of common use, shareable, has its domain defined by the Federal Constitution as public, whether of the Union or the States. This implies that its ownership is public and is considered an inalienable property, the granting of which is provided for by law only the right to use and not the right to property.

Indigenous peoples have the right to the exclusive use of rivers within their lands. This is the case with the exclusive right of the Mundurucus of the upper Tapajós to fish the Tapajós River, which cut off their territories. When the river is the limit of the territory, for example the indigenous lands of the lower Tapajós, it will be necessary to establish a fishing agreement in order not to prejudice the indigenous peoples' right to fish.

Water is a complex environmental asset because its use is shared by different subjects, in different spaces, with different uses, and one use can prejudice the rights of other users. In addition, the riverside areas occupied suffer limitations in the use of land adjacent to water currents. In Chart 3, we seek to list the geographical elements, the legal effects and the dominance of the property, in order to help understand the legal limits existing in Brazilian legislation.

Chart 3 – Legal geographical elements that affect the traditional territory of the riverside

<b>GEOGRAPHICAL ELEMENTS</b>	<b>LEGAL EFFECTS</b>	<b>DOMINIALITY</b>
Dry land: equivalent to allodial land: area that does not incur any legal restriction on the domain and is not flooded	Cleared area of legal restriction for agricultural exploitation (agriculture, cattle raising, extractivism) that the legal reserve incurs. In a conservation unit there is no legal reserve.	Public or private good.
Dry land on islands: an area that is not normally flooded periodically, called the national interior.	Cleared area of legal restriction for agricultural exploitation (agriculture, cattle raising, extractivism) that the legal reserve incurs. In a conservation unit there is no legal reserve.	Public or private good.
Floodplain land: areas periodically flooded by the lateral overflow of rivers or lakes and/or direct precipitation or outcropping of the water table, which is composed of the restinga area and the floodable fields.	Article 3, XXI of Law 12.651/2012, defines floodplain as the area of marginal flooding or floodplain to water courses subject to periodic flooding.  As water is a public domain asset, the land that supports it, the alveo and the larger seasonal bed, are also of public domain.	Federal or state public good that can have private use.

	The legal effect is that the land is a public property of the Union or the State, which can be granted.	
Alcove: is the main river and stream bed, parana channel or borehole and lake basin. The bed, the channel and the main basin are delimited in the dry season (ebb).	<p>The alcove is "the surface that the waters cover without overflowing into the natural soil ordinarily dry" (art. 9 of the Water Code - Decree 24643, of July 10, 1934).</p> <p>Law 12.651/2012, art. 3º, XIX defines a regular bed as the gutter through which the water flows regularly during the year</p> <p>In other words, the alveus is the surface extent to which the waters commonly cover.</p>	Public good.
Beach: strip of land, on a gentle slope, usually covered with sand, which borders the sea, with a river, lagoon, etc., that is, it is the bank, usually sandy, of a water stream.	Article 20, subsection VII of the Federal Constitution defines the beach or federal rivers as an asset of the Union, of universal fruition, considered as goods of common use of the people.	Federal or state public good that cannot have private domain, of free access.
<p>Marginal Land: is a strip of land bordering navigable waters.</p> <p>Therefore, it is the strip of land bathed by navigable currents, that is, those where there is navigation, or can be and that do not feel the influence of the tides.</p>	Article 4 of Decree Law 9760/46 gives the legal concept of such lands: marginal lands are those that bathed by navigable currents, out of the reach of the tides, go up to a distance of 15 (fifteen) meters, measured horizontally for the part of the land, counted from the average line of ordinary floods.	<p>Federal or state public good, which may have use.</p> <p>The limitation of the use of this strip of land occurs when it affects the area of permanent preservation (APP).</p>
Marine Land: Public and "unusable" land, which can occur on the mainland of the Brazilian territory or on some islands. On the mainland they are located on the sea coast and on the banks of rivers and lakes that suffer the influence of tides.	<p>Decree-Law 9.760/1946, art. 2: These are navy lands, at a depth of 33 (thirty-three) meters, meters horizontally, to the part of the land, from the position of the 1831 pre-middle tide line:</p> <p>a) those located on the continent, on the sea coast and on the banks of rivers and lagoons, as far as the influence of the tides can be felt;</p>	<p>Public good of the Union (art. 20, VII of the Federal Constitution).</p> <p>This land may have private use.</p>

<p>In the study area there is no marine land because the waters are not influenced by tides.</p>	<p>b) those around islands located in areas where the influence of the tides is felt.</p>	
<p>Riparian Forest or Permanent Preservation Area - APP): it is a strip of marginal land of any perennial and intermittent natural watercourse, excluding the ephemeral ones, since it approaches from the regular bed gutter, whose minimum width will depend on the width of the water stream.</p>	<p>Law 12.651/2012, art. 3, II: Permanent Preservation Area - APP: protected area, covered or not by native vegetation, with the environmental function of preserving water resources, landscape, geological stability and biodiversity, facilitating the gene flow of fauna and flora, protecting the soil and ensuring the welfare of human populations.</p>	<p>The domain can be public or private, but as a general rule it cannot be used.</p> <p>The hypotheses of intervention or suppression of the APP are those of public utility, social interest or low environmental impact foreseen in art. 8 of Law 12.651/2012.</p>

#### 4.5 Autonomy in the Management of Natural Resources

As previously discussed, indigenous peoples and traditional communities develop specific social practices, marked by interdependence with the ecological environment, thus contributing to the formation of identity as social groups, whether extractive, indigenous or quilombola.

Traditional communities have their territorial rights recognized with the creation of the Extractive Reserve (RESEX), Sustainable Development Reserve (RDS), or with the Agro-Extractivist Settlement Project (PAE). In order for natural resources to be exploited, all these land categories must be guided by the norms of the Management Plan (PM)<sup>5</sup> for the Conservation Units, the Utilization Plan (PU)<sup>6</sup> and the Settlement Development Plan (PDA) for the settlement project.

In the area of indigenous lands there is the National Policy for the Territorial and Environmental Management of Indigenous Lands - PNGATI, which is an instrument of public policy that seeks to build a dialogue with indigenous peoples,

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<sup>5</sup> Subparagraph XVII, Article 2 of Law 9985/2000, defines a management plan as a "technical document through which, based on the general objectives of a conservation unit, its zoning and the rules that should govern the use of the area and the management of natural resources, including the implementation of the physical structures necessary for the management of the unit".

<sup>6</sup> The Utilization Plan is the document that guides the productive activities within the settlement project, which holds the guidelines for the activities to be carried out in the area, having been approved by all the residents, who are responsible for their compliance.

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seeking to elaborate planning for the territorial and environmental management of Indigenous Lands. Its main objective is to "guarantee and promote the protection, recovery, conservation and sustainable use of the natural resources of the Indigenous Lands" (FUNDAÇÃO, 2013). Therefore, it is not an internal management plan, but public policies that seek to confront the expansion of the economic frontier and deforestation, valuing the role that indigenous lands have in protecting the forest, biodiversity and maintaining ecosystem functions.

In the management of the natural resources of traditional communities in the RESEX or PAE there are two points of tension or conflict: the first is to get the PM or PU approved, since it depends on the participation of the public agency. The second is to be able to insert local demands in these plans and to respect their traditional uses and customs.

Even with the constitutional guarantee of art. 216, II, which ensures respect for "[...] ways of creating, doing, and living," and which is provided for in ILO Convention 169 in art. 8, point 1, that "When applying national legislation to interested peoples, their customs or customary law should be taken into due consideration," customs are not always respected or taken into consideration when approving management plans for the CUs or settlements. To date, the greatest degree of participation of traditional communities has occurred at the time of creation and recognition of territorial rights, but in management and autonomy is still limited.

Specifically in relation to extractive reserves, there are obstacles and limiting factors that act on the effective participation of extractive communities in terms of management. These limitations are imposed by the intervention of regulatory agencies, especially after the National System of Conservation Units (SNUC), regulated by Law 9,985/2000<sup>7</sup>, came into force. The establishment of the system took place in an unfavorable context to the traditional actions in the territory of the UC, mainly in what concerns vegetable extractivism.

Before the institution of the SNUC, the autonomy of the residents was more accentuated and more relevant. In the current scenario, management is no longer

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<sup>7</sup> Law No. 9,985, of July 18, 2000. Regulates art. 225, § 1º, clauses I, II, III, VII of the FC, institutes the National System of Nature Conservation Units and makes other provisions.

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exclusive to associations and union members, but to the environmental agency, even if there is formal consultation.

Management by the State tends, in a way, to partially reduce the degree of participation of traditional communities and, consequently, restricts their autonomy in alienating renewable natural resources and traditional practices. The definition of alienation is understood as the power that traditional populations possess to transfer to another person the natural resources existing in their areas, in particular, loggers, respecting the rules of approval of the management plan. This discussion is relevant because the extractive reserve is a conservation unit in the public domain (affected for the agency that manages the unit), but the management and enjoyment of the natural resources belong to the beneficiaries of the creation of the RESEX.

When the right to territories is recognized for traditional peoples and communities, these areas are withdrawn from the market, thus being unavailable, having the right to exploit only these traditional groups.

Regarding access to natural resources in areas of traditional use, the Ministry of the Environment's Normative Instruction No. 4 of 2009<sup>8</sup> exempts farmers and people from traditional communities from environmental licensing for non-commercial activities, as highlighted in art. 4, 6 and 7 of the cited IN. However, authorization for transportation of byproducts is not waived and must be requested from the environmental agency.

In the context of extractive reserves, the goods and natural resources available to the communities are indivisible, since they belong to everyone. The members are linked both by the creation of the Conservation Unit and by the contract for collective use. The use of natural resources is based on the assumptions of Law 9985/00, which also links the exploitation of natural resources to the elaboration of the management plan.

With the exception of mining activities, the other restrictions imposed on extractive communities are out of step with the constitutional principles that value the ways they create, do and live, based on art. 215, § 1 and 216.

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<sup>8</sup> BRAZIL. Normative Instruction No. 4 of September 8, 2009. Provides on technical procedures for the use of the Legal Reserve vegetation under sustainable forest management, and makes other provisions.

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Regarding forest resources, Law no. 11,284, of March 2006<sup>9</sup>, in its art. 3, item II, defines forest resources as "elements or characteristics of a given forest, potentially or effectively generating forest products". Section III of the same law describes that forest products are the timber and non-timber generated by sustainable forest management. We realize that there are diverse legal norms regarding timber products, while for non-timber products there are not many regulations, and the norms are very generic.

The impositions made by Law 9.985/00 limit the use of the territory's resources, creating barriers to the culture of these communities. For example, the commercial exploitation of timber resources, and the very exploitation of wood for internal use will only be permitted in special situations, according to the wording of Art. 18, § 7 of the same law, and must be foreseen in the management plan. Therefore, we observe the need for greater celerity in the approval of the Management Plans.

The RESEX and the RDS are composed of deliberative councils, which is the space for discussion, negotiation and management of the Conservation Unit and its area of influence. Usually the council discusses environmental, social, economic, cultural and political issues. The Council is composed of the Conservation Unit manager (who is an ICMBio server), representative of the RESEX and RDS residents' associations, guaranteeing parity in the Council's composition, and the other entities will take part taking into account representativeness, equity in participation and the potential to contribute to the Conservation Unit's objectives and its territorial insertion. One of the competencies of the Deliberative Council is the approval, through resolution of the Management Agreement and the Conservation Unit's Participatory Management Plan.

The RESEX and the RDS are regulated by Decree nº 4.340/02 and Normative Instruction nº 09/2014.

There is, therefore, the need for integration between the legally established right, posited by the state norms and the right that is in force in the traditional communities and follows its own rules, acquired along the generations. Chart 4

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<sup>9</sup> Law No. 11,284 of March 2, 2006. Provides on the management of public forests for sustainable production [...].

presents the situation of autonomy of traditional peoples and communities in the management of their territories.

Chart 4 - Situation of the Autonomy of Traditional Peoples and Communities in the Management of their Territories

<b>CATEGORIA FUNDIÁRIA</b>	<b>TITLE</b>	<b>FORM OF PARTICIPATION</b>	<b>AUTONOMY IN MANAGEMENT</b>
<b>Indigenous Land</b>	Decree Homologation of the President of the Republic	Consuetudinary Law	Relative Freedom
<b>Quilombo</b>	Collective Title	Association	Relative Freedom
<b>RESEX and RDS</b>	CDRUC	Board of Directors	Relative Freedom
<b>PAE, PDS and PAF</b>	Concession of Use / CDRUC	Association	Relative Freedom

We can divide autonomy into two levels: one that refers to the full freedom to draw up the norms, which can be represented by the figure of self-government; the other with relative freedom, since the decisions must be based on the legal norms of the State that end up establishing the limit of the decisions and in this case, it is more of a free will within some state parameters (LAATS, 2000).

In Brazil, the extractive and sustainable development reserves are organized with the structuring of the deliberative councils of the conservation units, which will be presided over by the head of the conservation unit, who will designate the other councillors, indicated by the sectors to be represented (art. 17 of Decree nº 4.340, of 22 August 2002, which regulated the SNUC Law and Normative Instruction nº 09/2014).

This form of structuring is creating tension between what is deliberated by the conservation unit residents' association and what is decided in the Council of the same protected area, as well as raising the debate about what is the autonomy of the conservation unit residents in defining the use of their natural resources, given the management structure currently in force.

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Therefore, we should also remember that the degree of autonomy in the management of community assets vis-à-vis the public administration derives from the ownership of the Conservation Unit.<sup>10</sup> Administrative guardianship, whether through administrative acts or procedures, for the a priori or a posteriori control of the legality of the communities' social acts, depends on the dominion they have over the land and the natural resources they occupy.

In the case of RESEX and RDS, the traditional community is obliged to present a management plan, and possession and use of the areas occupied by the traditional populations will be regulated by contract (arts. 23 and 27 of Law 9.985/00, respectively). Here there is clear administrative guardianship, since the management plan will be elaborated by the conservation unit's management body, and the broad participation of the resident population will be assured and approved by the competent environmental body, taking into account the conditions and means necessary to satisfy the social and cultural needs of the traditional populations (arts. 27 and 28, Paragraph Law 9.985/00).

## **5 DEFINITIONS, CONCEPTS AND THE ROLE OF LEGISLATION IN RELATION TO FRESH WATER RIGHTS, FISHING AND ITS ASSOCIATED RESOURCES**

In order to carry out a classification of the rights of river dwellers to access fresh water and the associated resources, we will need to understand the issue on three levels that are not hierarchical, but are interrelated. They are: 1) definition of which social subjects are claiming the right (indigenous peoples, quilombolas, traditional communities, family farmers, medium or large landowners), 2) on which resource the claim falls (soil, plant cover or water), and 3) land status (public land returned or collected and not destined, indigenous land, quilombo, conservation unit, rural settlement and rural property titled or not).

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<sup>10</sup> Management is the set of administrative actions that are carried out to keep natural resources available in a sustainable manner. BEZERRA and MUNHOZ (2000:18) define environmental management as "the set of principles, strategies and guidelines of actions and procedures to protect the integrity of the physical and biotic environment, as well as that of the social groups that depend on them". Therefore, the management of natural resources has to be understood "as a particularity of environmental management, especially concerned with the set of principles, strategies and guidelines of actions determined and conceptualized by socioeconomic agents, public and private, which interact in the process of use of natural resources, ensuring their sustainability" (Bezerra & Munhoz 2000:18).

Besides the three levels, we have the environmental (permanent preservation area) or dominial (floodplain, marginal land, marine land and beach) that impose in a general way, the same legal limitations independently of the social subject.

On this topic, we will make a general analysis of the constitutional and legal regulation of waters in Brazil, introducing issues such as dominance, legislative and executive competence and, in the end, indicating the multiple uses of this natural resource by indigenous peoples and traditional communities, who incorporate multiple interfaces with water into their way of living. Remembering that traditional communities will be referred to in this report as riverine or fishing communities.

### 5.1 Main uses of water and associated resources and their challenges for management of the Tapajós River basin

The main uses of water and associated resources and sources of water resources prevailing in the Tapajós riverside communities are presented in Chart 5.

Chart 5 - Main uses and sources of fresh water in the riverside communities of the Tapajós River basin.

USES	WATER SOURCE
- Meeting domestic needs (drinking, bathing and washing)	- Direct from the river, lakes and streams, cacimbas, individual wells, collective microsystems
- Productive use around the homes (domestic animals, animal breeding and irrigation of gardens, beds, agroforestry yards, fermentation of manioc "puba" and manufacture of pulp, sweets)	- Direct collection from the river, lakes and streams and individual wells with and without irrigation system
- Fishing (line, gutter, bottle, drag, bow and arrow and zagaia)	- River, lakes and streams
- Leisure (river bath, walks and scenic beauty "appreciation")	- River, lakes and streams
- Use for transportation (personnel and cargo)	- River, lakes and streams
Cultural and spiritual use (for parties, rituals, etc.)	- River, lakes and streams, others

As previously reported, the Tapajós River basin is experiencing a new development cycle with the implementation and planning of large infrastructure projects (ports, highways, "Ferrogrão" railroad and Tapajós waterway), construction of

hydroelectric and mining plants, and expansion of agribusiness and cattle ranches. These large projects strongly serve national and international interests, however, they are already impacting the region with the arrival of new social actors and the investment of large financial resources. Chart 6 presents a list of economic activities and potential socio-environmental impacts in the Tapajós River basin.

Chart 6 - Economic activities and main social and environmental impacts in the Tapajós River basin.

ECONOMIC ACTIVITY	POTENTIAL SOCIO-ENVIRONMENTAL IMPACTS
- Industrial Mining and Garimpo, mainly for gold exploitation	<ul style="list-style-type: none"> <li>- Chemical contamination and water turbidity, affecting its quality for use in domestic needs and fish quality;</li> <li>- Disease transmission and prostitution around the enterprises.</li> </ul>
- Ports for transshipment and shipment of grains	<ul style="list-style-type: none"> <li>- Real estate/land speculation;</li> <li>- Resettling families and breaking family and cultural ties</li> <li>- Increase of violence and prostitution in the surroundings of the enterprises;</li> <li>- Risk of accidents in the barge maneuvers.</li> </ul>
- Tapajós Waterway	<ul style="list-style-type: none"> <li>- Risk of fuel spill in the river;</li> <li>- Risk of collision/accidents with small boats on the riverside;</li> <li>- Excessive noise from tugboats;</li> <li>- Scaring away the fish.</li> </ul>
- Dams	<ul style="list-style-type: none"> <li>- Interruption of traditional transportation of riverine populations;</li> <li>- Construction of dams and risks of rupture;</li> <li>- Alteration in river flow and its ecological impacts on aquatic fauna and flora;</li> <li>- Impacts on fish stock and availability;</li> <li>-Conflicts in processes of compensation and resettlement of affected populations.</li> </ul>
- Paving of federal highways (BRs 163 and 230) and implementation of Ferrogrão	<ul style="list-style-type: none"> <li>- Risk of accidents and discomfort (noise and traffic intensity) due to the increased flow of trucks;</li> <li>- Change in the land situation and risk of deforestation due to the attraction of a new immigration cycle due to easy access;</li> <li>- Prostitution around the enterprises.</li> </ul>
- Large Rural Properties for monoculture and extensive cattle raising	<ul style="list-style-type: none"> <li>- Deforestation of springs;</li> <li>- Deforestation of APPs along water courses;</li> <li>- Chemical contamination of water by fertilizers and pesticides;</li> <li>- Land concentration.</li> </ul>

- Aquiculture	<ul style="list-style-type: none"> <li>- Barring and detour of water courses (flow control);</li> <li>- Risk of introduction of exotic fish species.</li> </ul>
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It is worth mentioning that this new development cycle occurs simultaneously with a scenario of uncertainties due to the recent global economic crisis resulting from the COVID-19 pandemic and the slowing down of public policies to protect the environment and with a bias towards social and environmental weakening in the region (dismantling of public environmental institutions, weakening of environmental legislation, reduction of enforcement, threats to the integrity of indigenous lands and conservation units and lack of policies to support traditional populations and family farmers).

Therefore, the territory of the Tapajós River basin is experiencing a decisive moment in its development and in discussions about the future scenario, traditional rural populations, especially riverbank dwellers, are the most fragile and vulnerable. The concerns inherent to social conflicts and ecological and health threats to riverine communities are evident and reinforce the need for knowledge about the guarantees of their rights.

## 5.2 Water regulation and dominance

National water regulation takes place in the constitutional, legal and infralegal sphere, with direct provisions about the Brazilian aquatic territory, legislative competence, among others, and in a transversal manner, as a necessary condition for the exercise of other rights. Brazil's aquatic territory is composed of its maritime territory, which includes its territorial sea (MT), the contiguous zone (ZC), the Exclusive Economic Zone (EEZ) and the Continental Shelf (PC), plus inland waters - including groundwater.

According to article 20 of the Federal Constitution, the territorial sea and the natural resources of the continental shelf and the exclusive economic zone constitute Union assets. In relation to inland waters, the Union has the domain of lakes, rivers (understood as currents of great magnitude) and water currents in lands under its domain and those that bathe more than one state, or are located in a border zone, or come from, or go to another country, as well as marginal lands and river beaches. In the first paragraph of the same article, the States, Federal District and Municipalities

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were guaranteed, in the form of the complementary law, financial compensation for the exploration, or participation in the results of the exploration of oil and natural gas, mineral resources and water resources for the purpose of electric power generation (POMPEU, 2006).

The States were granted the domain of waters (underground, fluent, emerging and in deposit), including the rivers that flow into the ocean, except those resulting from Union works and constitutional provision already demonstrated above. In spite of the constitutional omission, the Federal District's domain over its waters resembles, by analogy, the state domain (POMPEU, 2006).

In terms of constitutional legislative competence, the Union has private competence to legislate on maritime law (Art. 20, I), on lake, fluvial, maritime navigation (Art. 20, X), on maritime defense (Art. 20, XXVIII) and on waters (Art. 20, IV), being able to authorize, by means of Complementary Law, the States to legislate on specific matters.

In a transversal way, the Federal Constitution guarantees a series of rights to traditional peoples and communities, including the use of natural resources for their biological and cultural subsistence.

The Constitution, through art. 231, §2, guarantees indigenous peoples the exclusive enjoyment of the riches contained in the rivers and lakes existing on their lands, however, it does not specifically deal with the aquatic rights of other categories of riverine, but incorporates them into the idea of cultural and environmental rights, which in turn impact other human rights. In this way, we will treat aquatic rights as an integral part of the individual, cultural, and environmental rights of the riparians, either as a guarantee of rights, in itself, or as an indispensable means to access other rights.

### **5.3 Legal framework, multiple uses and the rights to fresh water and resources associated with riverine areas**

#### 5.3.1 Federal and riverine legislation

In Brazil, the Constitution has provided for fundamental individual and social rights, which give rise to situations that can be readily enjoyed by abstention, require positive benefits from the State and confer interests whose realization depends on the edition of an infra-constitutional norm (DUARTE, 2011).

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Cultural rights are listed in several constitutional provisions. In its preamble, the legislator stated that the respective Constitution aims to establish a Democratic State, ensuring the exercise of social and individual rights in a fraternal, plural and unprejudiced society, recognizing, through Article 1, item V, the political pluralism as one of the foundations of the Democratic State of Law.

The premise of recognition and constitutional protection of multiculturalism is based on three basic pillars; 1- recognition of difference; 2- right to difference; 3- constitution of a common life beyond differences. Bittar (2009) asserts that human nature presupposes the idea of multiple singularities, based on the idea that everyone is different from each other, therefore, it is possible that we are equal in difference. Santos (2006, p. 316), in the same sense points out that "we have the right to be equal whenever difference makes us inferior; we have the right to be different whenever equality makes us uncharacteristic".

The Constitution brought a chapter - Chapter III - on education, culture and sports, dealing specifically with culture in Section II, with a clear amplification of the "[...] notion of cultural heritage, the valorization of cultural plurality and a spirit of democratization of cultural policies, inserted in a context of pursuit of citizenship and cultural rights" (SANTILLI, 2005).

Political pluralism constitutes one of the foundations of the Democratic State of Law (art. 1, IV). Oliveira Silva, Guimarães and Moretti (2017) emphasize that "The 1988 Federal Constitution lists, as the foundation of the Democratic State of Law, the dignity of the human person, which is based on the recognition and respect to pluralism".

The Constitution dealt with the protection and promotion of culture and the environment in a transversal way. Throughout its text, it expressly guarantees its protection, promotion and access, establishing it as a guideline and goal of several areas. Implicitly, for the river dwellers, the protection of culture is inseparable from aquatic rights, and also occurs through the protection of other rights that have direct and necessary interfaces with the protection and guarantee of these peoples over the use of waters, in various social contexts, such as dignity, life, equality, freedom, property, environment, among others.

The "[...] notion of dignity is, besides the recognition of legal equality, also in the recognition of difference" (BITTAR, 2009). In this sense, the dignity of the human person, in the face of an expanded concept of culture, will only be the foundation of

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human rights when "[...] the various forms of human convergence can be structured in practices that underpin democratic, pluralist, dialogic, open and tolerant coexistence" (BITTAR, 2009).

Oliveira Silva, Guimarães, and Moretti (2017) emphasize that equality, in the CF, represents the denial of discrimination: "The recognition of differences and respect for the uniqueness of each person refer to the human being, to whom dignified treatment must be given.

The right to life, in turn, is not restricted to biological life, but to a dignified life. According to Loewe (2011), one of the most important aspects of human life is the search for meaning, or meaning to live, and for this reason sufficient resources and freedoms must be guaranteed so that the human being - individual or collective - can live according to the "[...] beliefs about what is valuable without being penalized by practices (religious, sexual, lifestyle, etc.) that are orthodox" (LOEWE, 2011).

The respect for the right over the waters, for the riverine, is linked to the defense of multiculturalism and self-determination, and also to the exercise of the right to freedom, in a reflexive and social sense. According to Honneth (2015), the individual only reaches freedom through an articulation of his real self, which can assume an individualist or collectivist form. It would be the task of the entire government to create, through appropriate educational measures and the written guarantee of a pluralism of public opinion, an atmosphere of social "freedom" in which members of society can reach the maximum of individualized "development" of their "attributes, faculties and sensibilities. From the concepts that serve as presuppositions for reflexive freedom, whether that of self-determination or self-realization, notions are derived regarding what data would be necessary to enable the exercise of one's freedom to all individuals. In social freedom, the subject is only "free" when, in the context of institutional practices, he finds a counterpart with which he is connected by a relationship of reciprocal recognition, because at the end of this counterpart he can glimpse a condition for achieving his own ends (HONNETH, 2015).

The Federal Constitution emphasized the defense of indigenous peoples and quilombolas, attributing them different legal-constitutional regimes from other culturally differentiated peoples.

Indigenous people were assured the right to maintain their cultural identity (right to be different), recognizing the original right to permanent possession and exclusive enjoyment of their natural resources. The specific constitutional protection of the

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indigenous is achieved through articles 20, XI (which lists the lands occupied by the Indians as assets of the Union), 22, XIV (private competence of the Union to legislate on indigenous populations), 48, XVI (exclusive competence of the National Congress to authorize the exploration and exploitation of water and mineral resources) and 109 (which establishes the competence of the Federal Justice to process and judge disputes over indigenous rights). The Constitution binds the Federal Union. Article 231, § 6 determines that acts that have as their object the occupation, domination, and possession of indigenous lands are null and void, with no legal effect, excepting, in the form of the law, compensation for improvements made in good faith. There is an express constitutional link between the original right to land and to cultural reproduction, as rights necessarily interconnected (Art. 231, §1). In the field of education, in addition to the linking of subjects in elementary school that promote respect for cultural values in students, the FC imposes, in the case of indigenous people, that the classes use their own mother tongue and learning processes that are appropriate to their context (Art. 210, §2).

The quilombolas have the right to definitive ownership of traditionally occupied lands, described in article 68 of the Transitory Constitutional Provisions, which recognizes the right to (collective) ownership of the lands necessary for the preservation of culture and intangible heritage and the constitutional overturning of documents and sites reminiscent of the quilombos, overturning them constitutionally (art. 216, §5).

There was a debate in which the same territorial rights of indigenous peoples and quilombolas applied to traditional communities, in particular the rights provided for in Convention 169 of the International Labor Organization (ILO). However, this debate was overcome because in the jurisprudential sphere, the application of the ILO Convention 169 to traditional communities was recognized by the Inter-American Court of Human Rights in the case of Saramaka Suriname of November 28, 2007. The Federal Regional Court of the 4th Region also recognized the application of the Convention for quilombolas in the Bill of Review no. 200804.00.010160-5/PR, Judge Rapporteur Maria Lúcia Luz Leiria, judged on 01/07/2008, D.E. 12/11/2008. Recently the STF dismissed the Direct Unconstitutionality Action (ADI) 3239, Reporting Justice Cezar Peluso, on February 8, 2008, recognizing the application of Convention 169 for quilombolas and the constitutionality of Decree 4887/2003.

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Brazilian doctrine states that ILO Convention 169 is a legal instrument applied to indigenous peoples and quilombolas, as well as to other traditional communities (MOREIRA, 2017; SHIRAISHI NETO, 2007).

The right to property foreseen in the Federal Constitution, in a fragmented and literal reading, gains a liberal outline, of patrimonial nature, with the exception of fulfilling the social function. Moreover, when interpreting the respective institute in a systematic way, with the cultural and environmental protection devices, we can consider that the property can also be collective. According to Benatti (2002) "[...] the legitimacy of collective property lies in the social group's capacity to appropriate certain natural resources and, over time, to construct rules for the use and management of forest resources that are respected by community members". This type of property derives from primary ownership, without authorization from third parties, in order to become the owner (BENATTI, 2002). The reproduction and maintenance of culture are linked to the land/water of these traditional communities, which live in a symbiotic relationship with nature.

At the same time, the Federal Constitution established the principle of the socio-environmental function of property that influences several legal institutes, creating/declaring rights. The fulfillment of the socio-environmental function of property is an adaptation of the right to property (to use, enjoy, dispose and claim) to the collective interest. Article 186 of the Constitution determines that the social (socio-environmental) function of agrarian property is simultaneously fulfilled, according to the law, when the following are observed: I- rational and adequate use; II- adequate use of available natural resources and preservation of the environment; III- observance of the provisions that regulate labor relations; and IV- exploitation that favors the well-being of owners and workers. Regardless of the domain, be it private or public, the collective right is levied on the socio-environmental assets, which overcomes the others, considered (regardless of their individual character at the origin) assets of public interest. The socio-environmental orientation, present in several points of the Constitution, is revealed through a holistic, systemic reading of the whole. (SANTILLI, 2005).

The defense of property is linked to the territory of culturally differentiated collective groups, which use their territory, among other forms, as a space for cultural survival. The right to property, seen from a multicultural point of view, must contemplate the defense of property in several ways.

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The defense of the environment is also closely linked to the defense of culture. Santilli (2005) highlights that "the Constitution adopted a unitary conception of the environment, which includes both natural and cultural goods". Souza Filho (1997) teaches that environmental goods are genera, which include the species of cultural and natural goods. The environment, therefore, is constituted by "[...] the interaction of the set of natural, artificial and cultural elements that provide for the balanced development of life in all its forms" (SILVA, 1995). In this way, environmental goods are essential for the maintenance of the biological life of the species and the cultural life of the human being, in its multiple forms (MARÉS SOUZA FILHO, 2002).

Canotilho (1998) emphasizes that the Constitution should not be read in a fragmented manner, but rather as a unity, which should be interpreted systematically, to the point of avoiding contradictions (Principle of the Unity of the Constitution), favoring the strengthening of political unity and social integration (Principle of the Integrating Effect), attributing to its provisions the greatest effectiveness (Principle of the Maximum Effectiveness), by means of the coordination and combination of the legal assets protected therein, in such a way as to avoid the total sacrifice of one of them (Principle of Harmonization). Thus preference shall be given to hermeneutic solutions which, comprising historicity and constitutional structures, guarantee the permanence and effectiveness of this norm (Principle of the Normative Force of the Constitution) (CANOTILHO, 1998).

In this way, the defense of aquatic rights, for the riverside people, impacts on the defense of life, freedom, property and, consequently, the dignity of the human person, as well as the defense of these rights impacts directly on the defense and promotion of multiculturalism, linking the infra-constitutional norms to the observance of the transversal precepts of culture, life, dignity, freedom, property, environment and other rights.

In the infra-constitutional sphere, there is no legislation that deals in a concentrated way with the multiple interfaces that exist between the right to water on the part of the river dwellers. As a rule, laws that address specific issues about water, guarantee rights in a general way over a certain aspect, or deal with indigenous peoples communities, quilombola communities and/or other traditional communities, here called ribeirinhas, formally guaranteeing access and enjoyment of natural resources, which includes water. Thus, in this first moment, it is pertinent to divide

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norms of general nature and that specifically protect traditional peoples and communities.

Regarding the general legislation, which guarantees the right to water to all, Law 9.433/1999 deserves special mention, which instituted the National Policy on Water Resources, where it is binding that water resources are goods of public domain, and its management must provide for multiple uses of water, prioritizing, in case of scarcity, its priority use for human consumption and animal dessedentation (Art. 1), having as objectives the rational and integrated use of water resources, the prevention and defense against hydrological events and the guarantee of availability for future generations, having as one of the guidelines the adequacy of management according to the physical, biotic, demographic, economic, social and cultural diversities existing in the country.

For the non-indigenous riverine categories, the infra-constitutional federal norms that protect, in a central way, the customary practices, assure, in a generic way, the access to the natural resources - which includes water - that traditionally are used for physical, cultural and economic reproduction. On the other hand, for the indigenous riverside people, besides the constitutional protection already mentioned, Law 6.001/1973, which instituted the Indian Statute, guarantees the usufruct of the waters present in its territory, having the exclusivity of hunting and fishing to the indigenous people (Art. 2, IX c/c 24, §§ 1 and 2).

The ILO Convention 169 was internalized in the Brazilian legal system with supralegal rule force, through Decree 5.051/2004, revoked and replaced by Decree 10.088/2019, it guarantees the right of the riverine people to the existing natural resources in its territory, guaranteeing the active participation of these peoples and communities to participate in the use, administration and conservation, binding the State to adopt special measures that safeguard the environment connected to the riverine people.

In the infralegal scope, Decree 6.040/2007 and Decree 7.747/2012 deserve special attention in the protection of the aquatic rights of non-indigenous and indigenous riverine peoples, respectively. The Decree 6.040/2007 instituted the National Policy of Sustainable Development of Traditional Peoples and Communities, which includes among its objectives, the access to the natural resources traditionally used for the physical, cultural and economic reproduction of these communities (Art.

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3, I), linking the Public Power to promote productive inclusion with the promotion of sustainable technologies, respecting the social organization of these peoples and communities, valuing the local natural resources, practices, knowledge and technologies developed there (Art. 3, XVII). Following the model of the national legislation when dealing with non-indigenous riverine peoples, the respective decree guarantees, in a generic way, the protection of aquatic rights.

For the indigenous riparians, Decree 7. 747/2012, which instituted the National Policy of Territorial and Environmental Management of Indigenous Lands (PNGATI) establishes several specific axes as objectives of the referred policy, as the territorial and natural resources protection (axis 1), governance and indigenous participation (axis 2), protected areas, conservation units and indigenous lands (Axis 3), prevention and recovery of environmental damage (Axis 4), sustainable use of natural resources and indigenous productive initiatives (Axis 5), intellectual property and genetic heritage (Axis 6) and training, exchange and environmental education (Axis 7), which are subdivided into several guidelines. The interfaces for the protection of aquatic rights are foreseen in axes 1, 2 and 5, referring to the protection and recovery of springs, water courses and springs essential to indigenous peoples, monitoring the water quality of indigenous lands and the use of natural resources respectively.

### 5.3.2 The legislation of the State of Pará and the riverside areas

The state legislation follows the same logic as the federal legislation. There is not one norm that guarantees, specifically, the right to water of the river-dwellers in its various interfaces, but several norms that, in general, guarantee access to water, or, specifically, guarantee access to natural resources for these culturally differentiated peoples and communities. The Constitution of the State of Pará (CEP), State Law 6.381/2001, which established the State Policy on Water Resources, State Law 5.887/1995, which created the State Policy on the Environment and State Decree 261/2011, which established the State Policy for Quilombo's Remaining Communities.

The Constitution of Pará provides, in general, the right to basic sanitation and the encouragement of artisanal fishing, which has a significant impact on riverine communities and, specifically, guarantees the defense and freedom to exercise the multiple forms of cultural diversity, in a manner similar to the CF.

The State Constitution attributes to the State the duty of drafting, by means of law, the state water and mining policy, linking, as one of the principles, the priority in

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population supply (245, §1). The CEP treated fishing in a special way, linking the State of Pará to elaborate a specific policy for the artisanal and industrial fishing sector, giving priority to the first modality, considering it to be of a social nature (Art. 244, §5). Artisanal fishing carried out through fishing cooperatives and other means of association, should be encouraged and have differentiated legal treatment, through the simplification, reduction, or elimination of administrative, tax and credit obligations (Art. 233).

Still within the scope of the State Constitution, art. 267 assigns as a citizen's right and duty of the State and Municipal Public Powers the basic sanitation, understood, in a minimum way, as water supply, sanitary sewage, collection and treatment of solid waste and urban and rural drainage.

In relation to the protection of cultural diversity, CEP considers as Pará's cultural heritage, individually or together, carriers of reference to the identity, action, memory of the different groups that form the society of Pará, which includes forms of expression, ways of creating, doing and living, scientific, artistic and technological creations, In a special way, the indigenous culture, attributing to the Public Power the promotion and protection of the indigenous, Afro-Brazilian and other groups participating in the civilizatory process of the State of Pará, being fallen the areas of the old quilombos Pará, sambaquis, indigenous and of historical-cultural relevance (Art. 286). Cultural diversity, respect for human rights, the right to memory and traditions, socio-environmental responsibility, valuing culture as a vector for sustainable development, preservation of the cultural heritage of Pará, and democratization of the instances of formulation of cultural policies are guidelines, established by CEP, that the State Plan of Culture must follow (Art. 285, §5).

The State Water Resources Policy (PERH) establishes water as a limited natural resource, endowed with social and economic value, being an asset in the public domain, which should be used, as a priority, for human consumption and animal dessedentation (Art. 1). Another point that deserves to be highlighted in PERH is the establishment of guidelines for the planning and management of water resources, in which we highlight the compatibility with the requirements of sustainable development and the guarantee of the use of multiple uses of water, considering economic, social and cultural aspects of the localities of the State of Pará. As an objective of PERH, Law 6.381/2001 aimed at guaranteeing future generations access to water, by means of rational and integrated use of water resources, in order to protect watersheds

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against actions that may compromise their current and future use, through control, prevention and defense against critical hydrological events of natural origin or resulting from anthropic action (Art. 2). Finally, the aforementioned legislation establishes that water bodies must be classified according to the predominant uses and classes of water, with the objective of ensuring quality compatible with the uses to be assigned (Art. 9, I) and guarantees the participation of representatives of indigenous communities in the River Basin Committee (Art. 51), with the possibility of delegating their management to the Municipalities, in cases of exclusively local interest (Art. 63).

In a more simple way, the State Environmental Policy attributed as a basic principle of its implementation and execution, considering as indispensable factors in the ordering, protection and defense of the environment, the respect for the indigenous people, traditional forms of social organization and their needs for physical and cultural reproduction and improvement of living conditions.

Specifically, State Decree 261/2011 created the State Policy for Quilombola Communities, with the objectives of valuing traditional knowledge and practices of use of local natural resources, historically built in the communities, the recognition of territorial rights, through the titling of land (Article 2), understood as land occupied, to be titled, that necessary for physical and socio-cultural reproduction of quilombola communities, which includes spaces for housing, socio-cultural activities, economic exploitation, religious worship and leisure. In this context, the right to water is inserted as an exercise of territorial law, impacting on the quality of life of the community and the generation of income.

In summary, there is a general normative guarantee of access to water, covering "everyone", which includes riverine areas, and special protections, which aim at cultural protection, in a broad sense, which involves the guarantee of access to and exploitation of traditional territories and natural resources existing there, including aquatic spaces and their multiple uses.

## **6 ANALYSIS OF LEGISLATION**

Taking as a reference what was presented previously, we can divide the legislation on water and associated resources into two distinct aspects of law, one that is aligned with socio-environmentalism and the other with more conventional statutory law. This distinction is relevant because the legal perspective of socio-environmentalism is aligned with customary law, provides and treats in a general way

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the rights of traditional populations. In relation to legal issues related to water and fisheries, socio-environmentalism provides a general legal reference for specific rules of access and use of water and fisheries resources of traditional populations/communities.

On the other hand, statutory law defines the specific rights and obligations related to access and use of water and fishing resources for the entire Brazilian population and has the legal objective of providing legal security for the various users of these resources, especially economic actors. In some cases, as in fisheries co-management policy, the two approaches have been integrated. The fishing agreements elaborated by the "Fishery Agreements Movement" became the legal basis for the fisheries co-management policy, but this legal recognition was conditioned by the removal of some important elements from traditional agreements, such as the exclusion of "outsiders," the collection of fees, and measures to organize the commercialization of fish.

## **6.1 Laws on community water rights**

### 6.1.1 Water withdrawal/use

The main legal reference for water rights is Law 9.433/1997 that institutes the National Water Resources Policy. The law is based on some fundamentals of which the most relevant for this discussion are: I) water is a good in the public domain, II) water is a limited natural resource, endowed with value, III) in situations of scarcity the priority use is for human consumption and animal dessedentation, IV) the multiple use of water resources, V) the river basin is the territorial management unit, and VI) the management of water resources should be decentralized with the participation of users and communities.

The item II of Art. 3 of the general guidelines, specifies the adequacy of HR management to the physical, biotic, demographic, economic, social and cultural diversities of the various regions of the country.

Constitutional, statutory and regulatory law

A central element of the HR Law is the regime of granting rights of use of HR to control the quantity and quality and to effect the exercise of access rights. The granting is equivalent to a concession and creates the possibility of charging a fee for

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the use of water. However, the law indirectly exempts traditional communities from charging a fee based on the volume of use. §10, Art. 11 identifies situations of use that do not need to be granted, such as the "satisfaction of the needs of small population centers" in rural areas and the capture, release and accumulation of volumes of water considered insignificant. Thus, when the volume is considered "insignificant" (in relation to the volume of water available), there is no restriction in relation to the type of use, domestic, commercial or cultural/religious.

#### Common law

In general, in traditional communities there is no conflict, for the time being, between statutory and customary law on the issue of water use because of the small volume of water involved in individual and even collective use. Community norms aimed at controlling the quantity and quality of water are limited to situations where the community feels the need to define rules to ensure access to the quantity and quality of water needed for domestic and/or commercial use.

For example, the community of Igarapé do Costa, in the Amazon floodplain of the municipality of Santarém, is completely flooded during the flood. A problem in this phase of the year is the pollution of the water by boats with passengers that visit the community and release their waste directly into the river upstream from the houses. The community has established a norm that requires boats visiting the community to anchor in front of the church to prevent their waste from being carried by the current to houses where families depend on the surrounding water for human consumption and domestic use.

#### Interaction between statutory and customary law

Currently, there is no interaction between the two because the use is insignificant and, therefore, does not involve the need to claim the grant for the use of water. But if it were, the HR Law has not been implemented by the federal or state government yet and, therefore, there are still no mechanisms to demand the granting of water or to inspect its use with the exception of the measures included in the Environmental Crimes Law.

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### 6.1.2 Administration/Governance

The federal government, through Complementary Law 140/2011, transferred to the states and municipalities administrative powers in relation to the protection of outstanding natural landscapes, the protection of the environment, the fight against pollution in any of its forms and the preservation of forests, fauna and flora. Among the actions defined for cooperation between the Union, the states and the Federal District is the regulation of the legal framework for fisheries management. This activity, based on the aforementioned law, is now the responsibility of the States, in the case of Pará, under the responsibility of the State Secretariat of Environment and Sustainability - SEMAS and the State Secretariat of Agricultural Development and Fisheries - SEDAP. However, as there are no regulations to order the activity in the state, the Fishing Agreements have not been regulated up to now, as was the case with the Tapajós Arapiuns Extractive Reserve and the Tapajós National Forest, registered by ICMBIO on April 10, 2018.

Currently, issues related to water use are resolved at the level of the community or group of neighboring communities that share the same body of water or water source. At the local level, well-structured communities are usually able to resolve these issues. However, the threats to access and use of water are of another order of magnitude in the Middle and Upper Tapajós, involving mainly high-impact activities such as the implementation of hydroelectric plants, large-scale deforestation and gold mining. The impacts of these activities are greater for the communities of the Middle and Upper Tapajós due to the proximity of the garimpos and dams. For example, in terms of water consumption, the biggest problem currently comes from garimpos that increase the amount of sediment suspended in the water and discharge mercury into rivers. In this case, access is related to the quality of water needed for human consumption and not just access itself.

Constitutional, statutory and regulatory law:

Currently the Environmental Crimes Act, specifically Section III - Articles 54 (pollution) and 55 (performing mineral extraction without authorization) are probably the most relevant to deal with the problem of pollution caused by the garimpos of the upper Tapajós. However, without government action there is no way to solve these problems.

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## Customary Law

In general, customary law works at the local level where there is the possibility of effective control of causes.

### **6.1.3 Transfer of Rights**

In the case of river/traditional communities, the issue of transfer of rights is not relevant. Water is a resource in the public domain (Cap. I Art 10 I). The Grant grants the right of use, but "does not imply partial alienation of waters that are inalienable" (Chapter IV Section III, Art. 18). "The transfer of the right of use to third parties is not discussed in Federal Law. However, in state water resources legislation, there are mechanisms for transferring the grant from the holder to a new holder. This transfer is often made in the sale of real estate. The new grant must retain the same characteristics and conditions as the original grant, when approved by the Grant Management, which will issue a new administrative act with complementary validity period (SRH/SEMARH-GO 2012)<sup>11</sup>.

### **6.1.4 Exclusion**

The HR Law defines water as an asset in the public domain, therefore waters are inalienable. In the case of the Grant of the right to use water resources, it may be suspended totally or partially, definitively or for a determined period of time in six general circumstances (Chapter IV, Section III, Article 15 I to VI). However, the granting mechanism does not apply to the use of riverside communities. Another important element, the granting of the right to use water is linked to a specific property and a water use project/plan is specified in the granting documentation. It is possible that in areas with a tradition of irrigation there are organized traditional communities, such as associations or cooperatives, that have one or more water use rights to irrigate their plantations or for fish farming.

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<sup>11</sup> Water Resources Superintendence. 2012. TECHNICAL MANUAL OF GRANTING. Secretariat of Environment and Water Resources, State of Goiás.

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### **6.1.5 Due Process and Compensation:**

The Financial Compensation for the Use of Water Resources (CFURH) as a result of electricity generation was instituted by the 1988 Federal Constitution. The financial compensation is based on the area flooded by the dam reservoir, necessary for power generation and is apportioned between the federal government, states and municipalities with flooded territory by the reservoir and paid with the royalties generated by the sale of electricity. In the case of Itaipu, 6.5% of the royalties are distributed to the beneficiaries. Of which: 65% to the Municipalities and 25% to the States affected by the HPP reservoirs, and 10% to the Federal Government (3% to the Ministry of Environment; 3% to the Ministry of Mines and Energy; and 4% to the National Fund for Scientific and Technological Development, administered by the Ministry of Science, Technology, Innovation and Communications)<sup>12</sup>.

### **6.1.6 Indigenous and Rural Women's Rights as Special Focus of Legal Attention**

Since the constitution of 1988, the Brazilian State has been identified as multi-ethnic in recognition of ethnic diversity and culture. The Magna Carta in Chapter VIII, entitled "Of the Indians," establishes that indigenous peoples are culturally distinct collectivities and holders of special rights, which are guaranteed to remain as such, and the State must ensure conditions for this purpose (GUAJAJARA, 2020).

Art. 231. Indians are recognized for their social organization, customs, languages, beliefs and traditions, and for their original rights over the lands they traditionally occupy, and it is the Union's responsibility to demarcate them, protect them, and ensure that all their goods are respected.

Art. 232. Indians, their communities and organizations are legitimate parties to go to court in defense of their rights and interests, and the Public Prosecutor's Office intervenes in all acts of the process (BRAZIL, 1988).

The legal system is a framework of multiplicity, allowing for interpretative expansion of rights and subjects, but not crystallizing differentiation between indigenous men and indigenous women.

From the recognition of fundamental indigenous rights in the constitution with a greater focus on the need for existence, various organizations have emerged throughout the country, such as the Federation of Indigenous Organizations of Rio

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<sup>12</sup> ANEEL, Financial Compensation for the Use of Water Resources (CFURH) SAF Reports, Published: 03/02/2016 15:26, last modified: 08/18/2020 15:04

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Negro (FOIRN), Indigenous Council of Roraima (CIR), Coordination of Indigenous Organizations of the Brazilian Amazon (COIAB), and the Articulation of Indigenous Peoples of Northwest, Minas and Espírito Santo (APOINME). From the need to unify the various agendas, the Articulation of the Indigenous Peoples of Brazil (APIB) emerged with the objective of defending indigenous rights (GUAJAJARA, 2020).

In the context of these movements, indigenous women's organizations have strengthened themselves, conquering space and representation, as well as guaranteeing their legal rights. The first indigenous women's organizations, such as the Association of Indigenous Women of the Upper Rio Negro (AMARN) and the Association of Indigenous Women of the District of Taracuá, Rio Uaupés, and Tiquié, began in the 1980s (AMITRUT) (SACCHI, 2003).

As a result of these movements, in 2001 a specific department for indigenous women was created at the Indigenous Organization of the Brazilian Amazon (COIAB) in an Assembly in the city of Santarém - Pará, whose objective is to emphasize specific themes for women and opportune specific public policies for them (VERDUM, 2008).

In 2007, the National Indian Foundation (FUNAI) created the coordination of Indigenous Women. Currently, it has become a Division of the General Coordination for the Promotion of Citizenship (CGPC). Its objective is to strengthen indigenous women's organizations, support the participation of indigenous female leaders in federal government decision making instances regarding public policies, and coordinate, articulate, and monitor the implementation of gender actions at FUNAI (FUNAI, 2018).

The protagonism of indigenous women gains visibility from the perspective of indigenous women's identity, both internally and externally to the communities, and reflects the confrontation with violence and political-legal attacks (GUAJAJARA, 2020).

Based on the understanding of legal hermeneutics, Brazil has been presenting still incipient actions regarding indigenous women. Legal milestones, such as ILO Convention 169, the Indian Statute, and the 1988 Constitution itself, do not bring gender specificities in relation to indigenous women.

In the international context, the United Nations Declaration on the Rights of Indigenous Peoples approved at the 107th Plenary Session in 2007, proclaims the duty of States to adopt measures jointly with indigenous peoples, with the objective of

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ensuring protection and guarantees for women against all forms of violence and discrimination.

Art. 22 Particular attention will be paid to the rights and special needs of the elderly, women, youth, children and the disabled in the application of this declaration.

States will take measures with indigenous peoples to ensure that indigenous women and children enjoy fully controlled protection and guarantees against forms of violence and discrimination (UN, 2008).

Convention 169 of the International Labor Organization (ILO), incorporated into internal legislation by Decree No. 5051/2004 and ratified by Decree No. 1088 of November 5, 2019, opens the way for the valorization of the systems of indigenous peoples, establishes guidelines for the application of national legislation to indigenous peoples as well as for the recognition of their customary customs, but does not incorporate the issue of gender, establishing specific norms for indigenous women.

Annex LXXII

CONVENTION 169 OF THE EIGHTH ON INDIGENOUS AND TRIBAL PEOPLES

Article 3

Indigenous and tribal peoples should enjoy full human rights and fundamental freedoms without hindrance or discrimination. The provisions of this Convention shall be applied without discrimination to the men and women of these peoples.

PART III - HIRING AND CONDITIONS OF EMPLOYMENT

3. The measures adopted shall ensure, in particular, that

(d) workers belonging to these peoples enjoy equal opportunity and treatment for men and women in employment and protection against sexual harassment.

Still at the international level, the United Nations recognizes the plurality of women imprisoned at the UN General Assembly in 2012 with the participation of Brazil, through the Bangkok Rules, with guidelines for the treatment of women prisoners and non-custodial measures for women offenders. When making reference to minorities and indigenous peoples, Rule 54 states that

Prison authorities should recognize that women prisoners from different religious and cultural traditions have distinct needs and can face multiple forms of discrimination to gain access to programs and services whose implementation is linked to gender and cultural factors. Thus, prison authorities should offer comprehensive programs and services that include these needs in consultation with the prisoners themselves and relevant groups (CNJ, 2016, p.36).

With regards to addressing the issue of discrimination and violence against indigenous women, many advances have occurred in an inter-ethnic context. But when it comes to these issues in marital, family, and intra-ethnic relations, the construction

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of norms is still generalist, following the example of the Maria da Penha Law (August 7, 2006, 11,340), which establishes in its Article 2:

Every woman, regardless of class, race, ethnicity, sexual orientation, income, culture, educational level, age and religion, enjoys the fundamental rights inherent to the human person, being assured the opportunities and facilities to live without violence, preserving their physical and mental health and their moral, intellectual and social improvement (BRAZIL, 2006).

This law, in its constitutional principle of equality, supports the indigenous victims, as long as it attends to and respects the specificities of the cultural contexts of each people.

Guajajara (2020) emphasizes that the framework of equality of indigenous and non-indigenous women in a generalized way, makes invisible the problems of internal plurality. In agreement, Fonseca (2018, p. 91) adds that:

"In the case of the ethnic demand of indigenous women, there is the barrier of invisibilization made within the very notion of indigenous rights that has always possessed as obstacles the fact that Brazilian indigenism has always had a very masculine focus, not recognizing in the voice of indigenous women the interlocution in the formulation of rights of their peoples.

In general terms, the discussion with a legal focus on the rights of indigenous women still universalizes their singularities with the suppression of diversity, thus making it an urgent topic for defining parameters for the dialogue of state and non-state legal systems.

In a similar process, riverine women have been gaining their rights with movements since the 1980s. Many were the movements to address gender inequalities with broad female mobilization in the field during this period. The aforementioned legal frameworks, with more generalist scope, were also basic principles for guaranteeing rights of women on the riverfront.

For women from the riverfront, the actions to guarantee and strengthen the rights of rural women's movements began before the conquests of indigenous women. Considering an emancipatory perspective, still in the early 2000s, the Department of Policies for Rural Women (DPMR) was created to meet the demands of rural women's movements, indicating ways for women to access citizenship, land, water, territory and natural goods, and productive inclusion (HORA et al., 2014).

In legal terms regarding public policies for riverine women, Normative Instruction no. 981/2003 brings with it a great achievement by instituting land titling for agrarian reform with the obligation of joint titling on behalf of men and women, in cases

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of stable union or marriage. With the complementation of the Normative Instruction nº 38/2007 that assures the joint titulation for access to any public politics of agrarian reform, the women riverine heads of family, started to have preference in the access to these politics. Still in this period, in 2003, the National Program for Land Credit (PNFC) was created, guaranteeing women's right to title to rural properties; as well as the National Program for Strengthening Family Agriculture - Pronaf Mulher, recognizing and stimulating rural women's work in family agriculture and agrarian reform settlements.

The National Program for Documentation of Rural Workers (PNDTR) created in 2004 was an important milestone. The program ensured rural women access to basic civil, social security and labor documentation. That same year, the National Policy on Technical Assistance and Rural Extension (PNATER) began to rely on Technical Assistance and Rural Extension (ATER) for women (BRAZIL, 2004).

In 2008, the Program for Productive Organization of Rural Women (POPWR) was created with the objective of strengthening productive organizations of women rural workers. During this period, the II National Plan of Policies for Women (PNPM) brought great contributions to the women of the riverfront. It allowed for the strengthening of decision-making power and participation in decision-making spaces (BRAZIL, 2015). In 2011, through Resolution 44, women from the riverside conquered participation with a minimum quota of 40% specific to them in institutional markets, as in the Food Acquisition Program - PAA.

Focusing on the issue of the use of natural resources and water resources, some legal frameworks bring specificities when establishing women's rights. The Decree nº 6.040/2007, that institutes the National Politics of Sustainable Development of the Traditional Peoples and Communities, presents in its principles:

Art. 3 Specific objectives of the PNPT:

XII - to implement and strengthen action programs focused on gender relations in traditional peoples and communities, ensuring the vision and participation of women in government actions, valuing the historical importance of women and their ethical and social leadership (BRASI, 2007).

Decree 6.387/2008, which institutes the II National Plan of Policies for Women, establishes in its priorities 6.1 - Promote and value the participation of women in collegiate instances of implementation of environmental policies with territorial basis, as well as the National System of Environment - SISNAMA and the National System

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of Management of Water Resources - SIGREH; 6.3 - Promote the valorization and preservation of traditional knowledge of women associated with biodiversity.

The Ordinance No. 89/2010 of the Secretariat of Union Heritage establishes in its Article 5: The Term of Authorization for Sustainable Use - TAUS will be granted: Priority in the collective mode; when individual, priority on behalf of women.

"The meaning of what it is to be a fisherwoman among them, among the organizations of the category and the State, contribute to the non-recognition of professional identity making survival difficult<sup>5</sup>. The recognition of women's rights as fisherwomen is an old claim, especially from the legal point of view. A change to give more visibility to women fishermen was the inclusion of fisherwomen in the formal name of the Fishermen's Colonies. The issue of women's rights was discussed in discussions of the Seguro Defeso Policy and in government efforts to lower the cost of the Seguro Defeso.

#### **6.1.7 Legislation on Water Reserved for Ecological Results**

The legislation on water resources does not include a guideline or objective that explicitly reserves water for ecological results. However, there are several elements of the Water Resources Law that contribute to this result and complement the measures of the Forest Code regarding the Permanent Preservation Area. For example, the first objective of the HR Law is to ensure to current and future generations, the necessary availability of water in quality standards appropriate to their uses; of the General Action Guidelines: III - the integration of water resources management with environmental management; Article 7 on Water Resources Plans, specifies in item X - proposals for the creation of areas subject to use restrictions, with a view to protecting water resources and in Article 32 of the National HR Management System the objective IV is "to plan, regulate and control the use, preservation and conservation of water resources".

#### **6.2 Adherence and law enforcement**

The Water Resources Law is part of a broad body of environmental legislation. Although the State of Pará has not yet launched the Water Resources Use Plan and the institutional management structure of the Tapajós River basin has not yet been implemented, there are several laws and regulations to ensure and defend the rights

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of access and use by traditional communities. Of these, the Federal Environmental Crimes legislation is one of the most important, specifically the Articles **54 and 55**. **The first highlights the pollution caused by mining and the second, the extraction of mineral resources, gold, without concession or license.**

Art. 54: To cause pollution of any nature at such levels as to result or may result in damage to human health, or to cause the killing of animals or the significant destruction of flora [...]

Art. 55: To carry out research, mining or extraction of mineral resources without the competent authorization, permission, concession or license, or in disagreement with that obtained [...] (BRAZIL, 1998)

In relation to the application of the Environmental Crimes Law, IMAZON5 points out 2 relevant problems: 1) the lack of integration among the agencies involved in the application of the Environmental Crimes Law has hindered the action of the Justice and, 2) the "absence of environmental technical support for the Public Prosecution Service and for the Judiciary and the uncertainty of the crime scene make it impossible to apply penalties linked to the specific environmental damage".

In relation to mechanisms to denounce a violation of rights and ensure vindication, leaders and other residents of traditional communities can make denunciations at the offices of IBAMA and SEMAS in Santarém and/or Itaituba. Despite the existence of legal mechanisms, the capacity of these institutions is limited and the territory is enormous.

### **6.3 Fishing Laws**

Fishing plays a key role in the family economy of the ribeirinho and fishing management has been a central issue in the social movements of the lower Tapajós. Fishing is also important in the middle and upper Tapajós, although the situation is more complex and chaotic due to ongoing changes.

River organizations based on the mosaic of Conservation Units of the lower and middle Tapajós are well integrated and articulated. Thanks to the organizational capacity of the main intercommunity associations and member communities, the riverine movement is able to maintain effective control over the fishing situation with the capacity to mobilize inspectors when necessary. However, the distribution of the resource varies along the river depending on the characteristics of the edge with some areas, especially the right bank of the lower Tapajós, being more productive than others due to the topography and presence of local lagoons, streams and igapós.

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Fishing also follows an annual cycle, in general it is more productive in the drought, a period of “piracema” of some species that come out of the lakes and flooded areas of the tributaries to spawn in the Amazon River (jaraqui, matrinchã and mapará) while others, like the smooth fish (baby and dorado) and the tambaquis rise to spawn in the headwaters at the beginning of the flood.

Fishing is also an important element of the ecotourism industry, evolving FLONA and RESEX Tapajós-Arapicuns, which values the cabocla/ribeirinha culture, forests, clean water beaches and sport fishing.

### **6.3.1 Use of Fishing Resources**

Use for domestic purposes / basic human needs.

The family economy of the riverine population involves several activities including fishing, agriculture, small animal husbandry, forest extractivism and hunting. Subsistence fishing is practiced by almost the entire riverine population along the Tapajós River and is one of the main sources of animal protein for the riverine population. Thus, fishing is part of an annual cycle/calendar in which a diversity of activities, farming, forest extraction and hunting take turns in importance for consumption and income throughout the year. In this context, local management of fishing is geared to ensuring the needs of family consumption and is an important element of food security for riparian families. As they say, "when you have nothing, you can always fish.

#### **Commercial Uses**

Besides its importance in subsistence and food security, commercial fishing is also an important source of income. Three modalities of market-oriented fishing are developed: consumer fish, ornamental fish and fish farming.

Consumer fish: Small-scale commercial fishing is practiced by riverine families, especially in places and times of year when fishing is especially productive, in areas that offer productive environments for fish such as lagoons, floodplains (flooded fields), igapós (flooded forests) and dryland igarapés and can be a seasonal or occasional activity. Fishermen can sell the fish to community buyers, buyers from outside, or take the fish to municipal headquarters and/or points of sale where buyers from the region concentrate daily or weekly.

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Ornamental Fish: Because it is a relatively transparent river of water, ornamental fish fishing is practiced in several areas along the Tapajós River by outfisermen and by groups of fishermen from local riverside communities who fish in the lakes and streams around the community. Ornamental fish fishing can be seasonal or practiced throughout the year, depending on the species and the characteristics of the local environments. For example, fishing for ornamental fish is important in the community of Pimental in the upper Tapajós, one of the project's case studies.

Fish farming: pond and net farming is practiced by at least one group of producers and may become more important in the future. This group of women, the Association of Craft and Aquaculture Producers of Arapiuns (APAA), creates tambaqui and sells the production in Santarém.

#### Cultural/Religious Uses

The riverside communities have a rich tradition of cultural and religious festivals that have their roots in the Indigenous culture and the events of the annual calendar of the Catholic Church. In some cases, these festivals are already part of the calendar of ecotouristic activities focused on cabocla/ribeirinha culture. The community of Pini, from FLONA Tapajós, organizes the annual Tucunaré festival that takes place in September and attracts people from the region and abroad interested in sport fishing. This party has been held annually for more than 20 years. The community also has a fishing agreement prohibiting fishing in the area used in the Tucunaré fishing tournament.

The Tauari community, in Flona Tapajós, holds the Mapurá Festival. This festival is a fish cordon - regional dance usually presented during the June month, but in the Tauari community it is held in October with a sports tournament during the day and cultural presentation with consumption of the mapurá by guests at night.

#### **6.3.2 Fisheries Management**

Fishing governance conditions decrease between the low and the high Tapajós reflecting different occupation histories and the ongoing processes of change. At the same time, the importance of fishing in the economy is lower, as is the capacity for government monitoring and enforcement. Fishing management is not a priority for local governments, compared to the problems of deforestation, garimpos and the social problems generated by immigration.

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## Common law

The management of fishing on the Tapajós River has its origins largely in the rules for fishing, elaborated by the riverside communities. Although the system of fisheries agreements is more developed in the low Amazon floodplain, this tradition also exists in the lower Tapajós and must exist in different forms in the riverine communities of the middle and upper Tapajós.

In general, fishing agreements aim to control pressure on local fishing resources, in order to maintain the productivity of the fishing effort, thus minimizing the time needed to catch the amount of fish needed for family consumption and domestic expenses. The family can devote itself to other activities such as agriculture and forest extractivism, which generate income periodically. These initiatives often have their origins, directly and indirectly, in the teachings of Liberation Theology, which valued the importance of subsistence fishing and food security.

## Constitutional, statutory and regulatory law

The policy of co-management fisheries evolved from the fisheries agreements of the floodplain region in the 1990s as a result of the movements of fisheries agreements that emerged in the 1980s and in some regions even earlier, in response to commercial fishing pressure. In the 1990s, with support from the German government, the collaboration of the Z-20 Fishermen's Colony and local NGOs (Iara Project and IPAM, among others), IBAMA developed a fisheries co-management policy that incorporated the agreements as instruments of fisheries management at the local level and established criteria and procedures to convert the inter-community agreements into legal instruments, currently as Normative Instructions.

## Management Plan of RESEX Tapajós-Arapiuns ICMBIO 2008

In the case of Baixo Tapajós there are at least two important intercommunity agreements. The Tapajós-Arapiuns RESEX Utilization Plan (which is part of the RESEX Management Plan) lists a series of measures focused on environments and aquatic fauna (p. 33). Item 26 guides communities to choose "lakes and streams, streams and islands for preservation and others for subsistence fishing" where only a few "traditional supplies" are allowed. Item 28 states that "fishing in the area of each

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community will only be allowed for residents or with authorization from community leaders.

Fishing for ornamental fish is only allowed for RESEX residents. Fishing and capture of chelonians is only allowed for family consumption and the sale of chelonians and/or eggs is prohibited. The PU also forbids the capture of females when they are going up to spawn. Item 31 guides communities to choose some beaches to protect nests where egg collection is forbidden. Item 37 (p. 34) establishes areas of common use that include "rivers, lakes, streams, streams, beaches, paths, branches and areas of community forests" that should be used by the residents of each community according to the rules of the Utilization Plan.

#### Community Agreement for the Conservation and Preservation of the Lower Tapajós Region

A fishing agreement covering much of the Lower Tapajós and including parts of the municipalities of Santarém, Belterra and Aveiro was drawn up by ICMBIO in 2017 in collaboration with UC associations and municipal fishing colonies. The agreement defines rules for commercial fishing that place limits on the scale of commercial fishing in terms of number of canoes per boat, length of meshadeiras, which comes into force on the date of its publication and lasts three years. However, this agreement has not been signed and published so far due to the lack of legislation enabling SEMAS to implement a fisheries agreement policy. A decree with this objective should be signed soon.

In the middle and upper Tapajós there are no strong riverine organizations and UCs like the RESEX Tapajós-Arapiuns and the Flona Tapajós with a governance capacity similar to the organizations of the lower Tapajós. Also, as previously observed, the middle Tapajós is at the limit of the area of action of organizations like the MEB and the upper Tapajós is outside this zone of influence. In these areas, the advance of the border, infrastructure works, and mining attract people from other parts of Brazil making local organization difficult. The riverside population is much smaller compared to the population outside the region. Therefore, what prevails is the border culture of individualism and opportunism.

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## Interaction between the two forms of law

The region of the lower Tapajós with its proximity to Santarém where there are offices of ICMBIO, IBAMA, SEMAS and the Public Ministry on one side, and on the other the mosaic of UCs with their well-structured riverine organizations with a high degree of capillarity in the region, is one of the regions in the interior of the state of Pará that has better conditions of governance for issues involving fishing. However, as the river rises, governance conditions become increasingly fragile. The distance between government agencies with monitoring and control capacity and communities is greater, and regional-based organizations are more limited in extent and more fragile, with less capacity to mobilize.

### **6.3.3 Transfer of Rights**

Although the transferable quota system is a consolidated fisheries management tool, the Amazonian fisheries policy does not include a quota system. A quota policy depends on a well-structured co-management system, with strong government involvement to manage quota definition and allocation.

It is worth noting that the pirarucu co-management policy in the state of Amazonas includes a quota system. While there are no legal mechanisms to administer quota transfer, some experts believe that a quota transfer mechanism could solve one of the problems of the current system. Many fishermen are unable to capture their entire quota, resulting in total production significantly below the projected sustainable amount.

### Customary Law

There is no tradition of quotas in customary law in the region of western Pará. The mechanisms of the agreements aim to control the capture by fishermen, through measures such as reducing the capacity of fishing gear and storage capacity. For example, the agreements may prohibit the use of gill nets during the dry season, allow only bottling, and impose limits on the volume of Styrofoam that the fisherman can carry in his canoe.

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### 6.3.4 Exclusion

The issue of exclusion, the ability to exclude users from outside, for example, has been a central issue in the discussion of fisheries co-management policy, especially as conceived and developed by IBAMA in the 1990s.

#### Customary Law

In the development of community and inter-community fisheries agreements, one of the main objectives was to define who had the right to fish in the lakes of the communities participating in the agreement. Almost all of the old agreements exclude outsiders.

#### Constitutional, statutory and regulatory law

In the development of the fisheries co-management policy in the 1990s, IBAMA included a number of conditions for the legal recognition of community fisheries agreements, such as: 1) no one can be excluded, anyone can fish on the lake if they obey the rules of the agreement, 2) no fees can be charged for fishing on the lake, and 3) no definition of how the fisherman markets his catch. The inability to exclude outsiders, collect fees, and require fishermen to participate in a collective marketing system defined by the agreement has weakened the agreements, creating a situation where one group has invested in monitoring the agreement, including participating in patrols several times during the week to within 4 to 6 months of the year, but anyone could fish and enjoy the results of the work. Also, the prohibition of fee collection and the requirement to participate in a collective marketing system eliminated the two best alternatives to cover the costs of management in an endogenous manner.

In the case of the lower Amazon, when the territorial units of the fisheries agreements were converted into Agroextractivist Settlement Projects (PAE) by INCRA, the INCRA attorney general recognized the right of PAE members to exclude outsiders and approved the inclusion of a phrase in the Utilization Plans informing that PAE members have the right to exclusive use of the fishing resources of the PAE territory.

In the case of the Tapajós-Arapiuns RESEX, ICMBIO recognized that communities have the exclusive right to fish in the area around the community, although there is no information on the right of outsiders to fish in RESEX areas that are not close to a community. In the Management Plan of FLONA Tapajós there is no

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mention of fishing. In the fishing agreement prepared by the RESEX associations, Flona, ICMBIO, and the Fishermen's Colonies, there are no access restrictions, only rules limiting catch capacity.

#### Interaction between the two forms of law

The interaction between customary and statutory law is evident in the evolution of fisheries agreements. The exclusion of outsiders was not initially accepted by IBAMA, but was incorporated into the PAEs Utilization Plans approved by INCRA and was partially recognized in the RESEX Utilization Plan approved by ICMBIO. However, in the Lower Tapajós fishing agreement, in which the Fishermen's Colonies participated, there was no mention of the exclusion of outsiders.

#### **6.3.5 Due process and compensation**

Although there are explicit mechanisms to compensate states and municipalities that have part of their territory flooded by hydroelectric dam reservoirs, there are, to our knowledge, no legal mechanisms to compensate fishermen for the impacts on fishing upstream and downstream of the dam. The impact can be especially problematic for fishermen who depend on fishing for migratory fish that previously passed through the dam site to spawn at the headwaters of the river. After the construction of the dams the fish are unable to complete their migrations resulting in many cases in the collapse of the populations of these species in that river and a significant reduction in the fishing resources that previously sustained the communities in the region.

#### Internal Due Process: Prior Notice, Consultation and Appeal

Theoretically, there are mechanisms for Prior Notice, Consultation and Appeal in the case of infrastructure works. However, we do not know if these processes specifically involve the impacts of these works on fishing resources.

It is worth noting that several communities and even fishing colonies in the Tapajós region have developed Consultation Protocols with the support of civil society organizations, following the guidance of ILO Convention 169. However, in many cases, such as that of the Pimental community, companies and other actors simply ignore the communities and proceed with their plans without consulting the impacted

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communities. This difficulty in engaging companies and other actors leaves communities with few alternatives to negotiate with these groups.

#### The Law on Water/ Fish Set aside for Ecological Results

The impacts on aquatic fauna and animals is a concern in many fisheries agreements. The aforementioned measures of the Tapajós-Arapiuns RESEX Use Plan are examples of this concern. Many communities distinguish what are called breeding or preservation lakes that are typically deeper lakes that do not dry out during the low water season (summer).

The communities protect these lakes and prohibit fishermen from taking advantage of the vulnerability of fish at a time when they are concentrated in ever smaller volumes of water. These measures are also used in the case of subsistence lakes to maintain fishing productivity and ensure that families get enough fish for daily household consumption with minimal effort, thus increasing the time and labor available for other family activities.

## 7 CASE STUDIES

In the Tapajós River Basin region, the political and identity struggle of the communities has gained space and repercussion in the last three decades. Several communities have assumed their identities as indigenous peoples, previously identified as "ribeirinhas" or "caboclas", with the main objective of the struggle being the recognition and guarantee of their rights and the demarcation of their territories (TAPAJÓS, 2018).

In the Amazon, the term "caboclo" is used by scholars (the inhabitants of the region speak caboco) to classify the population that inhabits the riverside rural communities. Descendants of the "tribal" indigenous people, who were taken to the missions and villages, catechized, "tame" and transformed into tapuios (uncontacted Indians) and miscegenated, the "caboclos" would have lost the references to the distinct peoples and the independence they had from the dominant society. They are seen as socially and economically integrated into the dominant system (VAZ FILHO, 2010, p.15).

As Pacheco de Oliveira (2016) points out, the "descendants" of Indians were widely called "caboclos", a name that, while differentiating the Indians hostile to the colonizers, marked the indigenous origin remaining in a lower social condition.

In this context of struggle for territories and identities in a double face process that encompasses elements of ethnic and cultural traditions, the two communities that are the object of this case study are: Pimental and Solimões described below.

## 7.1 Historical Contextualization and Socioeconomic Characterization of Communities/Villages Pimental and Solimões

### 7.1.1 Pimental Community

#### History

The Pimental community is located on the right bank of the Tapajós River in the transition region between the Middle and Upper Tapajós, and belongs to the municipality of Trairão, in the state of Pará (Figure 4).

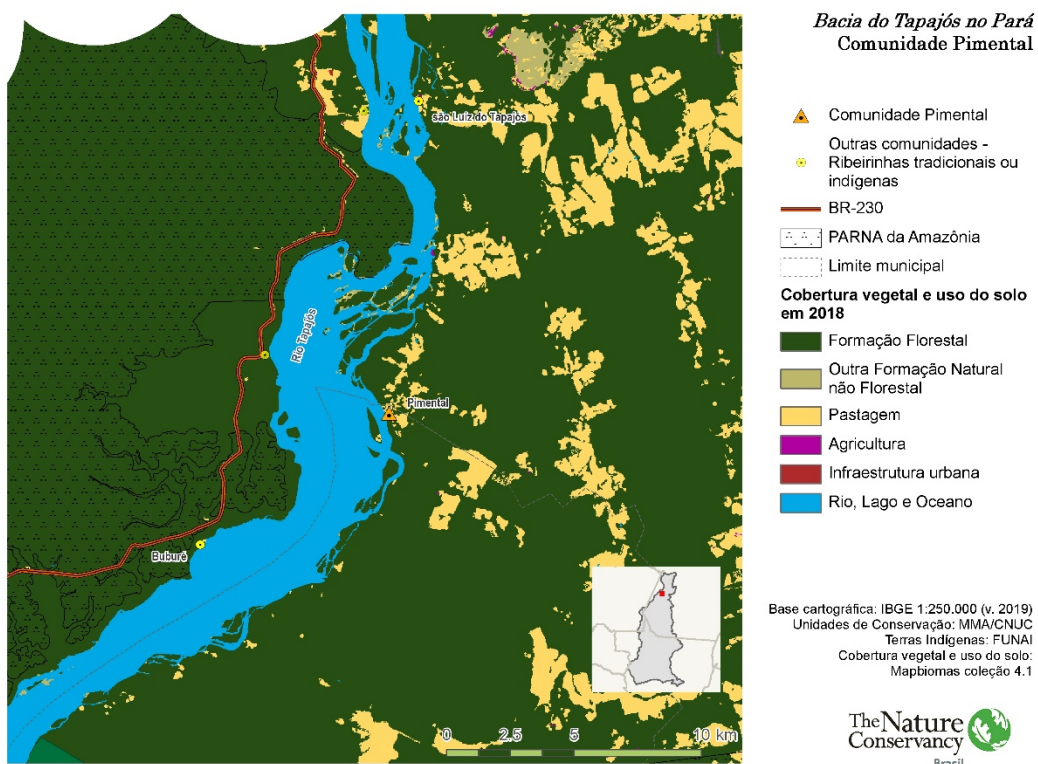


Figure 4 - Location of the Pimental Community in the Tapajós River Basin.

The first residents from the State of Maranhão attracted by the rubber syringe activity arrived at the beginning of the 20th century in the last years of the rubber boom. This is how the migratory flow began with the construction of the first residences in the community in clay and sapê, and also due to the opening of the dense forest that made possible the implementation of the port of embarkation and disembarkation of passengers and the flow of rubber production (RIBEIRO, 2016).

The formation of the Pimental community is counted in two ways. In the first, the community began on the right side of the Bathu stream that flows into the Tapajós River. This place served as a port of embarkation and disembarkation of people who

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came to work in the extraction of the rubber, and as a point of commercialization of several products. During this period there was a shed to store the rubber bought or exchanged for goods, which was also used as a lodge for the people who arrived at the place. Due to the flow of people and trade, many people threw peppers on the banks of the stream and in the surrounding areas, thus forming a pimental that served as a reference for people who left or arrived. That's how the Pimental community came about.

In the second version, the name of the community refers to the family of Raimundo Pimentel, who established his residence as the first resident of Pimental. He is considered responsible for the opening of the forest for the removal of rubber, from his surname came the name Pimental.

The community opened in the middle of the Amazonian forest, had residences in masonry, sapê and pau a pique, which many are kept until the present day. The access road and the internal roads of the community, as well as during its formation, do not have any type of asphalt sidewalk that makes transportation difficult during the rainy season.

#### Middle and Upper Tapajós Regional Context:

The Pimental community is located on the right bank of the Tapajós River in the transition region between the Middle and Upper Tapajós, above the first rapids and near the site where the São Luis do Tapajós dam is being built and the garimpo area of the Upper Tapajós. Therefore, the community is within the impact zone of the garimpo and the infrastructure works implanted in the river gutter.

#### Land situation

Pimental does not yet have a degree in terms of being a community, village or defined district. In 1993 a draft law of the Municipal Council of Itaituba proposed the creation of the District of São Luiz do Tapajós or Pimental, which would elevate it to the category of Village. However, there is no record of approval and transformation into law of this project.

The residents usually call it the "Pimental community". The community has a greater offer of services and commerce in the area called the "bottom end" on the banks of the river. This is where the village began and to this day the area concentrates

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most of the population. In more recent times the community has formed what they call the "top end" where the number of residents is smaller (LERVOLINO, 2015).

In the 1980s, after the expropriation of the area to create the Amazon National Park - Integral Protection Conservation Unit, created in 1974 by Decree No. 73. 683, many families were removed from the area and relocated to various communities in the region. Pimental received the largest contingent of these families, which altered in many ways the local way of life. In the 1970s and 1980s, the community experienced the peak of mining in the region. During this period it received the families from the expropriation of the park's creation, when its population exceeded 1000 inhabitants.

At the time of its creation, the community belonged to the municipality of Itaituba, from 1999 it became part of the municipality of Trairão. However, some links still remained with Itaituba as an example of health. The management and operation of the Health Post is Trairão's responsibility, but health agents are still linked to the municipality of Itaituba. Even with the change, the city of Itaituba continues as an urban reference in terms of services and the access routes that connect the community to this city are prioritized.

The residents of the Pimental community were quite dissatisfied with the change process, claiming that at no point were they consulted or participated in the plebiscite, knowing of the transfer after the event. They allude that the sudden move to the municipality of Trairão was due to the possibility of receiving the royalties if the UHE São Luiz do Tapajós (PA, 8,040MW) is implemented.

The community members claim that basic services such as health, education and infrastructure became even more precarious after the move, because Trairão is a smaller municipality with fewer resources. The dissatisfaction with the precarious public services offered by the municipality of Trairão, the lack of jobs, and the forecast of the hydroelectric project, motivated many community members to leave for other locations in search of better living conditions and also for fear of the expected impacts, such as flooding, an increase in the flow of vehicles on the roads, and an increase in violence caused by the project in the region.

In the community there are no residents who own property titles. The areas are constituted from possession that passes through generations culturally in the form of inheritance. In 2006, Pimental, which belonged to Gleba Santa Cruz, in the municipality of Trairão, became a Sustainable Development Project - PDS Pimental, created by

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Ordinance No. 97 of the National Institute of Colonization and Agrarian Reform (INCRA) on December 29, 2006, with an area of 10,899 hectares.

ORDINANCE N° 97, OF DECEMBER 27, 2006

1 - To approve the proposal to dominate the rural property called Gleba Santa Cruz-A, with Orna of 10,899.4710ha (ten thousand eight hundred and ninety-nine hectares, forty-seven ares and ten counters), located in the Municipality of Trairão, State of Pará, for the settlement of farmers, which I have foreseen, the creation of 200 (two hundred) family agricultural units:

11- To create the Sustainable Development Project - PDS PIMENTAL, Code SIPRA 5MO242000, to be implemented and developed by this Regional Superintendence, in articulation with the Directorate of Land Acquisition and Implementation of Settlement Projects (BRAZIL, 2006).

Some residents said they were aware of the process when a group of community members seeking housing benefits discovered that the area had been transformed into a PDS. This misinformation demonstrates the fragile and complex land situation of the Pimental community.

#### Social Organization

The community has approximately 638 residents and 200 families. It is formed by riverine people and indigenous remnants of Apiaka, Mundurucus and Satiré Maiwé. The main organization of the community is the Community Association of Fishermen and Residents of Pimental - ACPMP, created on December 6, 2013. It is legally constituted with CNPJ 19.996.092/0001-30, and currently has 15 members.

Besides the Community Association, there are several social organizations: religious, San Sebastian Catholic Church, Assembly of God, Adventist Church; AJAK Football Clubs and Barcelona; Government institutions: INCRA - National Institute of Colonization and Agrarian Reform, the Municipalities of Trairão and Itaituba. The labor institutions that work in the community are: the Rural Workers Union of Trairão and the Fishermen's Colonies of Itaituba and Trairão.

#### Internal community rules

There are no internal rules formally constituted by the community members. The community does not have a fishing agreement, but there are cultural norms that serve as guidelines, especially in fishing, which indicate the places where fishing is allowed and the places where it is prohibited.

#### Culture

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Every year the community holds various festivities and cultural gatherings, among them: São Sebastião festival in January; Curimatá festival in October; June festivities; Dawn in the week of the Homeland in September; Intercultural indigenous meeting of the Apiaká people in September and Capoeira Gingando in November.

#### Leisure

In the Pimental community, there are some areas of common use such as a soccer field, beaches and community headquarters. The creek called Ponto Frio, the Bathu creek bridge and the waterfall are leisure options for the residents. The waters of the Tapajós River, which bathe the entire front of the community, are used for leisure, fishing, bathing, and washing clothes, in addition to the lakes that are suitable for fishing.

#### **Social Services**

##### Health care

The community has a health post managed by the municipality of Trairão, has three Community Health Agents - ACS, a nurse, a nursing technician and since July 2020 a Cuban doctor, who came to Brazil for the Mais Médicos Program, but even with the end of the program, managed to acquire Brazilian nationality and remained providing his services in the municipalities of Para. Until the pandemic, the most frequent diseases were malaria and intestinal diseases (LEAL et al., 1996).

At the beginning of COVID-19 infections, the absence of medical care for months made it difficult to monitor cases of the disease in the community. Until the arrival of the doctor in the locality, the follow-up was performed by health agents. There was discussion of the possibility of closing the community prohibiting the entry and exit of people in order to minimize the impacts of COVID-19, but there was no consensus among community members, which contributed to the spread of the virus. According to information from the community members, six cases were confirmed through a test conducted by a team from the Universidade Federal do Oeste do Pará - UFOPA (Federal University of Western Pará) and health officials from the Prefeitura Municipal de Trairão (Municipal Administration of Trairão). There was a lot of resistance from the community members who refused to perform the test even with symptoms.

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## Education

Since the 1970s, due to the greater flow of people, the transformations in the service infrastructure have begun. During this period, a school called Raimundo Lopes Gaspar was built, offering primary school education up to 5th grade, with 240 students enrolled and six teachers who had primary or secondary school, considered a reference in teaching in the region and the reason for the lives of many residents (OLIVEIRA et al., 2019). Currently, there is one school in the community that offers Kindergarten Education in a multi-serial, elementary and high school format in a modular format for a total of 156 students. The school staff includes seven teachers, a secretary and the school manager.

## Housing

The residences are built in masonry, mixed (masonry and wood), clay and wood by the community members themselves. Although it was transformed into a PDS, the community did not receive any benefits from INCRA's housing program.

## Infrastructure

The community's collective infrastructure includes the Community Barracão, the São Sebastião Catholic Church, the School and the Health Post.

## Energy

The energy service until the beginning of the 2000s was carried out by a generator group donated by the Municipal Government of Itaituba (Figure 5) that operated from 18 to 21h. The maintenance of the equipment was financed by the community. From 2000 on the community benefited from the Light for All Program. However, the power service has serious problems, due to inefficient supply with much oscillation and falls that last up to two days, leaving the community in the dark.

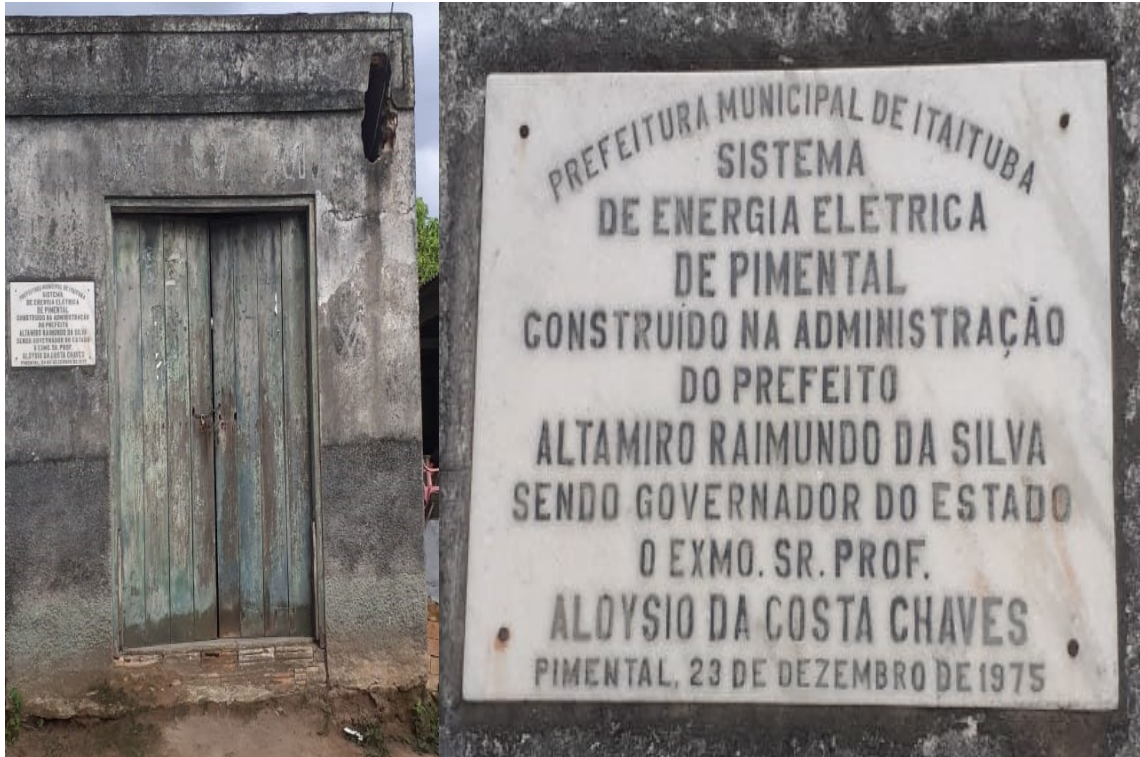


Figure 5 - Generator Sets. Source: Apiakás association collection.

#### Means of transportation

Access to the community is by road and river. An unpaved road of approximately 49 kilometers connects the community with the Santarém-Cuiabá highway (BR-163) and the Transamazônica (BR-230). Access by the Tapajós River is complicated in some parts due to the rapids that are aligned between Pimental and São Luiz de Tapajós. Because of the rapids, there is no flow of large boats and most of the flow along the river occurs in small bajara-type boats of the residents themselves.

#### Use of water resources

The main sources of water resources identified by the community members during the mapping were: the Tapajós and Jamanxim rivers, the streams of Uruá, Repartição, Mariazinha, Mambuaí, Pajaú, Ponto Frio, Tracoá, Aburaí; the lakes of Piranha, Lorena, Maparajuba and some springs with no defined nomenclature.

## Domestic use and sanitary treatment of water

Water for daily consumption in domestic activities and personal use is taken from an Amazonian well (Figure 6) through a pumping system, and receives chlorine treatment when it is made available by the Health Department of the municipality of Trairão.



Figure 6 - Amazon wells and pumping system. Source: Pimental community association collection.

This well model for water collection is exposed to the accumulation of rainwater and other bad weather, and in many cases are close to the place of deposition of human waste, providing possible diseases of water transport. The community does not have a water supply system, and this has been the community's demand for years.

## Basic sanitation

Regarding sanitation, most residences have septic tank, but there are still a large number of residences with black tank.

## Productive activities

The community of Pimental starts economically at the peak of the rubber economy with the implementation of the aviary system that organized the production

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and exchange of goods, allowing the opening of areas for the settlement. With the decline of the rubber production, manioc flour became the main product. The flour production occurs in a flour house with collective equipment donated by the state government. The flour is marketed in the district of Miritituba and the center of Itaituba.

From the decade of 1970, the economy was moved by the mining activity that brought changes in the construction of the residences, where many were built in wood with roofing tile "brasilit". The peak of the garimpeiro cycle continued until the early 1990s, but to this day, many residents still work in this activity moving to the garimpos do Alto Tapajós (IERVOLINO, 2015).

Today the community's economy is based on commercial (consumption) and ornamental fishing, aquaculture, vegetal extraction with the extraction of palm heart, family agriculture, and public service as the main sources of income. In contrast to the diversity of land use in the community, on the regional scale extensive livestock farming is the main land use, as is evident along the path of access to the community.

Fishing and palm heart extraction activities occur beyond the community limits, especially in the Jamanxim, Urubutu stream, Mambuaí, Mariazinha, Bathu and other smaller rivers without defined nomenclature. The community members informed that fishing on the Jamanxim River is being banned by the region's community members, but they were unable to say why.

### *Fishing*

The fishing activity takes place in the Tapajós River, in the streams and lakes, and is predominantly carried out by community members using rabetas, and there is no activity by fishermen from other localities or large fishing companies. Subsistence fishing is carried out by all community members, even if they have other activities to generate income. Commercial fishing represents significant value in the income of Pimental's families, having as main species caught: Puppy, Pirara, Jaú, Pacu, Piau, Aracú, Pacu, Tucunaré, Matrinchã, Curimatá, Jaraqui, Dourado, Surubin, Tambaqui, Pirapitinga and Pescada. The largest fishing season is during the flood season of the Tapajós River, starting in May. In the period from December to March occurs the piracema, mainly of the species aracu, jaraqui and tambaqui that go up the river to spawn. During this period the fishermen are authorized to fish only 10 kg as established by the ordinance for the closed season. The commercialization of the fish takes place for crossers in the municipality of Itaituba and in the community itself.

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The fishermen of Pimental are mostly linked to the fishermen colony of Trairão (approximately 40 fishermen) with only 6 fishermen linked to the fishermen colony of Itaituba.

Ornamental fishing is currently one of the main sources of income in the community and has been practiced since the 1990s. Its activity occurs in the summer, when the river is low. According to information from fishermen in the Pimental community, 14 species are caught, including: Acari Titanik, Bola Branca, Pigmentado, Onça-Acari, Cará-Chata, Acari bicudo, Acari-violeta, Acari, Aba branca, Acari cimbo, Acari teoro, Acari preto velho, Acari tigue vermelho and Acari listrado (Figure 7).

Recent studies show that due to the limitations of taxonomic identification of the species commercialized in the Tapajós River, a methodology that uses the fragment of 648 bp of the mitochondrial gene Citrochrome C Oxidase Subunidade I (COI) was used to identify the species. With this methodology it was possible, through studies with DNA Barcode, to identify 46 species, distributed by 16 genera in the ecoregion Xingu-Tapajós (SOUSA, 2019).



Figure 7 - Species captured and traded in the Pimental community. Source: Field activity of this study

The commercialization of ornamental fish takes place in the community itself with crossers from the cities of Itaituba and Santarém. The values vary from R\$ 8.00 to R\$ 60.00 per unit, depending on the species, and goes to cities in several states in Brazil and abroad. The transportation costs are on account of the middlemen, but in

case of loss of fish during transportation, values are discounted from the fishermen's payment.

In the municipality of Santarém from 2013 to 2016 136,705 units of ornamental fish of 21 species of the Loricariidae family were sold, generating a gross value of R\$ 365,013.80 (three hundred and sixty-five thousand thirteen reais and eighty cents). The main national destinations were the cities of Belém, São Paulo and Manaus and the international destinations were the countries of Hong Kong, China and Japan. The city of Itaituba also presents itself as an important ornamental fish exporting center. In this sense, the two cities show growth in this fishing sector in the tapajós basin (SOUSA, 2019).

Figure 8 shows some specimens of the Loricariidae family present in the Tapajós River. A -*Baryancistrus* sp. -L142; B -*Leporacanthicus joselimae* -L264; C -*Hypancistrus* sp. L262; D -*Hypostomus soniae* L137; E -*Peckoltia vittata* L015; F -*Spectracanthicus murinus* (Chamon and Py-Daniel, 2014, Photo: Author L.M. Sousa); G -*Pseudancistrus* sp. -L259 (Photo: [www.rsdiscus.com.br](http://www.rsdiscus.com.br)). H -*Ancistomus snethlageae*; I -*Pseudacanthicus* sp. titanic -L 273.

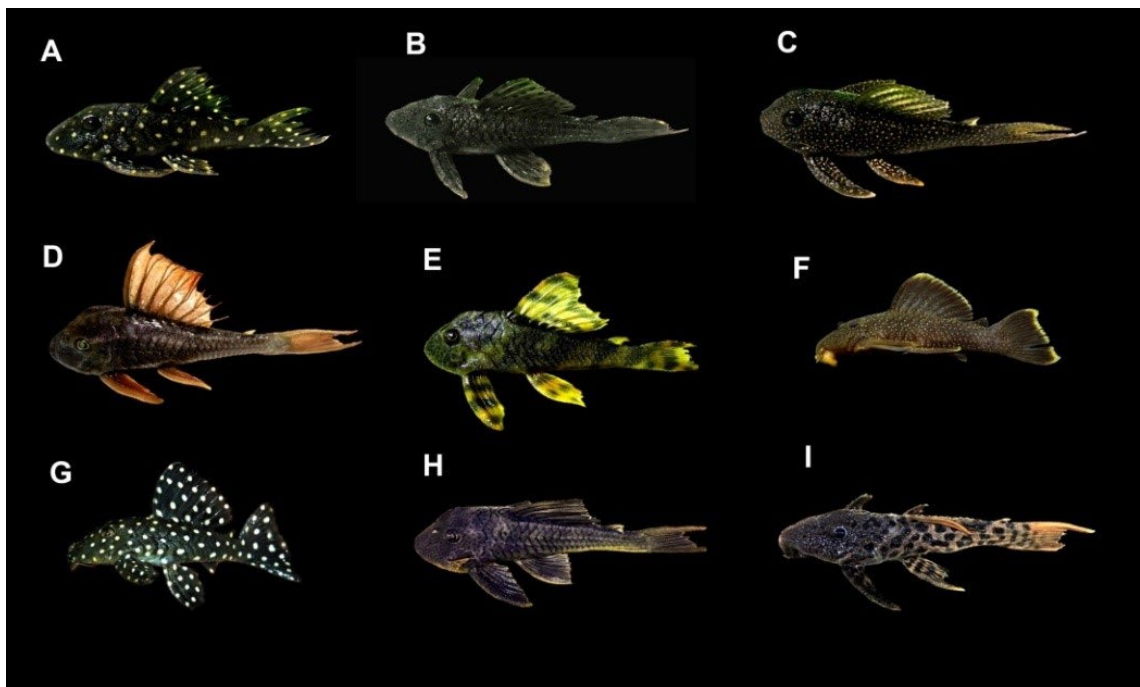


Figure 8 - Examples of the Loricariidae family present in the Tapajós River. Source: Sousa, 2019.

Fishing is in a very fragile situation today. There is no fishing agreement that regulates by local rules the activity, either for commercial or ornamental fishing. There is only the cultural issue of the understanding that in certain places fishing is not

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allowed, but there is the practice of fishing by people from other localities. There is also no fishing inspection in the region, with the possible exception of Conservation Units such as the Jamaxim Park. However, the fishermen, even aware of the ban, carry out fishing in the conservation units, claiming that there is a greater volume of fish in these environments and a shortage of fish in the vicinity of the community.

Data on diversity, ecology and commercial importance are urgently needed for the fish of the Tapajós River due to current and future environmental impacts on fish in the region, such as mercury contamination and possible changes from dams projected for the high course of the Tapajós River and its tributaries.

#### Impacts on water quality and fishing

In the last 10 years, fishing has been impacted by activities that cause a decrease in fish availability. These impacts are seen by community members as consequences of the construction of the Teles Pires dam, which affected the volume and quality of water in the Tapajós River, because before this, the volume was greater and now the coloring of the water is more muddy and dirty. Factors that the residents attribute to the decrease of fish species. Another element is the increase in the number of fishermen in the community themselves who seek, especially in ornamental fishing, an increase in their source of income. These fishermen mostly belong to the fishing colonies of Itaituba and Trairão.

The Tapajós River originates from the confluence of the Teles Pires and Juruena Rivers, and flows through the states of Pará, Amazonas, and Mato Grosso. Historically known as a clear water river, good visibility of up to 5 meters and low electrical conductivity and acid pH. With the construction of dams for energy use, many threats to aquatic life have arisen, especially with regard to the change in rapids, directly influencing the loss of ichthyofauna habitats. The changes that have occurred cause a decrease in oxygen levels, leading to the death of reophilic algae, due to the low incidence of light, damaging the reproductive relationships that are influenced by variations in water level and dynamics (SOUSA, 2019; ICMBio, 2013).

Even with some studies that prove changes in aquatic life in the region, community members do not perceive impacts of garimpo activity, especially in relation to mercury contamination, but report that there was a period when fish became smaller and underdeveloped, but over time returned to normal size.

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## Relationship of the community with large enterprises

The community of Pimental has been impacted by large projects since the 1970s, initially with the construction of the BR 163 (Santarém-Cuiabá) and the BR 230 (Transamazônica) that connect the cities of Itaituba and Trairão. During the construction of the Transamazonica, Pimental served as an intermediate point of transportation connecting the highways to the garimpo areas of Alto Tapajós (IERVOLINO, 2015). In more recent times, discussions involving the community of Pimental have expanded due to the prediction of its dismemberment to another site as reported in the Environmental Impacts Study of the Tapajós Hydroelectric Use (CNEC; WARLEYPARSONS, 2015). According to the Environmental Impact Report (Rima) of the São Luiz do Tapajós Hydroelectric Power Plant, the area of implementation of the hydroelectric plant is expected to have an impact:

[...] directly around 1,400 people, and around 1,100 people should be removed to make room for the reservoir and other structures of the enterprise. [...] The change in the population, due to the loss of their land and improvements, may affect social relations and ties, and cause the loss of references (ELETROBRÁS, 2014,74).

As stated in the undertaking's Environmental Impact Report, "The São Luiz do Tapajós HEP is located on the Tapajós River, about 330 km from its mouth on the Amazon River. It covers areas belonging to Itaituba and Trairão, municipalities located in the west of the state of Pará. The axis of the dam is located near Vila Pimental, on the right bank of the Tapajós River" (ELETROBRAS, 2014).

### Protocol

The community members report great concern, informing that the project will be built very close to the village with a high probability of causing great impacts, including flooding, due to the fact that the community is upstream of the project, which will force many to move to another location, a reason that has provoked numerous discussions in the community and with the Public Prosecutor.

With the objective of being heard regarding the implementation of the undertaking, in 2018 the Protocol of Consultation of the Pimental and São Francisco riverside communities was launched in partnership with the Pastoral Land Commission of Itaituba, Movement of Dam Affected People (MAB) and Land of Rights, and based on Convention 169 of the International Labor Organization (ILO), which guarantees the

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right to prior, free and informed consultation, an instrument for confronting violations of the rights of traditional riverside communities in the Tapajós region.

The protocol states that the communities of Pimental and San Francisco are centuries old and need to be heard and respected. It also establishes that there should be consultation with all the riverine communities such as São Luiz do Tapajós and Palhal, and Munduruku people villages such as SawreMuybu, Dace Watpu, Sawre Juybu, SawreApompu, KaroMuybu, and also the Apiaka people living in the Pimental community. The Protocol also defines in which places, how and with which segments of the population/community the consultation should be carried out.

The document was delivered to the Federal Public Ministry (MPF) in Santarém, with the objective of reaffirming the right to prior, free and informed consultation of these communities and the fulfillment of all major undertakings that may impact the territories. The communities also demand that the principles of Convention 169 be respected in the same way for the communities neighboring the Munduruku people, the nearby traditional communities, and the Apiaká people.

#### Relationship State and Traditional Communities and Indigenous Peoples

Also in 2018, the Government of the State of Pará published Decree No. 1,969 of January 24, 2018, which institutes the Study Group in charge of suggesting procedural norms aimed at carrying out Prior, Free and Informed Consultations with traditional peoples and populations. This decree was revoked by Decree No. 2061 of May 2, 2018, which institutes the Study Group in charge of gathering technical and legal information on traditional peoples and populations in the State of Pará, in order to receive, level and organize administrative procedures of the State Secretariats and agencies, regarding Prior, Free and Informed Consultations.

The objectives of the group are:

I - Gather technical and legal information to support the preparation of a Consolidated Information Report on Prior, Free and Informed Consultations, observing the terms of Convention 169 of the International Labor Organization (ILO), 2002, and other legal regulations;

II - Prepare the Consolidated Information Report on Free and Informed Prior Consultations of the State of Pará, with the objective of guiding the sectors of the State Executive Branch in the elaboration of legal instruments;

III - Elaborate a public request instrument, in order to receive the consultation protocols of the traditional peoples and populations, organizing the reception

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of these in the attribution organ with reference in the scope of the State Executive Power;

IV - Carry out actions aimed at leveling and understanding on the subject with servants of the State's Executive Power (PARÁ, 2018).

The Decree caused great indignation to the indigenous peoples, quilombolas, riverine communities, fishermen and artisanal fishermen of the Tapajós and representatives of civil society organizations for their disrespect. Through demonstrations and a note of repudiation of the decree, more than 30 organizations that signed the note asked for the decree to be revoked. In their understanding, the decree disrespected national and international legislation and conventions that guarantee traditional peoples and communities the right to Prior Consultation and the consultation protocols already drawn up by several indigenous peoples and traditional communities of Pará.

### Ferrogrão

Another undertaking is the EF-170 MT/PA - Ferrogrão Railroad, considered Brazil's export railroad corridor by the North Arc, with a planned extension of 933 km connecting the Midwest to the State of Pará, ending at the Miritituba Port in the city of Itaituba (PPI, 2020). According to the community members, the railroad will pass approximately 20 km from the community, cutting the access road, which will cause noise pollution disorder, changes in infrastructure in the community, and serious problems of real estate speculation.

### **7.1.2 Solimões Community – Kumaruara People**

The Solimões community/village is located on the left bank of the Tapajós River (Figure 9), in the Tapajós-Arapiuns Extractive Reserve, Municipality of Santarém, State of Pará. Created by Presidential Decree on November 6, 1998, the Tapajós Arapiuns Extractivist Reserve (RESEX) is part of the group of Sustainable Use Conservation Units, "designed to make nature protection compatible with rational use, that is, conservation through the multiple use of ecosystems. Its creation was the result of years of struggle of the region's population against predatory logging.

The residents of RESEX can be classified as Traditional Agroextractivist Ribeirinha Population - descendants of Indigenous, black, and white populations strongly mixed, over time, with the different colonizers (northeastern rubber soldiers,

migrants from different parts of Brazil and the world), forming a generically defined set of caboclo. In many communities groups stand out claiming legal recognition as indigenous populations, following the example of Solimões village.

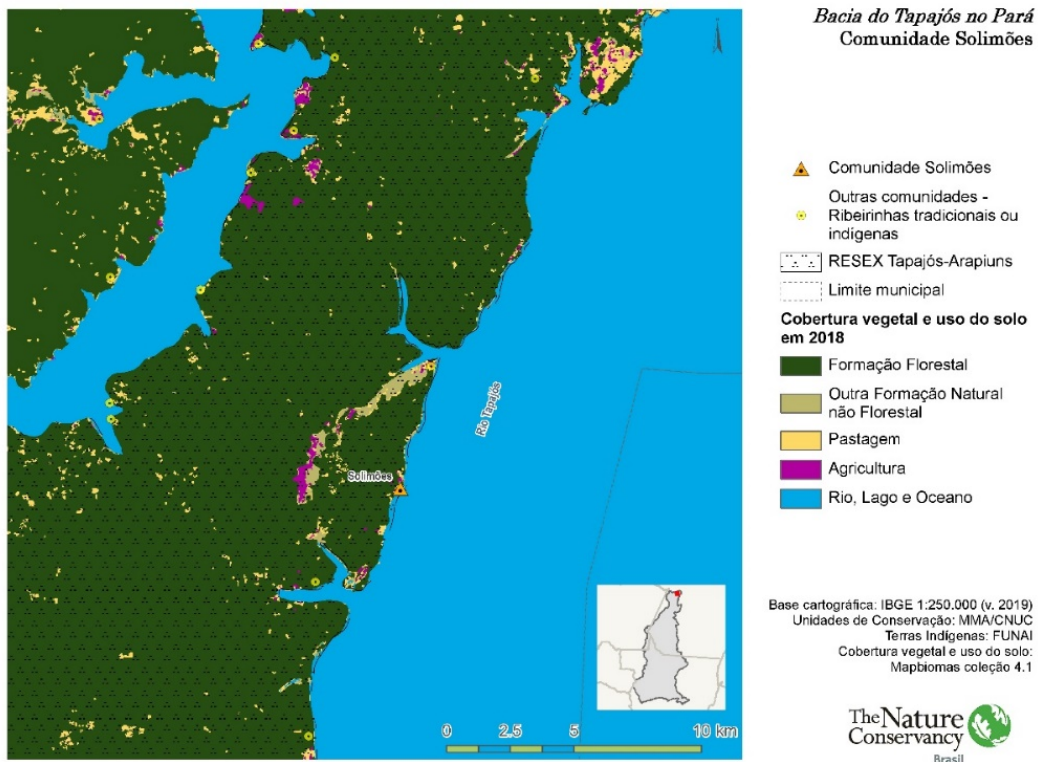


Figure 9 - Location of the Solimões community in the Tapajós River basin

Currently the RESEX Tapajós/Arapiuns is inhabited by an estimated population of more than 3,500 families, approximately 18,000 people, distributed in 74 communities, organized mostly in community associations and in some regions in inter-community associations. The Association of Tapajós/Arapiuns Extractive Reserve Organizations - TAPAJOARA, which represents the entire RESEX population, was founded in July 1999 to promote the participatory management of RESEX. Because they have this strong link with the cultures of the native peoples of the region, the inhabitants of the 74 communities that inhabit the RESEX Tapajós/Arapiuns are understood as traditional communities whose livelihoods depend directly on the use of existing natural resources.

According to the older residents, the community has more than 80 years of existence, but it was in the early 1960s with the support of the Catholic Church that they began the process of organizing the community, encouraged by Friar Marcos, who brought an image of Our Lady of Grace to the community. From this moment the

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first catechist team was formed and a school from 1st to 4th grade was structured beginning to receive children from neighboring communities. In 1963 the school was recognized by the municipality with the name Nossa Senhora das Graças (Our Lady of Graces). Until then the teacher was paid by Friar Marcos, but with the recognition of the municipality he was paid by Councilman César Sarmiento.

In March 2009, with the presence and support of Friar Florencio Vaz, an anthropologist and professor at the Federal University of Western Pará, a large assembly was held in front of the square of Our Lady of Graces Church, where the people approved a motion to identify themselves as the KUMARUARA people and in this same assembly were elected caciques and shamans of the village.

#### Land Situation

Aldeia Solimões is part of the RESEX Tapajós Arapiuns, but has already requested with FUNAI the demarcation and creation of the Kumaruara Indigenous Territory. Scheduled to be held in 2020, the demarcation was postponed due to the Covid-19 pandemic and the difficulty of transferring equipment from the community of Vista Alegre (boots, tarpaulins, equipment such as terçados and axe) to the community of Solimões due to restrictions implemented by the communities.

Currently each family has a 25m X 40m plot in the community and in the center (the back of the community territory, the area destined for agriculture and extractivism) each family has a 100 hectare use area. This process of distribution of plots/areas of use follows the rules for raising animals. The raising of cattle and pigs in the community is prohibited because for the residents the animals leave the village ugly and dirty.

#### Social organization

Currently the community/village has 49 families and 186 inhabitants. Of these families only one is not indigenous, the others have declared themselves indigenous. The main organization of the RESEX Tapajós /Arapiuns Conservation Unit is TAPAJOARA, and 100% of the families are affiliated to the institution. The families are also members of the Intercommunity Association - APRUSPEBRAS (Association of Extractive Rural Producers of the Left Bank of Tapajós), created on July 25, 1994 (before the creation of RESEX), involving the communities of Santi, Curipata, Anumã, Carão and Pedra Branca, and has 105 Associates.

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Besides the Village Intercommunity Association there are other social organizations: a union station with 15 members; Mothers' Club with 23 women members; Youth Club (GRUTESA) adding 36 young people, a men's soccer club (Cruzeiro Esporte Clube) and a women's soccer club (Cruzeirinhas).

The main government institutions that work in the community are ICMBIO - Chico Mendes Institute of Biodiversity Conservation; INCRA - National Institute of Colonization and Agrarian Reform; FUNAI - National Foundation of the Indian and the City Hall of Santarém. The non-governmental institutions that act in the community are: PSA - Health and Joy Project; STTRS - Santarém Rural Workers Union, TAPAJOARA - RESEX Tapajós/Arapiuns Mother Association; CITA - Tapajós/Arapiuns Indigenous Council and SAPOPEMA - Society for Research and Environmental Protection. In religious terms, Solimões does not have a diversity of churches, having in the Catholic Church its main expression and Santa Padroeira Nossa Senhora das Graças with the Religious Feast held on August 16.

#### Productive activities

The economy of the Solimões community is centered on fishing and agriculture. The main marketable products are manioc (flour production), beans, corn and watermelon, and subsistence products include cará, macaxeira, potatoes, and vegetables. The main permanent crops grown in the community include mango, cupuaçu, açaí, caju and syringe. Animal husbandry in the community is limited. Several families raise chickens in the backyard, only one family raises pigs and two manage bees.

Hunting is a source of livelihood for the families and the main species captured are chelonians, capybaras, wild birds and alligators. Another activity is the extraction of wood. Due to the inexistence of a Management Plan in the community, the extraction occurs only for internal consumption, and the main species are morão and itaúba, used in constructions. The families also practice extractivism involving the Straw, the extraction of copaiba oil, the chestnut, and the collection of several native fruits (piquiá, uxi, açaí) and lianas. There is also the production of handicrafts including paneiros, arches and bio-jewels. The community has internal agreements that are working satisfactorily to discipline hunting and the use of fire in the fields since 1999. Residents respect the rules that are the most important rule for community members, even if there

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are still people who oppose the agreement in the community. Another form of agreement is among the surrounding communities regarding school management.

The products are sold to middlemen and tourists who visit the community and the Cristo Rei Handicraft Center in Santarém. There is difficulty in marketing perishable and higher volume products, due to the lack of infrastructure to store these products in the community and the high price charged for the line boat between the community and Santarém.

### ***Social Services***

#### ***Health Care***

The community/village has no health post and no nurse to attend cases of low complexity and distribute medicines. First aid is provided at the community post in Anumã, 8 kilometers from the community. The city hall pays an ACS - Community Health Agent, a resident of the community, to accompany the community members monthly. Another eventual health service is the Abaré hospital boat that visits the community periodically to apply vaccines and perform dental consultations and services. In the community, to assist the indigenous residents. They resort to traditional treatments such as Pajé, which "heal" with their blessings, make home remedies and "pull".

There is no emergency transportation service in the community. The most used means to transport the sick in urgent cases are the City Hall ambulance and the helicopter of SESAI - Special Secretariat of Indigenous Health. According to the residents, the main desire in relation to the health of the community is the construction of an Indigenous Health Post equipped with specific treatment for the health of the elderly.

#### **Education**

The Nossa Senhora das Graças Municipal School, inaugurated in 2014, serves 62 students from kindergarten to ninth grade and 32 high school students. Currently the school has 19 employees, 09 (nine) teachers and the others hold positions of direction and support the school's activities. The school operates in the morning and afternoon shifts and develops complementary activities through the Food Education Program. In recent years, no cases of school evasion have been reported. Some

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young people from the community study in Santarém in higher education and postgraduate courses.

In a second building, there is a computer center that is deactivated and unable to serve the children. The infrastructure for the school's operation consists of a well that supplies the school's water needs, school meals last about 15 to 20 days and are considered regular by the community. There is no public school transportation, no distribution of school materials and no availability of computers to make classes more dynamic.

### Housing

INCRA has built 38 (thirty-eight) masonry houses through the Agrarian Reform beneficiaries Program. The other residences are built of straw, wood and/or clay and some have mixed construction of wood and masonry. Apparently there is no housing deficit in Solimões Village.

### Leisure

The practice of sports is its main source of leisure. Children and women like soccer. Young people play soccer and volleyball and men have fun playing soccer and going to dance parties. There are some areas of common use, a sports court, soccer field, straw hat, beaches and community headquarters. During the summer, the beach in front of the village is one of the main attractions for family sports and leisure. Young people promote games, recreational activities and bathing in the river.

### Culture

The Feast of the Patroness of Our Lady of Graces that takes place on August 16 is the main cultural activity of the Village. Other important cultural festivals are the Feast of the Andirais, Indian Day on April 19 and the Independence Piracaia on September 7.

### Collective infrastructure

The community has a community shed, a catholic church Nossa Senhora das Graças; soccer team headquarters (Cruzeiro Esporte Clube); Nossa Senhora das

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Graças School; community light generator; micro water supply system and leisure areas - soccer field, court and straw hat.

### Energy

Solimões is supplied with electric energy through a community light motor, which runs from 7:00 pm to 10:30 pm. The system is maintained by the 22 partners who pay a maintenance fee of R\$ 30,00. There are also generators for the school and for the water supply microsystem.

### Transport

River transportation is the only means of transportation for the Solimões community/village. A line boat passes the community twice a week. People also travel to other communities by bazaras and rabetas.

## **Use of Water Resources**

### *Domestic Use*

In 2016 the Health and Joy Project installed the water microsystem in the Village, which serves all household units with treated and piped water. Each family pays a fee of R\$15,00 (fifteen reais), until the 15th of each month. In case you stop paying, the reconnection costs R\$ 40,00 (forty reais). This fee is destined to the maintenance of the microsystem because, its management is done by the community itself. Regarding the toilets, the great majority uses the sanitary stones in the black pits. The community provides a public toilet.

### Impacts on water quality

Regarding the mining activity in the upper Tapajós, the villagers still do not feel directly affected by the water and the fish. "There is no evidence of people here in the communities/villages being directly affected by mercury. But we have heard that there have been studies that prove the contamination of the water and fish with mercury.

The main problems of pollution in the river are caused by boats (speedboats, line boats and rafts) like the garbage that is thrown directly into the water polluting the rivers and beaches. The boats do not have the structure to store the waste and then dispose of it directly in the river.

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## Fishing

Fishing is one of the main activities of the community. All families fish for subsistence and some practice commercial fishing. Fishing productivity and species composition vary throughout the year. Between the months of August and September there is an ebbing of the river, the time of the piracema. During this period, the community members fish for jaraqui, aracú and pacú. Between the months of November and March it is common to notice the migrating fish, going up the river to spawn, mainly the arachu, pirapitinga, pacú, jaraqui and hake. During the flood season, between December and June, fishing decreases its scale.

Residents affirm that they have seen plenty of fish, like the Tucunaré, which they fished all year round. Currently, the number of species is decreasing, especially the Tucunaré, the Jaraqui and the Aracu. They state that the cause of the decrease in fishing production is the increase in the population and consequently the number of fishermen, in addition to predatory diving (harpoon) and dragnet fishing.

## Fishing Agreement

By identifying the conflicts caused by dragnet fishing and diving, the residents joined the other communities of RESEX and Flona, and approved a fishing agreement in 2017. However, so far it has not been regulated by State SEMAS. Meanwhile, fishing boats from the industry enter the river with authorization from the Ministry of Agriculture.

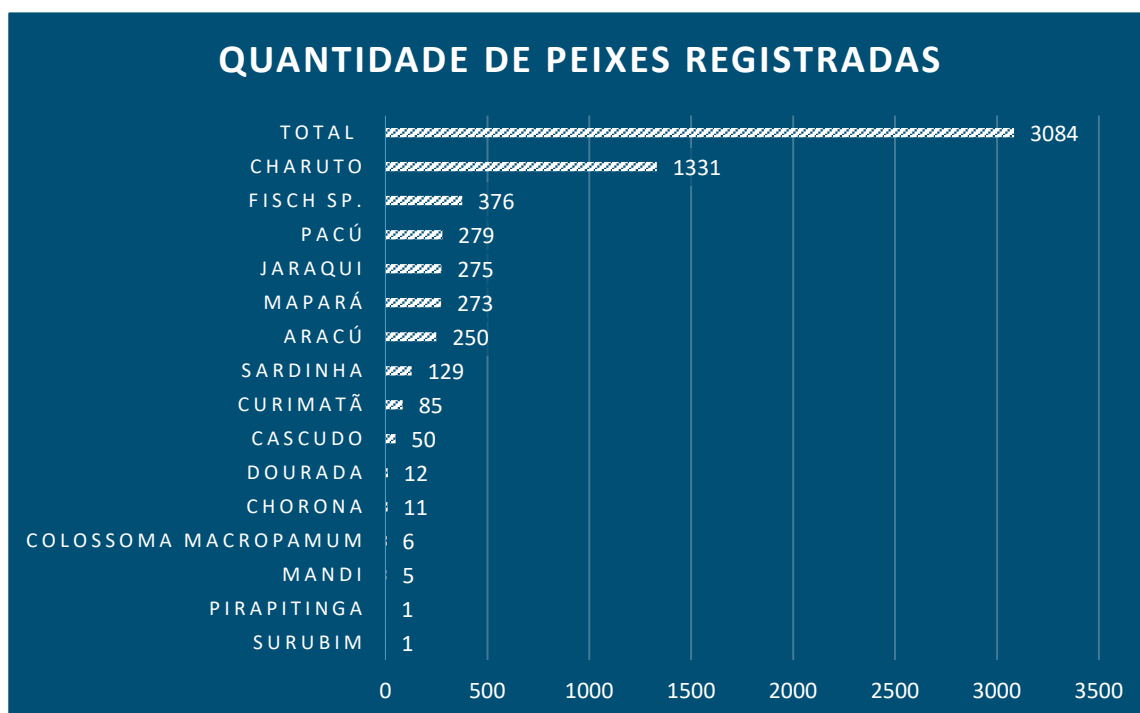
## Citizen Science Pilot Project

Between August 2018 and May 2019 the Solimões community school participated in a pilot experience of the Citizen Science Project in partnership with WCS - Wildlife Conservation Society, Health and Joy Project, Fishermen's Colony, Z-20 of Santarem and Sapopema to raise the number of migratory fish species circulating in the community waters. A first activity was the location of the lakes closest to the community/village. The students located and mapped nine lakes in the community territory using the Ictio application. The lakes' waters were considered of good quality for use (Chart 7).

Chart 7 - Lakes located near the community / village Solimões. Source: Sapopema.

Lake Name	Latitude	Longitude
Pescada	02. 60545°	055. 12360°
Garimpo	02. 65500°	055. 13284°
Enseada	02. 63123°	055. 14859°
Boca do Capixauã	02. 62712°	055. 15141°
Lago Piquiá	02. 62479°	055. 14555°
Lago Muiuçú	02. 62423°	055. 14684°
Lago Camarão	02. 62238°	055. 14735°
Lago Aramum	02. 61796°	055. 14466°
Lago Içí	02. 61127°	055. 14050°

So far about 325 species of fish are known in the Tapajós River, 65 of them endemic (CASTILHOS; BUCKUP, 2011). In the pilot experiment of the Citizen Science Project about 3,084 fish from 15 migratory species were caught. Of these 1,331 were cigars, occupying 43% of the total collections. The second was a diversity of species that were not on the monitoring list, followed by pacú and jaraqui (Grath 1).



Graph 1 - Capture of fish carried out in the pilot experience of the Citizen Science Project. Source: Sapopema.

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## Impacts of Large Enterprises

The Solimões community located in the Lower Tapajós region is far from the areas directly impacted by the large enterprises of the Upper Tapajós. The residents are aware of the infrastructure projects being built, but do not yet feel their impacts.

### **7.2 Comparative analysis between the Pimental and Solimões communities**

The first point to be discussed is the process of occupation of the two communities that takes place in various ways in the Tapajós Basin. Solimões, for example, is a village of mainly indigenous descent, while Pimental has more diverse origins, including indigenous populations and others with strong northeastern and other state influences. In Pimental, this diverse origin is due to the opening of the transamazon highways BR-230 and Santarém-Cuiabá BR-163 in addition to the mining activities.

The Solimões community is visibly more organized, especially in terms of its management capacity. The rules for the use of natural resources, especially water resources, which will be discussed later, are well defined. In fishing, domestic or leisure use, there are agreements that govern the activities. In the case of Pimental, the scope of governance is more limited. Most of these isolated groups have no rules or agreements, and there are many conflicts between their leaders, who generally do not know the problems of the community and do not exercise leadership over the other groups. The organizational structure of the community, therefore, is quite weakened. One of the main causes of conflicts in the management of the Pimental community is jurisdiction. For example, health management is done by the municipality of Trairão, but human resources, health professionals, are from Itaituba. This administrative division has caused great damages in the social area (health, education and social assistance).

Another important factor in this analysis is the land structure of the communities. The Solimões village, which is part of the Tapajós Arapiuns Extractive Reserve, requested the demarcation and regularization of the Kumaruara indigenous territory with the approval of practically all the families in the community. Pimental, in turn, is part of the settlement and sustainable development project - PDS created by INCRA in 2006, but the residents are unaware of the advantages and disadvantages of regulating this territory. We have identified that in this project there is a claim, which

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is in process, to be created within the settlement: an Apiakas indigenous territory. It is noted that the creation of indigenous territory is not a consensus in the community, being a demand from a group of families who call themselves indigenous.

On the issue of the use of water resources it was observed that both communities depend on subsistence fishing for their food security. In the Solimões community, commercial fishing is limited and the sale takes place mostly between families. Furthermore, there is a control exercised through the fishing agreements, which is known by the communities and there is an organization that claims their rights and fights against the predatory activity of the glaciers.

In the case of Pimental, besides subsistence fishing, commercial and ornamental fishing has a relevant economic role. For example, the catfish such as baby, dorada, mapará, among others, are sold by fishermen mainly in the municipality of Itaituba. The ornamental fish, with about 23 species identified in recent studies - some endemic - are commercialized by the fishermen to several Brazilian states and other countries in the world.

One of the main differences between the two communities is that, while Pimental has a greater socioeconomic dynamic of fishing, the organization of the fishermen is precarious, since some are associated with the Colônia de Pescadores do Trairão and others with Itaituba. In an attempt to add to the category of fishermen, the Community Association of Fishermen and Residents of Pimental - ACPMP was created on December 6, 2013. This initiative is quite fragile as it only has 15 partners.

The Pimental community is already experiencing the impacts of large enterprises such as hydroelectric plants, garimpos, Ferrogrão and ports. This pressure has been causing serious consequences, directly affecting the families because it has weakened the administration of the two municipalities - Trairão and Itaituba, causing the rural exodus, dividing the residents and generating conflicts that unstructure any attempt at organization.

In the Basic Sanitation policy, the total absence of the State is visible. In Solimões, all the families have piped and treated water installed in all household units through the implementation of the system through the NGO Projeto Saúde e Alegria. Consumption follows established and fulfilled rules for domestic use. In Pimental, there is no treatment system in the same pattern, and the families consume water from Amazonian wells with precarious and polluted structures.

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### 7.2.1 Remarks

The difference in the organizational issue of the communities was more evident during the COVID-19 Pandemic period. In the Solimões Village there was greater control of the disease with collective and protective actions carried out by the village in a unified manner, where there was no external access to the community by collective decision, which was confirmed in the tests carried out by the municipality with no case of Covid-19 identified. While in the Pimental community, because there was no consensus of rules among the community members and no control of entry and exit of people, the disease affected several residents, not to mention that the administrative management of municipal governments acted in a precarious manner.

In the Tapajós basin, after careful observation of the points mentioned, it is plausible to conclude that there is diversity in its occupation process, that there is no pattern of use of natural resources, that the different territories are experiencing various stages of loss and guarantees of rights. Although Brazilian legislation presents a set of legal instruments for the protection of traditional populations, these are totally unknown. What seemed to us most present in the memory of the residents of Pimental is the law that regulates the benefit of the insurance closed to fishermen, since they receive for 4 months a monthly resource in the amount of a minimum salary and now more recent emergency aid on behalf of Covid-19.

Also about guaranteeing rights, the residents who recognize themselves as indigenous are building their Consultation Protocols. In the Solimões community with all organized social capital, the respected and recognized legal instruments are the Management Plan and Plan for the use of the RESEX and the fishing agreement that until today has not been regulated by the state government. The communities, in general, are unaware of the legal rules that establish the use of water and natural resources. The communities, therefore, are unaware of their own rights.

## 8 CONCLUSIONS

(i) To understand the impacts of the transformations occurring in the Tapajós basin, it is important to divide the basin into three main zones: high, medium and low Tapajós that have different occupation histories, are undergoing distinct processes of change, public governance conditions are at unequal social levels, as is the degree of organization of traditional communities. In general, the occupation of the upper and

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lower middle Tapajós is more recent. The processes of change are more intensive in the upper and middle Tapajós, and the communities are less organized, with less capacity to mobilize the government agencies responsible for environmental management and territorial planning.

(ii) The changes that are transforming the Tapajoara basin are more intense in the middle and upper Tapajós, precisely in regions where the capacity of government agencies to organize and mobilize is lower;

(iii) The rules of access and use of water and fishing resources and forms of territorial planning are more effective within traditional territories recognized by the Public Power and in general the communities do not have the means to intervene in processes that occur outside their territorial jurisdictional limits, but that affect the access and quality of water and fishing resources that cross their lands;

(iv) The water resources legislation (HR Law) provides legal and institutional framework for organizations of peoples and traditional communities to intervene in activities outside their territories. However, the state HR Law has not yet been implemented and, therefore, there is no plan or institutional management structure for the Tapajós basin, although the enterprises that are transforming the access and use of water and fishing resources are being implemented;

(v) The HR Law does not restrict access to water for traditional peoples and communities because the volume of water used by these social groups is small and in general directly related to domestic consumption. On the one hand, this benefits traditional communities, but on the other it makes them invisible in relation to public policies and makes it difficult to defend their rights;

(vi) Traditional populations depend on international human rights legislation and agreements to defend their rights of access, use of water and fishing resources. In the middle and upper Tapajós some traditional communities have developed Consultation Protocols specifying how companies and other groups interested in using their territories and resources should interact with them. However, due to the communities' low capacity to mobilize responsible government agencies, companies ignore the protocols and act unilaterally, disregarding the rights of local peoples and traditional communities; and

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(vii) The situation of the fishing legislation is similar to that of the HR Law. In this case there are agreements recognized informally by local government agencies, but since the fisheries management legislation has not yet been implemented by the State of Pará, these agreements do not have the force of law and, therefore, the communities do not have legal mechanisms to order fishing inside and outside their territories. The agreements only function within the conservation units of the Lower Tapajós.

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