

Multidimensional impacts of a hydropower reservoir on indigenous communities: displacement, division and pilgrimage among the Tuxá people of the Bahia state, Brazil

Impactos multidimensionais de um reservatório de energia hidrelétrica nas comunidades indígenas: deslocamento, divisão e peregrinação entre o povo Tuxá do estado da Bahia, Brasil

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ABSTRACT

Due to the construction of the Itaparica dam in 1988, the Tuxá people were displaced and resettled. This generated internal conflicts and several socioenvironmental impacts. The resettlement of the Tuxá people, historically dedicated to agriculture and fishing, altered their ancestral identities and livelihoods. For those who still have access to fishing activities on the banks of the São Francisco River, fish availability has diminished given the water-pollution eutrophication from sewage and fertilizers discharge. The impacts of the dam on the Tuxá people are complex and include new identity-related elements. These are often disregarded when assessing the socioenvironmental trade-offs associated with the installation of hydroelectric plants in Brazil. We propose alternative perspectives (mainly bottom-up) to transform indigenous tacit knowledge regarding dams impacts on traditional communities into explicit, instrumental knowledge for policymaking. We also rethink the delicate balance between economic progress driven by renewable energy generation in Brazil and the negative

impact this progress may have on the livelihoods of one of the country's most vulnerable communities from a socioenvironmental point of view. Methodologically, this work is the result of a mixed-methods analysis. We triangulate qualitative data (resulting from in-depth interviews and the reconstruction of life stories through focus groups conducted with the Tuxá people) with quantitative data extracted from a series of secondary sources, including government sources, among others.

Keywords: Hydroelectric plants. Indigenous Tuxá people. Forced displacement.

RESUMO

Devido à construção da Usina Hidrelétrica Itaparica em 1988, o povo Tuxá foi deslocado de suas terras e reassentado, gerando conflitos internos e diversos impactos socioambientais. Dedicados historicamente à agricultura e à pesca, o reassentamento dos Tuxá alterou suas identidades ancestrais e mudou seus meios de subsistência. Para quem ainda tem acesso às atividades pesqueiras às margens do Rio São Francisco, a disponibilidade de peixes foi reduzida em decorrência da poluição da água originada pela descarga de esgoto e fertilizantes. Mas os impactos são muito mais complexos e incluem novos elementos relacionados à identidade, muitas vezes desconsiderados na avaliação dos trade-offs socioambientais da instalação de hidrelétricas no Brasil. Propomos perspectivas alternativas (principalmente de baixo para cima) para transformar o conhecimento tácito indígena sobre os impactos das barragens nas comunidades tradicionais em conhecimento explícito e instrumental para a formulação de políticas. Fazemos isso repensando o delicado equilíbrio entre o progresso econômico impulsionado pela geração de energia renovável no Brasil e o impacto negativo na subsistência de uma das comunidades socioambientalmente mais vulneráveis do país. Metodologicamente, este trabalho é resultado de uma análise de métodos mistos, em que dados qualitativos (resultantes de entrevistas em profundidade e da reconstrução de histórias de vida por meio de grupos focais realizados com o povo Tuxá) foram triangulados com dados quantitativos secundários, extraídos de uma série de bases de informação, incluindo fontes governamentais, entre outras.

Palavras-chave: Usinas hidrelétricas. Povo indígena Tuxá. Deslocamento forçado.

1 INTRODUCTION

Decision-makers often disregard the socioenvironmental impacts of hydroelectric power plants. Researchers from the University of East Anglia (United Kingdom) showed the 1986 construction of the Balbina hydroelectric plant in the municipality of Presidente Figueiredo, Amazonas, caused several damages. They mention the flooding of an area of 3,129 km² which created 3,546 islands, fragmenting the natural habitats of a vast number of species, impairing their reproduction and accelerating the rates of biodiversity loss in this rainforest region. However, environmental impacts are not the only impacts: the social impacts of hydroelectric plants installation involve the forced displacement of thousands of people, including entire villages whose traditional territories are flooded for water reservoirs or dams construction (NAINME, 2012).

That was the fate of the Tuxá indigenous people of the municipality of Rodelas in the state of Bahia in Northeast Brazil. The flooding of their territories left these people virtually landless and caused the spread of communities across three different states: Bahia, Minas Gerais and Pernambuco. The Tuxá people had already suffered the partial loss of their ancestral territory along the São Francisco River to the hands of large-scale farmers who usurped their land (CRUZ, 2018; SALOMÃO, 2011). The Tuxá people lost their remaining land after the construction of the Itaparica Hydroelectric Plant in the 1980s by the State and the São Francisco Hydroelectric Company – Chesf (VIEIRA, 2014).

This article explores the Tuxás' self-perceived crisis and transformation through a qualitative, bottom-up approach that seeks to bring new elements – including a socio-environmental justice perspective – to explore real and disregarded costs from implementing large hydroelectric plants in Brazil (BULLARD, 2005). Methodologically, this work is the result of a mixed-methods analysis in which qualitative

data (resulting from in-depth interviews and the reconstruction of life stories through focus groups conducted with the Tuxá people) were correlated with quantitative data extracted from a series of secondary sources, including government sources along with others.

We plan our results to go beyond the generation of more information on social and environmental impacts generated by the construction of the Luiz Gonzaga dam in the region. We also seek to contribute to the articulation of indigenous tacit knowledge (LINDOSO et al., 2020) into explicit knowledge regarding their long-experienced suffering, with the potential for generating action and public policies to support this chronically marginalized community. Tacit knowledge is defined here as non-verbalized, intuitive and unarticulated knowledge (POLANYI, 1962). Explicit knowledge is specified as being formal and expressed in systematic languages in the form of data, scientific formulae, specifications and manuals (NONAKA; TOYAMA; KONNO, 2000).

2 MATERIAL AND METHODS

The Brazilian Research Network on Global Climate Change (REDE CLIMA, in Portuguese) and the Observatory of Social and Environmental Dynamics at the National Institute of Science and Technology (INCT – Odisseia) conducted, between 2017 and 2018, a series of field research visits involving indigenous peoples and traditional communities based along the sub middle São Francisco River (SubM-SF) in the states of Bahia and Pernambuco in Northeast Brazil. This region corresponds to one of the four physiographic regions of the São Francisco River Basin (BHSF).¹

A key challenge for us was to determine how to manage indigenous knowledge, which is mainly tacit in nature or embedded in practices and experiences. This type of knowledge is highly personal and it is difficult to codify and diffuse this knowledge (LWOGA; NGULUBE; STILWELL, 2010), to articulate it into explicit and instrumental knowledge for informed decision-makers at different scales. Thus, our bottom-up qualitative approach included semi-structured interviews, focus groups and participatory workshops for primary information. These activities were carried out in two field visits, the first of which took place in October 2017 and the second between November and December 2018. During both visits, researchers worked to construct trust and legitimacy with the community (LINDOSO et al., 2020). The qualitative data were then combined with secondary data that biophysically characterized the studied areas (including land use and climate change data) and a map comprising the existing public policies in the region (CHARMAZ, 2009; CRESWELL, 2007; TEDDIE; TASHAKKORI, 2009).

We carried out a total of 23 semi-structured interviews with representatives of the Tuxá ethnic group; these interviews were complemented by two focus groups, each one composed of six people, including 3 women and 3 men from the agricultural, fishing and domestic work branches. Once the corresponding interview and focus group transcripts had been realized, we systematized, coded and analyzed them into categories to perform the corresponding content analysis and extract and expose the most relevant information. We selected the interviewees, consistent with focus groups participants, after identifying potentialities in these social actors, as their role in the community, their historical knowledge about the people and their experience in management, representativeness and agricultural production, constituting themselves into key actors.

Previous to the information collection and the presentation of our research topic, we obtained informed consent from the adult indigenous population for the use of images and voices of interviewees. We informed the groups around the objectives of the implementation of the interviews, focus groups and image registration and agreed upon the confidentiality of the use of the obtained information and the corresponding citation. We also provided information regarding the results restitution processes. Additionally, the Research Ethics Committee in Human and Social Sciences at the University of Brasília

1 | The area corresponds to 17% of the São Francisco River Basin, which is entirely located in the semiarid region of Northeast Brazil.

(UnB) assessed and approved the research project and its planned execution process. The research protocol was duly evaluated and registered by the university under process N°. 01037218.5.0000.5540 and opinion N°. 3.440.596.

Our study gave special attention to the often-disregarded local actors' perceptions on the loss of their territory. Not only we considered the elimination of their traditional livelihoods, a structural part of their identities (ELLIS, 2003), water and food securities linked to the access of these people to the land and the river, but also the destruction of their environments and the increase of their vulnerability (BERNAL; RODRIGUES-FILHO, 2020).

For the validation and restitution of the results, a final participatory workshop was carried out in 2018 in a village of the Tuxá community. Organized in tight collaboration with community leaders, with whom we developed trust links, this third workshop involved a rich exchange with 11 indigenous leaders. As a validation strategy, we jointly and collaboratively coproduced policy priorities and confirmed the most urgent issues that the population had identified during the data collection period. Regarding the restitution of the results, this was done in a horizontal way, not as a "teaching" activity but rather as a reciprocal exchange of data and mutual learning (LINDOSO et al., 2020); we hope this exchange will enable the local population and its leaders in their demand for tailored public policies.

3 RESULTS AND DISCUSSION

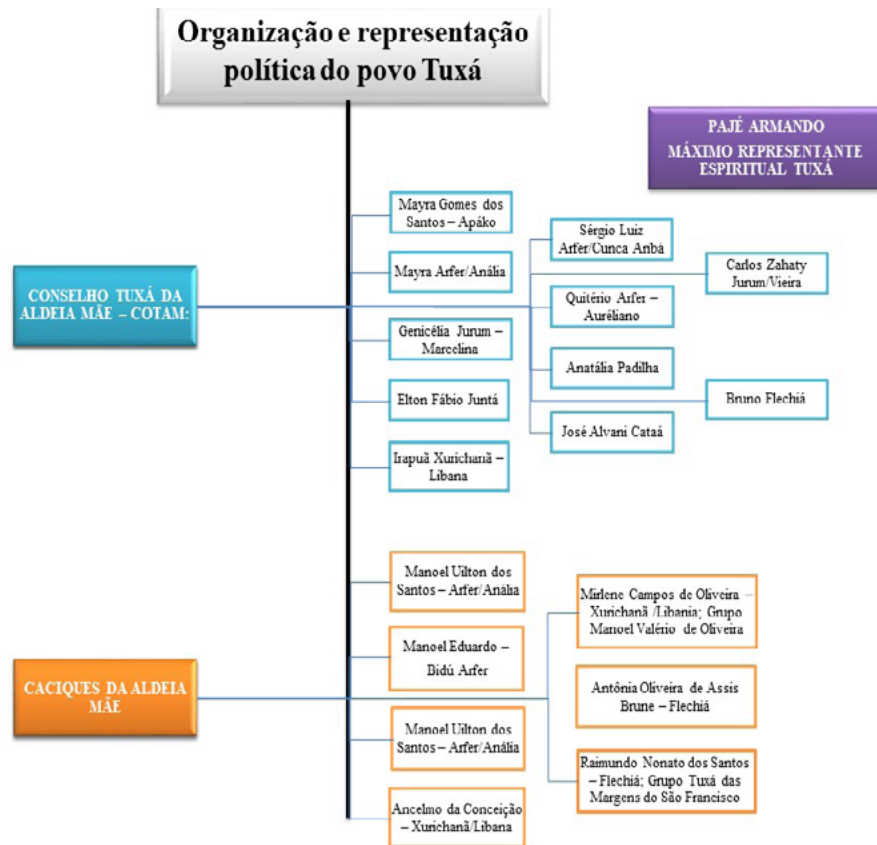
3.1 THE TUXÁ INDIGENOUS PEOPLE

According to anthropological and historical research, the Tuxá people identify themselves as members of the Proká nation, a remnant of the ethnic groups that formed the missions of the Northeast region of the São Francisco River in the 17th century (SALOMÃO, 2011).

Currently, Tuxás are spread out in three groups and across three states: Bahia (Municipalities of Rodelas and Ibotirama), Mina Gerais (Buritizeiro) and Pernambuco (Fazenda Funil) (CRUZ, 2018; VIEIRA; SANTOS; CARELLI, 2014). According to data from the last national census, the current population of Tuxá in Brazil is 3,927, among which 995 people, 507 men and 488 women live in the territory of Rodelas, known as the mother village and the most representative place for the Tuxá people.

The Tuxá people are organized around nuclear families and observe a traditional vertical representation, with a hierarchy formed by advisers, chiefs and shaman. The advisers are responsible for ensuring the protection and defence of the human rights of community members. Besides, they bring visibility to and report situations that violate these rights, including the violence caused to the people due to any type of social or environmental conflict. The groups elect or appoint the chiefs to exercise political authority. They are responsible for making contacts and negotiate with the authorities of the surrounding society. For the Tuxá people, the shaman (Pajé) represents an important figure considered to possess a large amount of knowledge and history of the ethnic group. He is responsible for passing on the culture, history and traditions of the indigenous people; based on their knowledge of different rituals, herbs and plants, the shaman also safeguards the health of the people.

The shaman also represents the figure of the spiritual leader of the ethnic group, since it is believed that the shaman is in contact with the spirits and protective gods of the indigenous people. Currently, the people of Rodelas have 19 representatives, 1 shaman, 11 advisers and 7 chiefs (see Picture 1), who deliberate any type of problem in periodically organized council meetings.



Picture 1 | Current political organization and representation of the Tuxá people

Source: Author's elaboration

This social organization not only symbolizes aspects of representativeness and organizational politics. It also has strong implications for organization and social configuration since in D'zorobabé, new indigenous houses were established according to indigenous chiefs and the family tree, symbolizing hierarchies, representation and unification at the end of the street, where is the indigenous meeting centre (*Maloca*).

In the indigenous village of the city of Rodelas, one of the most important educational centres can be found, according to members of the pueblo: The Captain Francisco Rodelas Indigenous State School. This centre aims to promote indigenous claims and to recover the traditions of the people that were betrayed. In recent years this contributed to the return of the cultural practices of Tuxá to a time that opens spaces for dialogue and the incidence of trained indigenous leaders.²

The Tuxás have lost much of their mother tongue and other essential elements of their culture and tradition, except for the Toré ritual, which currently functions as a sign of ethnic identity and tribal cohesion (see Picture 2) (ALBUQUERQUE; SANTOS; ARAÚJO, 2006). The Toré is a ritual of dance and sacred songs in which the Tuxás celebrate integration, love, unity and the strength of the people necessary to sustain a culture based on elements such as the arts of nature, animals and plants, the wind, the land, the deities, the fire and the waters (AZEREDO, 2009; SALOMÃO, 2011; VIEIRA, 2014).

2 | For the Tuxá, discrimination was the trigger that led them to create the Rodelas Indigenous school in 1986 since they were victims of discrimination and prejudice in the city's municipal schools in countless situations.



Picture 2 | Image of the participatory workshop organized in D'zorobabé/Rodelas with the Tuxá authorities in 2018

Source: Authors, 2018.

Historically, the Tuxá depend on farming and fishing on the banks of the São Francisco River. These traditional activities, tightly intertwined with their culture and identity, have been decimated, mainly due to the lack of recognized territory and the abrupt decrease in fish in the river. The survival of the Tuxá people now relies on random occasional paid work. A significant percentage of indigenous adults carry out work activities on coconut-producing farms located in the Rodelense territory, among other regions. However, others try to insert themselves into the daily construction work demanded by non-indigenous families and the local city hall.

Due to their economic situation, many families depend on aid programs granted by the National Indian Foundation (Funai) and the Special Secretariat for Indigenous Health (Sesai) to survive, including the “*Bolsa Família*”, “Indigenous Health”, “Insurance”, “program Defeso” and “distribution of basic food baskets”. Rodelas is one of the municipalities in which a high, concentrated percentage of the population receives grants from the family grant, 17.9% specifically (IBGE, 2012). However, a large portion of this percentage corresponds to the indigenous population. For example, about the last benefit distributed, according to Funai data collected in Rodelas (2018), of the 490 indigenous families who live in the city, more than 87% (424 families specifically) received the benefits provided by the National Supply Company (Conab).

3.2 THE LOSS OF THE TUXÁ TERRITORIES

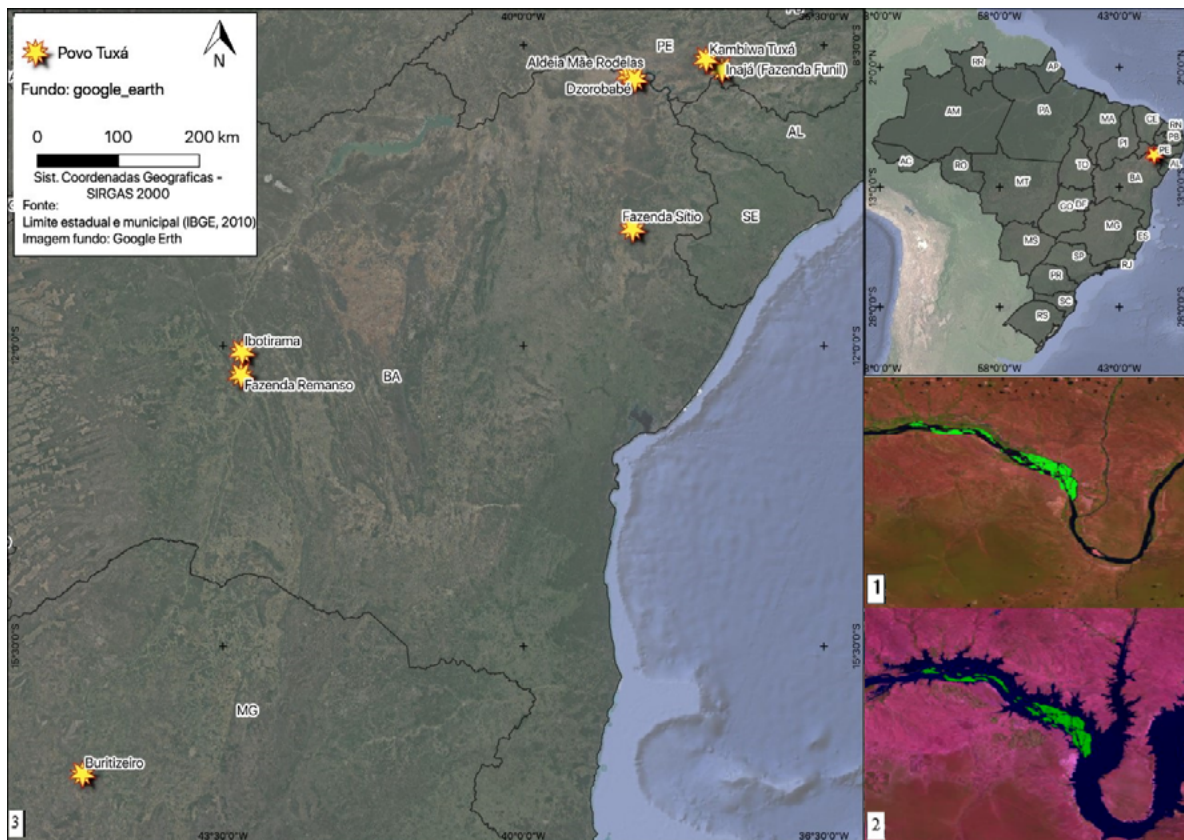
The Tuxá people freely travelled the Brazilian Northeast region. They developed productive activities in the most fertile territories before the colonization period. Over the years, due to the colonization process, the agricultural frontier growth and the construction of the Luiz Gonzaga Hydroelectric Plant, they have lost much of their territory.

During colonization, the people managed by being granted a “*sesmaria*”, a plot of land distributed to a beneficiary in the name of the king of Portugal, to be recognized over a wide territory spanning from Paulo Alfonso to Sergipe (SALOMÃO, 2011). From that moment and until a few years ago, the Tuxá

indigenous people were seated on the island of D'zorobabé and had a village on dry land in front of the island (VIEIRA; SANTOS; CARELLI, 2014). After a great flood of the São Francisco River, approximately six hundred people moved to the already-established village in Rodelas, where, today, the current mother village is located (SALOMÃO, 2011). Settled in the region, the Tuxá people later began to occupy different islands close to the village and belonging to them.

For over 35 years, the Tuxás inhabited 30 islands that existed in the sub middle São Francisco River between the regions of Chorrochó (Barra do Tarrachil) and the Pajeú River. After the construction of the Itaparica Dam (1988), currently known as the HPP Luiz Gonzaga, waters of the São Francisco River submerged the islands. The construction of the dam started a decade earlier, in approximately 1977, and led to the resettlement of the Tuxás in 1985 and 1986 (VIEIRA; SANTOS; CARELLI, 2014).

The Tuxás claim that the flooding of their former territories caused the loss of the following islands (see Picture 3): Peixinho Island, Sabonete Island, Cambaingá Island, Cupim Island, Tucun Island, Porta Island, Cobra Island, Ilha do Rodrigues, Coité Island, Surubabel Island, Coitezinho Island, Fubá Island, Serrote Island, Urubu Island and, most importantly, Widow Island. Researchers estimate that the original land of the Tuxás amounted to approximately 1,600 hectares. Of those, nearly 100 hectares of fertile land served to annually produce rice, onion, fruits and vegetables and raise different animals, allowing families to stock up on meat (VIEIRA; SANTOS; CARELLI, 2014).



Picture 3 | 1. Ancient islands belonging to the indigenous people. 2. Flooding of indigenous territory. 3. Current location of the Tuxá people after resettlement and the loss of their territory.

Source: Authors (2021) and Vieira, Santos, Carelli (2014).

After being forced to abandon their islands, the indigenous people were resettled in three different locations, as follows: 89 families stayed in Rodelas (BA), 90 were resettled in Ibotirama (BA) and 9 families were resettled in Irajá (PE) (COSTA, 2008; CRUZ, 2018). This government-led resettlement process was promoted and monitored by the state company Companhia Hidrelétrica do São Francisco (Chesf) to compensate for the territorial loss. Currently, the people live in different regions of the country: (Bahia) Aldeia Mãe Rodelas and D'zorobabé (the latter is the area taken by the people)³, Fazenda Sítio, indigenous lands, Ibotirama and Reserva Indígena Fazenda Remanso (Pernambuco), Inajá/Fazenda Funil, Kambiwá Tuxá (Divisa Pernambuco/Alagoas) and Buritizeiro (Minas Gerais); these are areas that, according to the legal situation, are cataloged as reserved but are not approved or recognized.⁴

The construction of the Itaparica Hydroelectric Plant is a crucial event in understanding the current situation of the Tuxá people. Developed by the São Francisco Hydroelectric Company (Chesf)⁵, the hydroelectric plant destroyed much more than the means of subsistence of a traditional community: their forced relocation provoked a separation from their ancestors (even their cemetery was removed and the remains were relocated) and from their religious territory, as well as from the ethnic and symbolic values that were tightly intertwined with their main island, the Widow, also known as “the Mother Island”.

3.3 TERRITORIES, MEMORIES AND IDENTITIES: “A LANDLESS INDIAN IS NOT AN INDIAN ANYMORE”

[...] Look at the Tuxá people, he suffered the first impact from the construction of the Itaparica dam in the year 86, when half of the people were removed from Rodelas, which was his native land, to Ibotirama, in the West of Bahia [...] We left everything there, everything, houses, the houses were demolished, the cemetery and the remains were taken out and placed here. Then everything that was there was left behind, everything, the memories, the sense of belonging ... everything was there. [...] Ave Maria, the land was very good, I'm going to cry because of nostalgia ..., I cry until today [...] nobody was hungry, the harvest was very good, there was so much there to make you crazy, mango, acerola, everything you can imagine. There were loads and loads of products for Salvador, Aracajú, Ibotirama and other cities. Now here we have only one mango tree in the square [...] We need the land to survive, a landless Indian is not an Indian anymore, the children need it. Today we have no space to produce or for us to reproduce, or for our children to consolidate their homes when they get married [...]. (COMPILATION OF TESTIMONIES OF TUXÁ LEADERS AND RESIDENTS OF THE TUXÁ VILLAGE IN RODELAS, 2018).

A territory can be defined as the intersection of time and space-based on territorial memories and imagery. It is a symbol whose meaning can be deciphered only through the understanding of the underpinning cultural codes. Concentrating on different social groups and their interconnections and dynamics, a territory is a host to specific traditions and cultures. In contrast to a physical space, territories have cultural significance and social implications. Social practices and different interests are established in territories, showcasing varying perceptions, values and territorial attitudes, all of which generate complementary, reciprocal, and confrontational relationships (GARCÍA, 1976; GOTTMANN, 1973).

3 | D'zorobabé is the area of occupation or resumption, as defined by the indigenous Tuxá people of village Mãe the Rodelas. It is 15 minutes from the mother village and the banks of the São Francisco River. The occupation took place in January 2010, due to constant omissions from the judicial authorities regarding the demarcation of the territory and the attempt to make the indigenous area a public area.

4 | An approved territory has identified and georeferenced limits, registered in the Union's name and the Union's Heritage Secretariat at a Registry Office.

5 | Hydroelectric company do São Francisco is a publicly held corporation. It operates in the generation and transmission of high – and extra-high – voltage energy and concentrates its activities in the exploration of the hydrographic basin of the São Francisco River.

According to the German sociologist and philosopher, Georg Simmel (1858-1918), the concept of “space” is defined as an activity of the soul. Social actions and reciprocal actions are inscribed on a space, forming associations through expressions. Simmel (1926, 1979) stated there is a vital relationship between subjects and objects in space. It establishes not only concrete societies’ characteristics but also their temporal evolution patterns.

Remembrance and memory are relevant to understanding the importance of territory. Maurice Halbwachs (1979), a French sociologist from the first half of the 20th century, showed the important link between memory, identity and space. Halbwachs affirmed an image of the external environment and the relations that a human being establishes with his environment, comes to the forefront in the ideas the group formulates of itself. This image impregnates all the elements of the conscience of the group, becoming fundamental in the moderation and regulation of its evolution (HALBWACHS, 1979).

In his book, *The Perception of the Environment* (2000), Tim Ingold developed an ecological-phenomenological perspective of considering the world. The author allows us to broaden our look beyond the human perspective, expanding our perceptions of the environment, culture, evolution and history of traditional populations and what it means for human beings to inhabit an environment. Descola (2005) proposed dividing how human societies relate to the world into four “ontologies”. In Brazil, Eduardo Viveiros de Castro (1996) conceptualized the “Amerindian perspectives”. He revealed the way of seeing the world in indigenous populations of the lowlands of South America. Together, these works show a new way of perceiving the world, from understanding the perception of indigenous populations regarding what surrounds them to understand what would be “natural” or “cultural” for one society or another as they interact with elements of their environment.

As it already happened with other traditional communities in Brazil and abroad expelled from their territories for the sake of “development” (KOIFMAN, 2001; MULLEN, 1991; PEBERDY, 1948; SANTOS; NACKE, 1988), the Tuxá people, after suffering a total exile, ended up withdrawing completely from their territory of origin. This displacement ended in their ethnic cleavage, undermining their shared history, identity and tradition. The removal of their native lands affected cultural aspects of the people, giving rise to processes of cultural change and transformation, social setbacks and poverty, as Halbwachs (1979), Simmel (1979), and Wagner (1975) claim. Such an eviction caused deep feelings of loss, material poverty and decreasing incentives to remain active as members of their community (BERQUE, 1998; BONNEMAISON, 2005; COSGROVE, 2010). This cultural transformation occurred due to two main factors: 1) the removal from their territory, which had historically allowed the people to craft their collective identity through the use of memories and imagery linked with their extractive activities and their link with nature, and 2) the transformation of their traditions, mediated by religiosity, something that compromised their habitual link with the sacred areas and divinities that had been erected through orality, spirituality and social interactions with their territories.

The interview results confirmed that the older members of the community have suffered the deepest effects, as they claim that even today, more than 30 years after being forced to abandon their flooded homeland, the feelings of longing and loss persist (see Picture 4). Even if these changes can be described, by most optimistic people or interested stakeholders, as transformations leading to new traditions, for the elders, these changes meant not only the end of their livelihoods but also a symbolic death of the people they once were.



Picture 4 | The oldest members of the Tuxá community are the most affected by feelings of loss, especially regarding some landmark territories traditionally occupied by their ancestors, such as this bank on the sub middle São Francisco River.

Source: Franco e Bernal (2019)

This effect was illustrated by several members of the Tuxá indigenous community. They claimed that remembrance and longing were the only things they had from the lost territory. Now, it only exists in their imaginations and oral traditions. For Manuel Eduardo Cruz (Bidú), current chief of the community, the removal of their lands led to the end of an era of happiness, harmony and unity of the people who inhabited the island of Viúva. For other members, the removal started a process of suffering that is still heartbreaking for a large part of the local population, 30 years after the event.

[...] Remembrance and longing. Recollection of where I lived, our time of happiness and all together. Back and forth movements, but all together. I feel memories, memories, the boy's time, games, the life I lived, it was wonderful, see? Clean running water, you always caught fish, the fish under the rocks, there was all this. Holy Mary! It was too good, it's not like that, today I don't like the fish. Many people were depressed, bird Mary, very sad, when many people saw the water standing still, without movement at first the sadness was very great, many people also became ill from polluted water and today it is also like that [...]. (COMPILATION OF TESTIMONIES OF TUXÁ LEADERS AND RESIDENTS OF THE TUXÁ VILLAGE IN RODELAS, 2018)

The people's remembrance of their landscape and territory leads them to remember and contemplate their origins, culture and identity. These factors were at risk after leaving their territory. As noted earlier, territories are essential for traditional populations since territories are carriers and generators of well-being, identity and culture resulting from an identity-construction process carried out by the people and their surroundings (BERQUE, 1998; DUNCAN, 1990; SIMMEL, 1926). In addition to the territory being seen as one of the determining factors of well-being and progress, its disposition and possession represent fortune for certain social groups and generate comfort, security, development and stability (CLAVAL, 1998).

We observed that territory is understood as the intersection of time and space-based on territorial memories and imagery, giving rise to cultural aspects and customs. One of the factors that determine the dual connection between human beings and territory is the religiosity related to the tradition printed in the sacred space. It is a qualitatively strong space of hierophanic revelations that have become powerful centres of the world, separated from the common space (ROSENDAHL, 2018).

It is stated that there is an important relationship between subjects and objects in a territory; this relationship establishes not only the characteristics of concrete societies but also their temporal evolution (KERN, 1983; SIMMEL, 1926, 1979; SOJA, 1989). Therefore, we observed that after the Tuxá people suffered exile and the processes of moving away from their daily lives, religiosity, tradition and sacred space, they experienced a cultural transformation and the stagnation of their progress, compromising their well-being, culture and union.

For the Tuxá people, this experience, at the same time that it had an impact on their cultural essence and the unity of the people, caused a historical setback, depriving them of the temporal evolution that the material and symbolic value of their territory offered them. For example, in these aspects, the Tuxá authorities claimed their people went through a process of miscegenation from displacement and the distance from cultural practices. It is said that years after the resettlement, there was a radical decrease in the number of marriages among indigenous people and an increase in the departure of young people from the community as they established their new families outside the village.

On the other hand, it was indicated that the most painful loss was that of the interaction that had existed between humans and their sacred spaces. For example, indigenous people were drained from the life they had in their traditional territory, with their ritualistic practices being strongly altered since they couldn't pass through the 25 passages where their ancestors crossed (FERNANDES, 2015). This aspect emphasizes the argument made by Ingold (2000, 2002) when referring to the importance that the environment or a specific inhabited area has for traditional people. The importance of these human societies for interactions with the world around them constituted a determinant for their well-being (DESCOLA, 2005). These passages, referred to by Fernandes, acknowledged sacred spaces of the people for historical and religious value, going back to when Tuxá representatives and deities travelled in search of freedom and unity for the indigenous group.

Fernandes indicated that the history of the Tuxá people is part of the territory that is now flooded. For them, living there meant being connected with the past and the present. According to indigenous settlers, the loss of formerly existing waterfalls and sacred sites removed them from their ceremonial centres, depriving them of coexistence with their ancestors and deities. For the Tuxá of Rodelas Bahia, the Ilha da Viúva kept in memory today as the Mother Land, representing life, today represents the symbolic death of the lineage of the Indian people. It is the breaking of a historical line. The memory of their ancestors and deities are submerged and trapped under dead water. The water lacks current and flow, and is paralyzed by the interests of a few at the expense of many others.

When analyzing the report of the population, there is a strong feeling of interaction absence between the people and their territory and divinities. Two historical facts represent this lack: the promotion and performance of sacred and restricted rituals inside and outside the city and the community, and the resumption of typical activities such as the planting and harvesting of historically produced products.

According to the indigenous population, the Toré Dance is currently practiced. The performances of some sacred practices continue to maintain the connection with their ancestors and with divine beings. However, the people are trying to maintain the privacy of these acts, the reasons for their sacredness and knowledge that they represent, since the approximations of individuals external to the community would hinder the cultural practice and the harmonious religious and sacred life of the people.

However, not all loss was just symbolic. The loss of the Tuxá territory in Bahia State also caused a dramatic decrease in food security, leading to health-related problems. These aspects can be analyzed from the point of view of ecological economics. This approach shows us how the socioeconomic system is based and depends on natural systems. It transforms them by underestimating other species' right to exist (FUKS, 2012; MAY, 2018). Interviewees explained that the lack of contact with their traditional territories led many Tuxá people to lose their ancestral territorial practices, including cultivating food, hunting and fishing, which allowed the people to maintain a healthy diet rich in animal proteins. Their

new location in urban peripheries forced them to be dependent on industrialized, canned food paid for by public subsidy programs (food baskets).

Those who can still hunt and fish have witnessed a drastic reduction in the number of wild animals in the territory as well as a decrease in the number of formerly abundant fish in the São Francisco River:

[...] I remember that my grandmother used to say that when my grandfather came home from work, he would go fishing for dinner and would always catch fishes. We were assured that dinner was coming, that we were going to eat something. You never went hungry in those days: you had manioc, potatoes... you had those stocks to eat and then you only caught the fish. Then there was the complete menu. Nowadays, you go out to get something from the river and you can't do it, you can no longer trust what the river can offer you. You have to go out to work and buy [food]. We still depend on fishing [...], but today you go to the river to fish and you don't catch anything. That's worrying because the river doesn't give us what it used to give. My husband went out to the river three, four times already to try to fish, he only caught 2 or 3 fishes after staying there all day. The fish also tastes different and even stinks. It is different. When it rains more, the water comes out black or the fish die [...].(COMPILATION OF TESTIMONIES OF TUXÁ LEADERS AND RESIDENTS OF THE TUXÁ VILLAGE IN RODELAS, 2018)

Two factors can explain the decrease in fish stocks in the São Francisco River. First, the reduction in the water flow from hydroelectric plant construction (this reduction produces eutrophication during certain times of the year), and river waters' pollution from disposal of the city's sewage and fertilizers used in local coconut production.⁶ The river waters are also used for human consumption. It is stated that after drinking water from the Rodelas area, mainly children and elderly have suffered cases of acute diarrhoea and other waterborne diseases, forcing families to buy gallons of water to drink and cook their food.

[...] There are children who have a stomach ache, they feel sick when they consume water, and when they often go to bathe in the river, there, those who bathe there, then get sick [...]. A lot of diarrhoea, a lot of hepatitis, a lot of things happen because of the water [...]. (COMPILATION OF TESTIMONIES OF TUXÁ LEADERS AND RESIDENTS OF THE TUXÁ VILLAGE IN RODELAS, 2018)

The low quality of the drinking water worsens during the long dry season as the volume of water in the city's reservoirs decreases considerably, thus concentrating the toxicity of the water. Residents of Rodelas state that due to the prolonged droughts that the region has experienced for seven years, cases of water-borne diseases and water deficits have affected the health of indigenous peoples and other inhabitants of the periphery with low access to sanitation.

In addition to this lack of food and water security, climate change scenarios threaten to reduce water availability in this region. This would further compromise the population's economic productivity and health (BERNAL; RODRIGUES-FILHO, 2020; CHOU, 2014; MARENGO, 2008; NOBRE; MELO, 2001; RODRIGUES-FILHO; BURSZTYN, 2016; RODRIGUES-FILHO; SANTOS, 2011).

Observing these losses, the Tuxá people have had to react to adapt to their needs. One of the measures indigenous people took was to implement an indigenous school in the village, enabling young people to graduate with different educational bases and valuing almost lost cultural aspects.

6 | Eutrophication means well-nourished (SMITH; SCHINDLER, 2009). Among the evils caused by eutrophication, there is an accelerated proliferation of aquatic macrophytes and algae that can produce toxic substances harmful to health (BARRETO, 2013).

4 FINAL CONSIDERATIONS

We can no longer deny the material and symbolic consequences of forced displacements of the traditional Tuxá population. The construction of the Luiz Gonzaga Hydroelectric Plant has mainly affected the following aspects of their livelihoods: their culture and nature-linked identity; their family unity and integration, which is a core value of the community; their traditional extractive economic activities, food security and access to quality water resources; their physical and mental health; their economic stability and access to work; their housing; their generation and disposal of sewage; and other aspects. Even though the exile took place more than three decades ago, the effects generated, battled and minimized by the population over the years chronically reappear as open wounds due to external factors that alter or aggravate the social and economic situations of the people.

Our analysis, and the articulation of the tacit knowledge shared by the Tuxás people, confirm that forced displacements of this traditional population generated a feeling of disengagement and cultural change or transformation. The loss of interactions between people and their sacred spaces, a connection between the past and present, explains it.

In Brazil, the Tuxá people are no exception. Many other traditional communities have undergone similar processes of forced displacement or resettlement. A significant number of indigenous communities still do not have territories recognized by the state, making them socially, economically and productively vulnerable. Dignified and adequate compensations for territorial loss still stumble over administrative, bureaucratic and political obstacles, making the lives of these indigenous people a constant pilgrimage for land security, for food, for water, and the reconstruction of a fragmented identity.

Therefore, adjustments in the demarcation, homologation and granting of the land process are essential for advances in indigenous land policies. Seeking ways to guarantee a transparent land recognition process by limiting the existing margins of environmental racism and the elaboration of national environmental policies is also vital (BULLARD, 1994).

The Tuxá people are surrounded by environmental impacts generated by the construction of the hydroelectric plant. They perceive a continuous degradation of the river and soil margins. Besides, they suffer from the eutrophication process of the São Francisco River. It is the result of an increase of nutrients in the water due to the leakage of agricultural fertilizers, city rainwater and sewage. This eutrophication compromises their water availability, food availability and indigenous health.

Despite the environmental and social impacts caused by the hydroelectric plant, the Tuxá people organized themselves to resist and face these challenges. Those fit in with many other injustices and environmental racism that different South American communities suffer from. The sociological concepts of “environmental justice” and “ecology of the poor” open up a wide space for reflection on these points as these concepts focus on analyzing environmental concerns and social justice (ALIER, 2007). The delimitation, homologation and registration of indigenous territories, both for the Tuxá and for other indigenous peoples, become necessities and rights. The viability of this re-establishment would allow them to reconstruct part of their history and culture. They could go back to those times when cultivation guaranteed food and economic income for the community. Above all, territory generates the feeling of belonging for the people and, systematically, their cultural essence.

This aspect can also be seen in other Brazilian communities, including the Kokama, Pataxó, Arara, Karajá, and Kariri-Xokó peoples, among others. Through daily cultural practices in their territories, they give meaning to their land, family, identity and leadership as organizing principles. These are peoples for whom the structure of their lives are linked to the spaces in which they live, interact and bond, perceived by them through history, and to the ordering of the sacred, the mysterious, the intangible, the strongholds of indigenous life that, many times, cannot be understood by other people’s societies.

Those who do not have a recognized territory consolidate mechanism for cultural reaffirmation, abstract themselves from social realities in search of cultural preservation. In the Tuxá case, education is now a way of resistance and reaffirmation and a tool for accessing previously inaccessible instances. The stabilization of differentiated education in the village aimed to face discrimination, revive their culture and generate adequate mechanisms to recover a part of their uprooted land.

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