

## Water and traditions in Piató Lagoon: The importance of communicative action about environmental injustice in the Brazilian semi-arid region

**Água e tradições na Lagoa do Piató:** a importância da ação comunicativa sobre injustiça ambiental no semiárido brasileiro

Winifred KNOX<sup>1\*</sup>, José Gomes FERREIRA<sup>1</sup>, Pedro H. FARIAS<sup>1</sup>, Louyse Rodrigues da SILVA<sup>1</sup>

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1 Federal University of Rio Grande do Norte (Universidade Federal do Rio Grande do Norte, UFRN), Natal, RN, Brazil.

\* Corresponding author:  
[winifred.knox@ufrn.br](mailto:winifred.knox@ufrn.br)

**Abstract:** This article reflects on the educational communication carried out by competent actors from grassroots social movements, community leaders, or individuals who embody the memory of a close relationship with nature inherited from their ancestors. It raises questions about human interventions driven by development over the past century and the resulting transformations in water and environmental issues in the semi-arid region of Rio Grande do Norte. The aim is to demonstrate how individual or collective creative action has contributed to preserving memory and understanding the process of adaptation to the semi-arid territory. The research drew on material from personal and group archives, scientific articles, observational fieldwork, and semi-structured interviews with residents living around Piató Lagoon and leaders of socio-environmental movements. Thus, the critical role of traditional knowledge holders who foster resistance and perpetuate naturalistic knowledge reflecting adaptation, close coexistence with nature, and environmental preservation is of great importance, as is the significance of orally transmitted knowledge that carries the memory of humanity's relationship with water and the ancestral role in the historical construction of territories of resistance.

**Keywords:** communicative action; environmental injustice; traditions; Piató Lagoon; water and food security.

**Resumo:** Este artigo reflete sobre a comunicação educativa de atores competentes do meio popular de movimentos sociais, lideranças ou mesmo sujeitos que projetam por meio de si a memória de uma relação de convivência próxima com a natureza apreendida com seus ancestrais. Pergunta-se sobre as intervenções humanas, pelo desenvolvimento ao longo do último século e pelas transformações trazidas nas questões hídricas e ambientais no semiárido do Rio Grande do Norte. Espera-se mostrar como a ação criativa individual ou coletiva ajudou na preservação da memória e em um conhecimento do processo de adaptação ao território do semiárido. A pesquisa coletou material em arquivos pessoais e de grupos, artigos científicos, trabalho de campo observacional, com realização de entrevistas semiestruturadas com moradores do entorno da Lagoa do Piató e lideranças de movimentos socioambientalistas. Assim, é de grande importância a atuação crítica de mestres que estimulam a resistência e a perpetuação de saberes naturalísticos que refletem adaptação, convivência próxima e preservação ambiental, além da importância do conhecimento transmitido pela oralidade, que tem a memória da relação do homem com a água e o papel ancestral de construção histórica de territórios de resistência.

**Palavras-chave:** ação comunicativa; injustiça ambiental; tradições; Lagoa do Piató; segurança hídrica e alimentar.

## 1. Introduction

There was so much water and pot-bellied children  
Eating fish stew with manioc flour  
In the fisherman's net  
It brings back memories of hopeful dreams  
The lagoon of my old childhood  
That time and drought have dried up.  
The mandacaru cactus warned that the waters from the other river  
Flow filling the sea [...]

Patrício Junior.

This article proposes to reflect on the importance of educational communication carried out by actors in the Açu Valley microregion, seeking to understand how this creative action has contributed to preservation and adaptation to the territory. The research in the semi-arid region of Rio Grande do Norte focuses primarily on rural areas and water security in recent decades.

Since colonization, rural Brazil has been marked by the usurpation of lands from indigenous peoples, caboclos, caipiras, and the peasantry in general, through violent expulsion and land concentration in large estates under the plantation monoculture model (Maestri, 2005; Wanderley, 2015). It has survived through fire and sword amid a series of conflicts that overlap economic interests, a concentrating economic model, and asymmetric relations stemming from colonial exploitation, domination, and dependency between Global South countries (Hocsman, 2014), present since the establishment of the first sugar mills (Maestri, 2005).

In this article, we emphasize the actions of organized civil society, particularly leaders and collectives. Thus, we highlight educational actions that express knowledge arising from inter-community ties, disseminating knowledge rooted in ancestral relationships with nature and reinforcing respect between native humans and the environment, where the perpetuation of naturalistic knowledge not domesticated by science (Lévi-Strauss, 1997) plays a central role. From a broader perspective, we highlight approaches such as *buen vivir* and post-development, including the recent work organized by Kothari et al. (2019). These authors remind us that access to and availability of community knowledge function through oral communication, and that the preservation of collective memory and popular knowledge occurs through storytelling and narratives. Using family farming as an example, they emphasize that local, traditional, and agroecological knowledge constitutes a biocultural memory or knowledge (Hernandez, 2022) transmitted orally across generations. This is non-scientific knowledge that, driven by critical social scientists from the Global South, has come to be respected and has given rise to a movement with an innovative approach

promoting emancipatory change for local development based on ancestral knowledge.

The article seeks to engage with reflections on dialogic communication in Freire (1983; 1985; 2000), offering a critical reflection on externalized and predatory development, while articulating the notion of agency in Giddens (2003) to valorize competent agents who express knowledge for human and non-human resistance and resilience. Permanence in the territory, understood here as a social and political space, transforms into territories of resistance where indigenous peoples “guard the deep memory of the land” (Krenak, 2019, p. 14).

Throughout the twentieth century, this colonial, post-colonial capitalist, and exploitative logic consolidated itself by building connections and alliances between capital and the State (Harvey, 2011), as exemplified by public interventions to improve private territories that benefit local elites, such as the so-called drought industry. These interventions are formulated through policies and public actions that often carry the narrative of development and the correction of social and regional inequalities, yet act contrary to these objectives. The result has been the expulsion of populations, whether violently or not, putting community lives at risk (Comissão Pastoral da Terra [CPT], 2024).

In this first quarter of the twenty-first century, we are witnessing the domination of territories by large transnational conglomerates through the installation of wind and solar energy parks. Supposedly clean and sustainable, this energy transition invades territories with externalities to the locality, imposing an occupation with few social and everyday relations, using the territory and wind resources as commodities for export, triggering processes of deterritorialization. Advances in territorial occupation have threatened biodiversity, the environment, the climate, traditional peoples and their knowledge, and the very lives of Brazilians. This continues to repeat itself with the presence of “large tracts of monopolized land, cutting-edge technology, monoculture, devastation of nature, and exploitation of slave labor (...) in the service of accumulation” (Porto-Gonçalves & Leão, 2020, p. 9).

Several authors have shown (Santos et al., 2023) the results of predatory actions in the region and how they impact the climate panorama, increasing global temperatures (Intergovernmental Panel on Climate Change [IPCC], 2014; 2023) and confirming the relationship with the *modus operandi* of the capitalist system, which has caused climate emergencies and generated environmental catastrophes (Stengers, 2015) that are increasingly frequent and widespread worldwide. Other approaches emphasize the risk society (Acselrad, 2002; Beck, 2011), while others analyze the importance of disseminating this situation through scientific and journalistic means (Loose, 2022), signaling the need for human reflection and communicative action. De Lima et al. (2014), interpreting the work of Robert Cox (2010), high-

light the primordial role of knowledge in environmental communication, of perceptions and actions “influenced by intense media production and diverse communicative practices of non-governmental organizations, governmental institutions, and private companies” (Lima et al., 2014, p. 208), which also reinforces reflexivity (Giddens, 2003).

That said, our objective is to highlight the communicative action of the society inhabiting these spaces. Our focus will be on educational action carried out by individual or collective subjects, such as organized civil society groups focusing on the Açu Valley. Thus, we will present the actions and narratives of the following subjects: Chico Lucas, an ancestral knowledge master, the Lagoa Viva Group activist collective, the Quilombola Community Association of Bela Vista do Piató, and the Brazilian Semi-Arid Articulation (ASA). Through memorialist, identity, cultural, and poetic constructions of the semi-arid region, these actors have exercised and continue to exercise active, critical, and denunciatory communicative action in favor of life in the semi-arid region.

The article’s methodology employed semi-structured interviews conducted with inhabitants of the Açu Valley in the surroundings of Piató Lagoon and in the city of Açu, Rio Grande do Norte. The objective of the interviews was to capture how they perceive the problems for remaining in the territory and how they act for resistance (Silva Prada, 2014). A qualitative and interpretive approach was adopted (Gil, 2010; Minayo, 2014). Fieldwork was conducted in their homes, both around Piató Lagoon with residents who are guardians of local memory (Moura, 1979), with the militant leadership for the preservation and resistance of the “mother of the poor” since the 1980s from the Lagoa Viva Group in the city of Açu, and with interviews with the leaders of the Quilombola Community Association of Bela Vista do Piató at the association’s headquarters. All participants agreed to be interviewed under the research’s Free and Informed Consent Protocol. In the case of ASA, documentary collection was carried out from articles, journalistic and artistic texts about the Brazilian Semi-Arid Articulation (ASA) and about the region to demonstrate the social importance of the communicative action of organized civil society capable of mobilizing strategies of resistance and defense of their territories.

In addition to this introduction and the conclusion, this article is divided into a first theoretical-methodological section with analyses of the constitution of the concept of development, its application and critiques, and of educational and communicative action in Freire. Subsequently, the studied geographical context is briefly described, as well as experiences of good practices in educational communication in the semi-arid region through the narratives of actors and agencies, contextualizing the clash of public policies for development.

## 2. On the trail of the Açu semi-arid region: theoretical-methodological itineraries of the research

This article is reflective in nature, serving the purposes of a critique of predatory capitalist (un)development and its effects of risk and environmental injustice on traditional communities and the environment, articulating theoretical approaches to relate communication, management, and governance in contexts of experiences and good practices such as communicative action.

### 2.1. The critique of (un)development

The ideas of development and progress appear in sociology from its basic foundations when it was consolidating as a professional field and had influential relationships with the historical economic context of eighteenth-century Europe, as well as homologous applications to other spheres of social thought derived from evolutionism and positivism. These ideas are embedded in the European social thought of Auguste Comte in the “Course of Positive Philosophy” (1830, 1978), in which he expounds the *Law of the three stages* of the human spirit, which would progress from more primitive stages toward the stage of the positive spirit, positive science, positive sociology, and the metaphysics of the social, often present in mechanistic analyses of historical dialectical materialism in some works of Karl Marx and Engels. Subsequent generations attempted to resolve the dichotomies presented in these views of society, both with regard to positivism and historical dialectical materialism. “Comte, Spencer, and to some extent Marx, made their contributions in this field, by exploring a vision of ‘history (...) as a slow, gradual, but continuous and necessary ascent toward a determined end’” (Nisbet, 1985, p. 181, *apud* Knox & Trigueiro, 2011, p. 3).

Sztompka (2005), although not directly using the term development, analyzes social changes articulated with notions of progress and modernization. According to the author, progress would be equivalent to:

“the useful creed of our civilization”, whose meaning becomes ingrained in modern projects. Under this creed, the pillars of the Western vision that interprets the notion of time in a linear, evolutionary, and cumulative way would have been established (Knox & Trigueiro, 2011, p. 4).

Habermas (1984) identifies the project of modernity as the construction of an objective science with dominion over nature and the promise of human freedom. In this context, development is associated with economic aspects, GDP growth, and individual enrichment, which will influence international agencies in emphasizing this economic approach as a prescription for “undeveloped” countries.

Sen (2010) points to the importance of perceiving development beyond economic aspects. The Human Development Index (HDI) aims at displaying data constructed for a broader notion of development by establishing

three variables for the indicator constitution: health (life expectancy), education, and income. From the State's institutional perspective, development seems to be placed at the center of all analyses as the driving force applied to all narratives, including those of global organizations present in public and private financing projects for Global South countries.

For Ribeiro (2008), based on demands external to the locality, Large-Scale Infrastructure Projects (LSIPs) are conceived and implemented, mainly by developmentalist governments. These projects would be representative of the expansion of economic systems under the umbrella of the globalization process, as the author explains:

LSIPs have structural characteristics that allow them to be treated as “extreme expressions” of the development field: the size of capital, territories, and number of people they control; their great political power; the magnitude of their environmental and social impacts; the technological innovations they frequently create; and the complexity of the networks they engender. They bring together impressive amounts of financial and industrial capital, as well as state elites and technicians and workers, merging local, regional, national, international, and transnational levels of integration (Ribeiro, 2008, pp. 111-112).

Eduardo Viveiros de Castro in “The Involuntary Patriots: Praise of Underdevelopment (*Os Involuntários da Pátria: elogio ao subdesenvolvimento*)” (2017) offers profound criticisms of this predatory development. He also signals in “Economic Development and Cosmopolitical Re-involvement: From Necessity to Sufficiency” (2011) the emergence of networks that disarticulate citizens' participatory involvement. The narrative of progress has the appearance of the tautological inevitability of development or remaining in poverty, inverting the understanding of the process in which poverty is generated by disarticulation and non-involvement.

The way of thinking about development from outside the locality or region, from top to bottom, from global power networks to those who will suffer the harms at the development site, results in socio-environmental injustice (Acselrad, 2002), as the benefits are appropriated first and predominantly by capitalist agents while the damages are distributed among local communities. It is in this sense that we consider the critique made by grassroots actors and social movements of the development model. On the opposite side, we understand the action they organize as communicative and educational action in society, which we will address below.

## **2.2. Communicative and educational actions**

We propose understanding communicative actions as those that establish educational communication through a dialogic, horizontal approach, of a phenomenological and ethnographic nature (Freire, 1983, 1985, 2000), recognizing the urgent epistemological need to establish new paradigms for science through the dialogue of knowledge and different worldviews. This

means thinking of a new ethical way of relating rights between knowledge and practices that are not under the pillars of Cartesianism of modern science (Morin, 2008). Both in research and extension work in Brazilian universities (Martins & Knox, 2023), ethics is constituted for the construction of *buen vivir* (Acosta, 2016).

Thinking about communicative action in Paulo Freire means immersing oneself in almost all of his extensive work, which reflects his life dedicated to learning and humanist, liberating, and transformative education. The thinker-educator from Pernambuco, born in Recife in 1921, brought revolutionary ideas in several books written in Brazil, Latin America, and other countries where he took refuge from political regimes that persecuted him, speaking of the possibility of human transformation through education for emancipation. He focused especially on those excluded from access to formal education, proposing, through a systematic production of innovative and critical reflective knowledge, a dialectical process between thought not domesticated by science – concrete thought – and critical abstract historical materialist thought, using as a mobilizing instrument the linguistic field of the lived reality of the learners/students.

There are several books that help us reflect on communicative action in Freire, starting with “*Extension or Communication*”, published in March 1983a, and “*Toward a Pedagogy of the Question*” (1985), as well as “*Pedagogy of Indignation: Pedagogical Letters and Other Writings*” (2000), among other books that bring together texts written between 1968 and 1974. These books show how the author perceives education far beyond giving knowledge to those who “do not have it”, since, according to the thinker, this relationship is complex and multidirectional, and everyone can be subjects of thought and action, everyone produces knowledge.

Therefore, our starting point for grounding the central argument of this article is that masters of knowledge not formally institutionalized exercise communicative action in society among their peers and for their listeners, participants, or opponents of their ideas. We also start from Freirean ideas that this knowledge is better understood, producing transformative practices when related to and recognized within the social context. In this sense, it corroborates our idea of using social movements as actors of communicative action.

Freire offers a critical reflection on the term “extension” and discusses technical extensionist assistance in the field, such as that carried out by agronomists or technicians, and the concrete person in the reality that conditions them. By criticizing the externality of extensionist action, due to its technicality, mechanicism, and objectification of subjects, he indicates that extension can be understood as cultural invasion, suggesting educational communication as a critical overcoming.

Education conceived as a gnosiological situation, which is a process of apprehension and production of knowledge, wisdom, and conscious

actions, constitutes a broader vision, understood from the perspective of humanization in the conduct of conscious actions for world transformation.

Thus, the knowledge apprehended is that which can be reinvented and applied in concrete existential situations. Far beyond knowledge resulting from rationality in the Cartesian sense of the term, this apprehension includes the complexity of social practices, cultural dynamics, and their manifestations, such as beliefs and spiritual rites. For the Freirean education process, it is necessary to know through listening to the learners/students the worldview they have. Only in this way can education become knowledge of liberation and not domination.

It is in this sense that “*Toward a Pedagogy of the Question*” constitutes problematization, restoring to subjects their central place in the reflective process, dethroning the educator from their *status quo* and from a cognoscent statute hierarchically placed as superior, bringing formation to a liberating rather than dominating process.

In “*Pedagogy of Indignation*”, we see the strength of concepts for the de-objectification of humans by the educator, who is also a learner, confronting the domination and domestication of knowledge turned “banking”, that knowledge which is cumulative but not reflective. In indignation arises the process of human transformation, transformed again into a subject in the search for liberating communicative action, where learning is transformative through praxis.

The methodology applied in the Freirean learning process starts from the constitution of the learner’s linguistic field, their reality and context, for the structuring of knowledge in the action of communication for educational dialogue. In this sense, masters of ancestral knowledge establish a body of knowledge apprehended in the process of admiring nature, learning from it the importance of conscious human presence in the environment (Freire, 1983).

### **3. The setting: the Açu Valley and the semi-arid region**

From a very early age, one learns in Brazil, from north to south, about the drought of the northeastern semi-arid region and how it reverberates in regional identity through cultural dimensions and communication channels, whether documentaries, cordel literature, regional music, theatrical plays, or scientific articles (Ferreira, 2024). The accounts point to the main social dimensions of drought, indicating a drought industry that favors the regional elite (Callado, 1960), as well as the idea that the northeastern person is, above all, resilient, with the caatinga biome being their natural habitat, rich in biodiversity and with the capacity to adapt to severe droughts (Cunha, [1902] 2016; Ferreira, 2024). More recently, there has also been concern with water security in the face of climate change (Dias, 2025) and the impact of renewable energy enterprises.

The Brazilian semi-arid, like other semi-arid regions in Latin America and the world, is characterized by low annual rainfall, around 500 to 800 mm. The precipitation value is reasonable compared to other places; the difference lies in the fact that these are torrential rains concentrated in a few months, in addition to high evapotranspiration.

What distinguishes the Brazilian semi-arid from others is its population density, being considered the most populous semi-arid region on the planet (Marengo et al., 2017). During drought periods, it can go several years without rain, causing fear regarding water security for human and non-human populations.

The Açu Valley region is crossed by the river that originates in the Piancó mountain range in Paraíba, known as Piranhas, crossing the entire central region of Rio Grande do Norte under the name Açu until reaching the RN coast. The Piranhas-Açu river basin has shown potential for human settlement for a long time, having been territory occupied by indigenous groups, quilombolas, and white European explorers since the sixteenth century (Silva, 2015). In this region, the Piató Lagoon estuary is formed, considered the largest fluvial reservoir in the central region of RN (Dias & Costa, 2017), important for its social and economic function regarding food security through fish production and cultivation on its banks.

The municipality of Açu was founded in the eighteenth century under the name Vila Nova da Princesa because it was an important fertile area bathed by the waters of the Açu River that became an economic hub:

The periodic floods and the floodplain area guaranteed (and still guarantee) good quality land for subsistence cultivation. Added to this, the carnauba palms (typical palms of the region and of relevant socioeconomic importance) compose a landscape that appears not only in the words of poets but also in the accounts of men who advanced toward the unknown backlands during the colonial conquest period (Silva, 2015, p. 3).

The Açu Valley still presents itself today as one of the locations in RN with the greatest potential for productive activities, as it holds the largest supply of water resources in the state, in addition to highly fertile soils with great potential for agriculture, having been used in recent decades for irrigated fruit farming (Aquino & Silva Filho, 2015). For this reason, it has been the target of human intervention and public policies in the form of large development projects in recent decades, such as the Armando Ribeiro Gonçalves dam, inaugurated in 1983, with the purpose of helping to regulate flow for the promotion of irrigated agriculture.

Despite the benefits that the Armando Ribeiro Gonçalves dam brought to water security in several municipalities around the Açu Valley, water scarcity has been observed in Piató Lagoon. This occurs due to the lack of public management in maintaining the channels for water supply to the lagoon, which, even with the winter rains of 2024, has been insufficient

(Silva, 2024). However, the reality of the Lower Açu Irrigated District, according to its Lower Açu Association (Adiba), is different, as there is no lack of channel maintenance or water for irrigation.

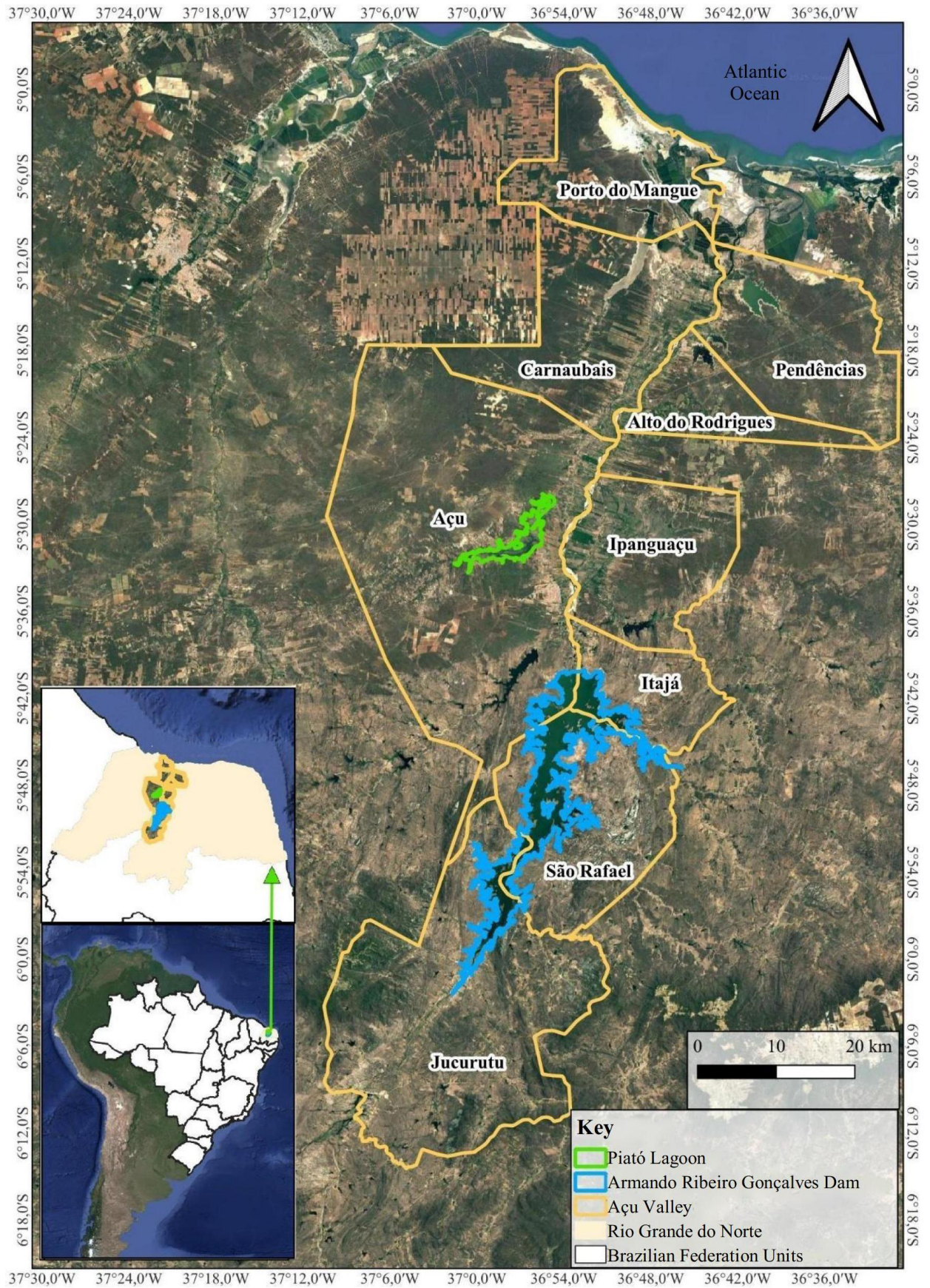
With modernization and the technological implementation of irrigated agriculture 25 years ago, the Lower Açu Irrigated District (DIBA) has experienced a continuous process of developing fruit farming for export, consolidating work and income for about 200 producers on the fertile land of the municipality of Alto Rodrigues. This has benefited approximately 2,000 families involved in the production of more than 5.7 tons of fruits such as papaya, mango, banana, in addition to other agricultural products (Associação de Irrigação do Baixo Açu [Adiba], [n.d.]) for export. All this is thanks to the systematic maintenance of irrigation channels, fundamental to ensuring continuity of this production. Figure 1 below shows a map with the location of the Piancó-Açu basin with indication of Piató Lagoon in Açu, and its insertion in the RN map and RN in Brazil.

Piató Lagoon, also called by Master Chico Lucas the “mother of the poor of the Açu Valley”, is an important freshwater reservoir in Rio Grande do Norte with a territorial extension of 18 km and about 10 meters deep. It has the capacity to store about 96 million m<sup>3</sup> and a great diversity of fish species (Dias & Costa, 2017). Around the lagoon, there is a set of five rural communities that depend on these waters for their subsistence activities: Porto Piató, Bela Vista Piató, Olho d’Água do Piató, Banguê, and Areia Branca Piató, forming the Piató Lagoon ring.

Water scarcity in Piató Lagoon has prevented fishing activity in the reservoir, causing a discontinuity in the practice of artisanal fishing, as well as food cultivation on the lagoon’s floodplain lands, identified as an important alternative to hunger, whether through artisanal fishing or agriculture that, since the earliest times, have been carried out as complementary or simultaneous activities by traditional communities.

Therefore, the lack of water in the lagoon increases the need for residents to have irrigation from artesian wells for agricultural and livestock activities and for dependence on free public health and education benefits offered by public policies, but also increases the demand for government income transfers, guaranteeing residents the minimum for food acquisition. Added to this is a series of rights violations to which the communities are subjected: difficulty in accessing land, food, income, and collective transportation infrastructure, being subject to pressure from large companies to change traditional dynamics of food production and consumption and traditional ways of life.

According to Ramalho (2009), environmental changes tend to be more visible, especially when humans interfere, since human intervention through large development projects presents significant degradation, further potentiated when it results from regional fragilities, such as low average annual rainfall concentrated in winter months. Furthermore, poor



**Figure 1** Map of the Açú Valley Region with the location of the Armando Ribeiro Gonçalves Dam and Piató Lagoon.  
Source: Instituto Brasileiro de Geografia e Estatística [IBGE], 2005  
Prepared by: Rodrigo Emanuel de Sousa Almeida (2025).

management and little oversight of the drainage system through river damming at different points in the basin result in modification of fauna and flora, in addition to erosion problems accelerated by the use of natural resources, often without technical training for conservation, making this region an important source of studies on environmental impacts.

The unequal distribution of water causes the expulsion of inhabitants, and socio-environmental conflicts emerge, amplified by the implementation of large renewable energy enterprises, such as the construction of photovoltaic energy parks by companies like Engie Energia Brasil, which since 2017 has occupied the region for the construction of solar energy parks, aiming at the generation, commercialization, and transmission of energy through the Assú Sol Photovoltaic Complex, located in the municipality of Assú, whose total nominal installed capacity is up to 750 Megawatts (MW). The implementation of these enterprises strengthens the capitalist logic of predatory exploitation of natural assets, while presenting on its action agenda the extraction of natural resources located in the territory.

In this scenario lies the importance of the communicative actions of leaders and environmental groups that we discuss below.

#### **4. Actors, agency, and demands**

Human interventions in the region have been marked by alteration of river flows, artificially produced forests, implanted exotic species, among others. In addition to state activities to provide water security, other actors have been working on the demands of water and food security for the population in the region. Below, we organize the main ideas about action and agency based on Giddens' effort to constitute the theory of structuration, in which he attempts to overcome the dichotomy between structuration and action theory in society.

In Giddens' studies (2003), we start from Max Weber's notion of human actions (1999). Weber does not see actions from the individual, like Durkheim, but rather from agencies, which allows analyzing power relations with agents at the center, and "from the agent, who recognizes, therefore, legitimacy is realized through the agent. Power is in the agent" (Hubner, 2021, p. 3). Weber's theory of action organizes 4 ideal types, hermeneutic instruments created for the interpretation of reality from which it would be possible to establish an analysis of the motivation of the subjects of action.

Giddens establishes his theory of structuration attempting to overcome the dichotomy of positivist and comprehensive theories, as he finds strength to explain the action of agents, no longer fragile individuals facing the social structure. This is because positivist theory places too much emphasis on the power of structure, subordinating the action of subjects. Agency needs to be conceived in the capacity of social actors. Hence arises

the action of special agents, the notion of competent actors, who, precisely through their actions, enable the alteration of structure, because structure is also structured by actors who are structured by structure, that is, it is both structuring and structured.

In this sense, the actors listed here are examples of competent agents who, through educational communicative actions, involve and alert society about social practices, establishing a difference in the structuration of reality.

#### 4.1. Communicative actions and their narratives

##### 4.1.1. Master Chico Lucas

Master Chico Lucas was born in 1942 on the banks of Piató Lagoon in the Community of Areia Branca Piató, where he grew up and started a family. From a very young age, he worked as a farmer on landowners' lands planting cotton, together with his father and brother, where he learned land measurement, that is, cubações, as he reported: *my father was the measurer of these tasks, you understand? His schooling, he taught, he had a good memory for counting, so he did the measurements, right? And I watched my father measuring and I said: father, I want to measure too. Then he taught me.*

According to Master Chico Lucas's account, the tasks are hectare measurements that helped the rural man measure the worked lands:

*Tasks are a measurement of hectares, one hectare equals three tasks and a quarter, right? But the rural man here works with the task measurement. What is a task? It's 25 square braças, right? Which was precisely the measurement that the manual laborer could do, he made a stick with one braça, then measured twenty-five square braças, so no one cheated him on the labor, right? They cheated on the value, but not on the labor.*

*My desire was to learn to count, right? Then I went after the ABCs and learned to join the letters. But my teacher was myself, figuring it out with my head. [emotional crying]*

Starting in 1960, Piató Lagoon began storing water again and, according to Master Chico Lucas, fishermen returned to work in artisanal fishing to feed their families, improving people's purchasing power. These accounts demonstrate the importance of Piató Lagoon for local survival, so that the Master calls Piató Lagoon the Mother of the Poor. *I call it the Mother of the Poor because these poor, needy people, in bad, difficult years, with the lagoon full of water and fish, everyone would come to fish in Piató to catch fish to take home, for the family.*

From the accounts, one perceives the strengthening of the relationship between residents and nature, so that local actors have the perception of the importance of the water reservoir for food, as well as for ensuring the survival of their families. Table 1 provides a synopsis of interview ex-

cerpts that reveal narratives about collective actions for the preservation of Piató Lagoon.

#### 4.1.2. The Lagoa Viva Group

The organized community has remained in the region adaptively and has demanded State action in its projects for the right to universal access to water, since not all residents of the municipality of Açú have water at home, according to the Lagoa Viva Group, which since the 1980s has been advocating for water rights for all and for the preservation of Piató Lagoon, the “Mother of the poor”, with the aim of ensuring better quality of life for riverside dwellers and for all beings that live in it.

The group’s activities have taken place through mobilizations and public acts aimed at environmental awareness, with networked action alongside other organized civil society groups and educational institutions, with emphasis on the State University of Rio Grande do Norte (UERN). The group has been pressuring parliamentarians at the municipal and state levels in awareness-raising work regarding water crisis and climate change issues. It also carries out cleanup efforts on the Piranhas-Açu River, refor-

**Table 1** Synopsis of communicative actions and narratives of Master Chico Lucas, a central actor in the awareness process about the importance of lagoon governance. He argues that drought events and lack of water in Piató Lagoon, even after the dam construction, require reflection and collective action.

Interpretations of the narratives	Narratives about development, educational and communicative actions from interview excerpts
<p>Master Chico Lucas emphasizes the need to mobilize the community to work on the Piató Lagoon channel. He stresses that the drought that occurred locally should not have happened, considering the amount of water available in the dam. For him, the lagoon dried up because there were failures in management and in conducting water to the reservoir. There is an appeal for people to understand and take responsibility for preserving the system.</p>	<p><i>Put some sense in their heads to do the work on this Piató Lagoon channel, because I've been saying, I think you'll agree with me, that everything that happened with the drought and the lagoon not receiving water, before the dam I accept, but the dam with this sea of water that has more than a billion cubic meters inside it, right? [how to imagine] Piató Lagoon drying up along with the dam... Piató Lagoon dried up... because the dam dried up, you understand? With the meters it has today, there's a way to put this water and never that water that's passing there [in the water inlet channel to Piató Lagoon].</i></p>
<p>Beyond discourse, Master Chico Lucas reports concrete practices: upon identifying the problem in the channel, he indicates that he instructed his cousin and other community members to clean the wall and the weir, allowing the water flow to return to the lagoon. He also reports that after the intervention, the water flow returned temporarily but was soon interrupted again, showing the need for continuous vigilance.</p>	<p><i>Then I told my cousin, he went with a group there and cleaned the wall there, the weir, then the water started to enter again. Then yesterday I went to Assu and the water is stopped.</i></p>
<p>Another recurring point is the management of natural resources in the region. The custom of removing firewood is tolerated, but the construction of a weir in the channel, which ended up blocking the water passage, is pointed out as a harmful action. This reinforces the importance of guiding the population toward practices that reconcile resource use with lagoon maintenance.</p>	<p><i>The people removing firewood, it's fine to remove firewood, right? But they built a weir in the channel and it blocked the water, right?</i></p>

estation, as well as mobilization for discussion and reflection on development projects. Figures 2 and 3 record educational actions by the Lagoa Viva group. Table 2 presents a synopsis of excerpts from the interview conducted with a leader of the Lagoa Viva group.

#### 4.1.3. The Quilombola Community Association of Bela Vista do Piató

The social mobilization carried out by the Quilombola Community Association of Bela Vista do Piató has been going on for many years, seeking recognition of the Bela Vista do Piató community as a traditional quilombola community in 2011 based on Federal Decree No. 6,040/2007. This institution has been fighting for permanence in the territory, despite an expulsion process that affects them, some of the reasons being the lack of maintenance of the Piató Lagoon channels and, more recently, the entry of solar panel enterprises in the surroundings of the housing complex built in the 90s in Bela Vista do Piató. Despite the social and power asymmetries between rural workers and large enterprises, the Association is fighting to receive benefits for the community, such as the already received financing for productive backyards and the construction of a social facility, the community kitchen, using the financial mechanism of environmental compensation that obliges enterprises with significant environmental impact to return to the community a benefit corresponding to the non-mitigable environmental impact, according to Federal Law No. 9,985/2000.

These initiatives demonstrate that the local population is aware of the risks to which they are subjected and articulates educational actions related to awareness about the importance of preserving the territory for

**Figure 2**

Ecological Way of the Cross in the form of a procession where those photographed carry a banner with the following words: "Let us preserve Piató Lagoon, it belongs to everyone", photo taken in the 1980s.

Source: Lagoa Viva archive.





their quilombola identity as a strengthening of identity roots. Figure 4 displays the Bela Vista do Piató community and Table 3 contains the synopsis of interview excerpts of the communicative actions and narratives of the Quilombola Community Association of Bela Vista do Piató.

#### 4.1.4. Brazilian Semi-Arid Articulation (ASA)

The Brazilian Semi-Arid Articulation (ASA) was established in the 1990s. It is formed by more than three thousand civil society organizations of different natures, from rural unions, farmer associations, cooperatives, NGOs, OSCIPs, etc.

One of the most striking events was the occupation of the Superintendency for the Development of the Northeast (Sudene) in 1993, with the objective of putting coexistence with the Semi-Arid on the agenda in opposition to the governmental policy in force at the time. In 1999, parallel to the 3rd Conference of the Parties to the Convention to Combat Desertification and Drought (COP3) of the United Nations (UN), held in Recife-PE, the organizations launched the Declaration on the Brazilian Semi-Arid (Articulação no Semiárido Brasileiro [ASA], 2015, p. 2).

Table 4 below contains a synopsis of excerpts from research on the ASA website:

According to the ASA website, the institution's mission is to strengthen civil society in building participatory processes aimed at sustainable development and coexistence with the Semi-Arid, in the fight for the defense of the right to water, to food necessary for life and to inputs for the

**Figure 3**

Joint action of the Poetry on the Açú River Project and Lagoa Viva Group, displaying many bags of trash from cleaning the river channel that connects to Piató Lagoon for environmental awareness, carried out in 2022.

Source: Lagoa Viva archive.

**Table 2** Synopsis of communicative actions and narratives of the Lagoa Viva Group.

Interpretations of the narratives	Excerpts from narratives about development and educational and communicative actions
<p>The Lagoa Viva Group brings up memories and fears regarding the dam construction and the resulting environmental impacts. Although it benefited 48 municipalities, the project brought severe damages to farmers in the Açu Valley, such as forced expropriations and migrations, being seen as favoring large interests to the detriment of local communities.</p>	<p><i>With the dam construction, the environmental impact was very large here in the Açu Valley. On one hand, it benefits 48 municipalities today, but on the other hand, when the federal government ordered the dam to be built, it affected all the farmers of the Açu Floodplain. Because we from the Catholic Church (at the time I was with the Catholic Church with Father Canindé), we were against [the dam] because we knew that the expropriation would [happen], [but it could] be a negligible expropriation, because the federal government in Brasília ordered the credit lines from Banco do Nordeste and Banco do Brasil to be closed, right? So, the farmers were forced to sell the lands to migrate to the city, right? Or to another city and sold at a negligible price, right? What happened? It arrived here, because we knew that this grandiose project was to benefit the multinationals. Oh, such injustice.</i></p>
<p>The group's action also highlights resistance against the attempted closure of the Açu National Forest post during the institutional reform of the 1990s. Through mobilization of organized civil society and sending documents to authorities, they managed to prevent the immediate closure of the unit, although the administrative transfer imposed new challenges for oversight and protection of the territory.</p>	<p><i>There was a problem with a former chief of Flona, which is the Açu National Forest, it was our struggle, of organized civil society. Because in Fernando Henrique Cardoso's institutional reform he was going to close this Forest Post here, you understand? But we, from organized civil society together with the Municipal Chambers of the Açu Valley cities, taking here Assú, Itajá, Ipanguaçu, Pendências, Alto Rodrigues, Carnaubais, we got together, made documents, sent all this documentation to Brasília and we won this battle. [But] There it is, unfortunately, what happened now, recently is that Bolsonaro, only didn't close it, but transferred the administration of this national forest, left it to Mossoró. Because it's an illogical thing, you understand? Because how is it that here with two, three employees, it was difficult to inspect 400-something hectares of land. How is it that there in Mossoró you're going to come inspect? Because we know that even today hunters enter the forest to kill deer, to kill other animals.</i></p>
<p>Articulations for Housing Improvement and Environmental Preservation</p>	<p><i>At the end of the 90s to the year 2000, that's when a project started in Piató, which was a project sponsored by the Catholic Church through SEAPAC, which is the Support Service for Alternative Community Projects. This project is the benefit that happened in Porto Piató, the houses were made of mud, some even covered with straw still, right? Very rustic indeed. And after that the mayor made an agreement with Caixa Econômica and removed that entire riverside community from the lagoon's edge. Pulled them up there, right? Today the houses there are made of masonry. That was 22 years ago, right?</i></p>
<p>Summary: The narratives show that the governance of Piató Lagoon depends both on the valorization of community knowledge and on the articulation between civil society and public institutions. The challenges faced, such as water management, use of natural resources, defense of territory, and environmental care, reveal the need for constant vigilance, educational practices, and collective actions to ensure the preservation of heritage and socio-environmental justice in the region.</p>	<p><i>We planted more than 150 seedlings taking them from the nursery there. Go up there, because there's an ecological corridor crossing the city diagonally and it goes out there on the road to... going to Carnaubais [...] The city hall arrived there with those electric machines, cut everything, all the brush, all the seedlings we planted. This is a lack of sensitivity. It's shameless, you understand? Of this administration that is still there today, you understand? And we were stunned, outraged. We went to the radio, to FM 89 radio, to Rádio Princesa. We denounced this... but it stayed like that, you understand? We lost more than 100 seedlings of various native forest species that we got from IFRN in Ipanguaçu, others bought the seedlings, and they simply, to hold the motocross, destroyed everything. This is outrageous.</i></p>



production of other foods, affirming its political incidence on adaptation and coexistence with the semi-arid as a means of (re)existence. In addition to the One Million Cisterns Program (P1MC), ASA's activities in RN occur on several project fronts such as: Drinking water (cisterns totaling 68,027); the stimulus for the implementation of social technologies aimed at water for production, which includes assistance to 11,619 families, as well as 23 seedling nurseries and 70 seed banks (ASA, 2019), which provided the participatory bases for the Cisterns Program.

The native and vulnerable population needs adequate public policies for better effectiveness and efficiency. The promotion of large development projects oriented toward or appropriated by the capitalist logic of agribusiness accentuates social inequalities and provokes violence, leaving peasants and traditional populations on the margins, with their rights denied (Das & Poole, 2008). In this sense, questions are raised about dam projects in the region and their capacity to meet the basic right to guarantee water for all, based on the idea of water security and the right to food security.

In the name of fighting hunger, water security, progress, and development, large development projects have been carried out, producing major environmental changes, as is the case of the construction of the Armando Ribeiro Gonçalves dam, inaugurated in 1983, which “not only brought the

**Figure 4**

Association in one of its meetings with residents, researchers, and employees of the Institute of Sustainable Development and Environment of RN (IDEMA), and the Chico Mendes Institute for Biodiversity Conservation (ICMBio), 2023.

Source: photographic record by the authors from the research database.

**Table 3** Synopsis of communicative actions and narratives of the Quilombola Community Association of Bela Vista do Piató.

Interpretations of the narratives	Narratives about development, educational and communicative actions from excerpts taken from interviews conducted
<p>The community reports difficulties in accessing water due to channel obstruction by vegetation and sand, and criticizes the lack of political will to resolve the problem. Clearing requires environmental licenses, which is seen as an obstacle. Furthermore, they point to the unequal action of public authorities, which hinders essential actions for channel maintenance and water supply.</p>	<p><i>Now everything is dry, everything is dry... they made a channel. I won't say it was good [because there were good things] but if the politicians wanted to help.</i></p> <p><i>And today the channel is a bit silted up due to the winds and these winters, right? And... but the water doesn't arrive because in some parts there's a lot of brush, a lot of brush, that water hyacinth, right? And with sand too, right? And what's missing is just the political will [to solve these problems]". ..."You need to use machinery, ... then they want you to get a license from IBAMA, from IDEMA. Nobody did that, right? And we're demanding [the channel clearing] from this president of the Fishing Colony, because she's president of the Colony and she's a councilwoman.</i></p>
<p>The narratives reveal that the governance of Piató Lagoon depends both on community knowledge and on the articulation between civil society and public institutions. The challenges include water management, use of natural resources, defense of territory, and environmental preservation. Overcoming them requires constant vigilance, educational practices, and collective actions to ensure the preservation of heritage and socio-environmental justice in the region.</p>	<p><i>He [the Mayor] puts great difficulty on this. My friend makes an official letter and this here resulted in a project we're doing. We're cleaning here a project that was [poorly] done. I think IDEMA and these agencies wouldn't prohibit doing this. But they don't have the goodwill to do it and allege that [they need authorization from IBAMA and IDEMA]. He's the mayor who has the authority to do this. To resolve this.</i></p>

possibility of water security for dozens of municipalities in the state, but also promoted a model of export-based irrigated fruit farming” (Ferreira et al., 2023, p. 3), intervening in the need for water security first, in the droughts of 2012-2018, and prevented the migratory movement from this region.

Thus, it is not possible to deny the importance of the dam for the municipalities, as ensuring water security is an important public action for achieving the right to water for the population. However, there is strong criticism regarding the use of this water for intensive fruit farming for export. Water consumption rates indicate that around 80%<sup>1</sup> of the total available water is used for irrigated agriculture, as previously demonstrated, causing water shortages in other locations, especially when combined with the lack of maintenance of distribution channels.

The process of supporting irrigated fruit farming has been provided by the State for more than 2 decades, which has maintained the cleaning of channels and water supply for the Lower Açú Irrigated District. However,

1 According to the United Nations Food and Agriculture Organization (FAO), agriculture is the sector that consumes the most water, reaching almost 70% of all water used. In Brazil, this value reaches 72%.

**Table 4** Synopsis of communicative actions and narratives of the Brazilian Semi-Arid Articulation (ASA). The table explains that ASA criticizes the Drought Industry, in addition to building sustainable proposals for adaptation and defense of coexistence with the Semi-Arid, which prioritizes water security, proposing the cistern project which received government attention, which initially wanted to make them of plastic, which ASA opposed, because cement slab cisterns would be more effective, despite being slower in project implementation, since plastic cisterns, besides not withstanding semi-arid temperatures, do not converge with proposals for social participation, learning, and community involvement.

Interpretations of the narratives	Excerpts collected from the ASA website about development, educational and communicative actions
<p>Criticism of attempts to “resolve” drought and poverty with what was considered “the drought industry” and resolution proposals that did not consider the specificities of the semi-arid. Proposes coexistence with the Semi-Arid and more sustainable development for the region.</p> <p>Proposes public policies and actions in the semi-arid that value adaptation to the environment. For example, projects for gray water reuse, planting native trees, cultivating native bees, and animals that resist heat, such as sheep.</p>	<p><i>The experiences developed and articulated by ASA and its organizations prove that it is possible to reformulate the structural bases of the rural development model that generates food insecurity in the Semi-Arid. They reveal the possibility of establishing new relationships between the State and civil society, in which the State assumes the role of supporting the autonomous and creative initiatives generated within society. Moreover, only with the citizen participation of an active Civil Society will it be possible to effectively democratize the State, in order to overcome the political culture dominated by assistentialist and clientelist practices responsible for maintaining the ill-fated “drought industry”. The main cause of the success of ASA’s actions consists in the decentralized management of available resources based on local needs.</i></p>
	<p><i>Expanding the range of actions for Coexistence with the Semi-Arid, ASA launched in 2015 a program that reinforces the stock culture in the Semi-Arid, through the management of agrobiodiversity, focusing on the rescue and conservation of creole seeds. In addition to the infrastructure to store water for drinking and producing, the peoples and communities of the Semi-Arid are supported in their practices as guardians of creole seeds.</i></p>
<p>Defends coexistence and adaptation to the Semi-Arid, prioritizing water security by proposing the cistern project, which received government attention, which initially wanted to make them of plastic, which ASA opposed, because, despite being slower in project implementation, cement slab cisterns would be more effective, since plastic cisterns, besides not withstanding semi-arid temperatures, do not converge with proposals for social participation, learning, and community involvement.</p>	<p><i>In the states of Alagoas, Bahia, Pernambuco, and Minas Gerais, there are more than 600 social technologies for the reuse of gray water – effluents from drains and sinks – and fecal water built or in the implementation phase. In addition to the installation of single-family and community systems, the entities offer technical assistance and monitoring to beneficiaries.</i></p> <p><i>In addition to water storage, seed storage is necessary for the Semi-Arid population to further expand the practical conditions for living in the region. The proposal for coexistence with the Semi-Arid is also based on precepts, values, and practices of Agroecology, Popular and Solidarity Economy, Contextualized Education, Popular Communication, Food and Nutritional Security, among other themes.</i></p> <p><i>One million cisterns have already been built, about one third through ASA’s initiative, which distributed family units of 16,000 liters made with concrete slabs and implemented with the participation of beneficiaries, who also receive citizenship classes and water resource management.</i></p> <p><i>For the goal of universalizing “two waters”, 350,000 cisterns for drinking water and 800,000 for production are still needed. “Five waters” are necessary.</i></p>

Source: Prepared by the authors from the information present on the ASA website – <https://asabrasil.org.br/asa/>

in meeting the water supply for Piató Lagoon, the State is absent, since it does not act in promoting actions for the maintenance of the channel system that interconnects the Piranhas-Açu River dam and the lagoon, a logic that privileges unfair trade and acts against sustainable permanence in the region (Silva Prada, 2014). The expulsion of residents from around the lagoon, of natives and children of former slaves from the large farms of the region during the colonial period and the Brazilian Empire, becomes increasingly inevitable. Now, even more so, when the more than 200 families of the Bela Vista Piató community were surprised by the solar panel project.

It is in this sense that ASA has been alerting about the need for the semi-arid to be thought of according to its reality of low rainfall, bringing the issue of adaptation and coexistence to this reality, rethinking public policy actions for human interaction in the environment in a more prolonged way, evaluating the impacts of these relationships from the historical perspective of environmental justice and water justice (Acselrad, 2002, Ferreira, 2024).

## **6. Final considerations**

This article sought to recognize communicative and educational action in human interaction with nature by some actors in the Brazilian Semi-Arid region, a territory characterized by resilience in facing drought and by difficulties in making public policies reach it, often the target of transformations caused by human interventions in the pursuit of development.

The reflective nature of the article used, for the purposes of a critique of predatory capitalist (un)development and its effects of risk and environmental injustice on traditional communities and the environment, the articulation of theoretical approaches that made it possible to relate communication, management, and governance in contexts of experiences and good practices such as Paulo Freire's dialogic communicative action and Giddens' theory of agency.

Thus, the development approach is made as a critique of the capitalist logic that has permeated society, the State, and public policies, privileging a production model in which the economy of practices is driven by the practice of profit economy (Bourdieu, 1979). Human exploitation, which views the environment and nature in a utilitarian, consumerist way, as a resource or commodity, has provoked criticism of the excesses of a rationality (Leff, 2010) harmful to human survival itself, whose ontological foundation is the separation of humans from nature. Some authors criticize the use of science, technique, and technology as instruments for the exhaustion of life, citing only two of them in this final part, who incite complex thinking for science and claim a place for traditional knowledge and the wisdom they carry, such as Morin (Almeida, 2025) and Krenak (2022).

The article illustrates, through different narratives and communicative

actions, how the issue of water distribution in the Açu region still reflects the unequal distribution of water, environmental injustice, and the consolidation of the risk society, with the desertification of lagoons and human exodus. It also takes the opportunity to posthumously honor the sage of nature, Master Chico Lucas, who passed away in 2023, shortly after the Covid pandemic, as well as the militants and poets of social movements in general and the associations that make up ASA Brasil. It also emphasizes the idea that no transformative educational action happens without the participation of organized civil society in the face of environmental issues.

## References

- Acosta, A. (2016). O Buen Vivir: Uma oportunidade de imaginar outro mundo. In C. M. Sousa (Org.), *Um convite à utopia* (pp. 203–233). EDUEPB. <http://books.scielo.org/id/kcdz2/epub/sousa-9788578794880.epub>
- Acsehrad, H. (2002). Justiça ambiental e construção social do risco. *Desenvolvimento e Meio Ambiente*, 5(1), 49–60.
- Associação de Irrigação do Baixo Açu. (n.d.). <https://diba.org.br/>
- Almeida, M. C., & Pereira, W. (2006). *Lagoa do Piató: Fragmentos de uma história* (2a ed.). EDUFRN.
- Almeida, M. da C. de. (2025). Saberes da tradição: Para um pensamento nômade e o encontro com a sabedoria. *REMATEC*, 20(53), e2025006. <https://doi.org/10.37084/REMATEC.1980-3141.2025.n53.e2025006.id749>
- Almeida, R. E. de S. (2025). *Mapa da Região do vale do Açu com a localização da Barragem Armando Ribeiro Gonçalves e da lagoa do Piató*.
- Aquino, J. R. de, & Silva, F. R. I. (2015, março). Vale do Açu: Uma região estratégica para a economia potiguar. ADUERN. <https://aduern.org.br/artigo-vale-do-acu-uma-regiao-estrategica-para-a-economia-potiguar/>
- Articulação no Semiárido Brasileiro. (2015). *Programa 1 milhão de cisternas*. ASA. <https://asabrasil.org.br/publicacao/programa-um-milhao-de-cisternas>
- Articulação no Semiárido Brasileiro. (n.d.). Quem somos. <https://www.asabrasil.org.br/sobre-nos/historia>
- Beck, U. (2011). *Sociedade de risco: Rumo a uma outra modernidade* (2ª ed.). Editora 34.
- Bourdieu, P. (1979). *O desencantamento do mundo: Estruturas econômicas e estruturas temporais*. Perspectiva.
- Callado, A. (1960). *Industriais da seca e os “Galileus” de Pernambuco*. Civilização Brasileira.
- Castro, E. V. (2011). Desenvolvimento econômico e reenvolvimento cosmopolítico. *Sopro*, 51.
- Castro, E. V. (2017). *Os involuntários da pátria: Elogio ao subdesenvolvimento*. Fundação Municipal de Cultura.
- Comte, A. (1978). *Curso de filosofia positiva*. Abril Cultural.
- Comissão Pastoral da Terra. (2024). *Conflitos no campo Brasil 2023*. <https://www.cptnacional.org.br>
- Cox, R. (2010). *Environmental communication and the public sphere*. Sage.

- Cunha, E. da. (2016). *Os sertões* (ed. esp.). Nova Fronteira.
- Das, V., & Poole, D. (2008). El estado y sus márgenes. *Cuadernos de Antropología Social*, 27, 19–52.
- Dias, M. C. C., & Costa, J. M. (2017). Por que elas resistem? In *Anais do VIII Simpósio Internacional de Geografia Agrária*.
- Dias, E. M. S. (2025). *Entre riscos e respostas às secas no semiárido* [Tese de doutorado, UFRN].
- Fundo de Nações Unidas para a Agricultura e Alimentos. (2020). *The state of food and agriculture 2020*. <https://doi.org/10.4060/cb1447en>
- Ferreira, J. G. (2024). Território das secas. *Revista Verde Grande*, 6(1), 440–465. <https://doi.org/10.46551/rvg26752395220241440465>
- Ferreira, J. G., Gomes, M. F. B., & Knox, W. (2023). Narrativas de desenvolvimento. *Campos Neutrais*, 5, 58–78.
- Freire, P. (2000). *Pedagogia da indignação*. UNESP.
- Freire, P. (1983). *Extensão ou comunicação?* Paz e Terra.
- Freire, P., & Faundez, A. (1985). *Por uma pedagogia da pergunta*. Paz e Terra.
- Giddens, A. (2003). *A constituição da sociedade*. Martins Fontes.
- Gil, A. C. (2002). Como elaborar projetos de pesquisa. 4. ed. Atlas.
- Habermas, J. (1984). *Teoria da ação comunicativa* (Vol. 1). UNESP.
- Harvey, D. (2011). *O enigma do capital*. Boitempo.
- Hernandez, A. R. C. (2022). Memória biocultural. *Tramas y Redes*, 3, 25–49.
- Hocsman, L. D. (2014). Cuestión agraria. *Contemporânea*, 4(1), 43–63.
- Hubner, A. (2021). Agência na sociologia. *Caderno Eletrônico de Ciências Sociais*, 9(2), 92–111. <https://doi.org/10.47456/cadecs.v9i2.38407>
- Intergovernmental Panel on Climate Change. (2014). *Climate change 2014: Synthesis report*.
- Intergovernmental Panel on Climate Change. (2023). *Climate change 2023: Synthesis report*. <https://doi.org/10.59327/IPCC/AR6-9789291691647>
- Instituto Brasileiro de Geografia e Estatística (2005). *Sistema de Referência Geocêntrico para as Américas – SIRGAS 2000*. IBGE. <https://www.ibge.gov.br>
- Junior, S. (2025). Grupo Lagoa Viva acompanha obra do Canal do Piató. *Rabiscos do Samuel Junior*. <https://www.blogrsj.com>
- Kothari, A., et al. (2019). *Pluriverso: Un diccionario del posdesarrollo*. Abya-Yala.
- Knox, W., & Trigueiro, A. (2011). Quando o desenvolvimento outsider atropela. In *Anais do IPEA*.
- Krenak, A. (2019). *Ideias para adiar o fim do mundo*. Companhia das Letras.
- Krenak, A. (2022). *O futuro ancestral*. Companhia das Letras.
- Leff, E. (2010). *A epistemologia ambiental*. Cortez.
- Lei nº 9.985, de 18 de julho de 2000. (2000, 18 de julho). Regulamenta o art. 225, § 1º, incisos I, II, III e VII da Constituição Federal, institui o Sistema Nacional de Unidades de Conservação da Natureza e dá outras providências. [http://www.planalto.gov.br/ccivil\\_03/leis/L9985.htm](http://www.planalto.gov.br/ccivil_03/leis/L9985.htm)
- Lévi-Strauss, C. (1997). *O pensamento selvagem*. Papyrus.

- Lima, M. D. V., et al. (2014). Os dilemas da comunicação ambiental. *Comunicação, Mídia e Consumo*, 11(32), 203–221.
- Loose, E. B. (2022). Alternativas para enfrentar la crisis climática. *Observatorio Medioambiental*, 25, 25–42.
- Maestri, M. (2005). A aldeia ausente. In J. P. Stedile (Org.), *A questão agrária no Brasil* (pp. 217–275).
- Marengo, J. A., Torres, R. R., & Alves, L. M. (2017). Drought in Northeast Brazil. *Theoretical and Applied Climatology*, 129, 1189–1200.
- Martins, J. A., & Knox, W. (2023). Comunicação educativa. *Periferia*, 15, 1–26.
- Minayo, M. C. de S. (Org.). (2014). *Pesquisa social* (33a ed.). Vozes.
- Morin, E. (2008). *Ciência com consciência* (10a ed.). Bertrand do Brasil.
- Moura, M. da C. de A. (1979). *Agricultura de subsistência no RN*.
- Porto-Gonçalves, C. W., & Leão, P. C. da R. (2020). Terra, violência e conflito. *Revista da ANPEGE*, 16(29), 712–767.
- Ramalho, A. M. C. (2009). Impactos ambientais. *Revista Brasileira de Ecoturismo*, 2(1).
- Ribeiro, G. L. (2008). Poder, redes e ideologias. *Novos Estudos*, 80.
- Santos, Y. C. dos, et al. (2023). Enfrentamento às mudanças climáticas. *Revista de Gestão dos Países de Língua Portuguesa*, 22(1), 46–66.
- Sen, A. (2010). *Desenvolvimento como liberdade*. Companhia das Letras.
- Silva Prada, D. F. (2014). Território, memória y resistencia. *Análisis Político*, 27(81), 19–31.
- Silva, L. R. da. (2024). *Semiárido e segurança alimentar* (Dissertação de mestrado, UFRN).
- Silva, T. F. (2015). Rio Açú e espacialidades. *História em Reflexão*, 9(17).
- Stengers, I. (2015). *No tempo das catástrofes*. Cosac Naify.
- Sztompka, P. (2005). *A sociologia da mudança social*. Civilização Brasileira.
- Wanderley, M. de N. B. (2014). O campesinato brasileiro. *Revista de Economia e Sociologia Rural*, 52(suppl1), S25–S44. <https://doi.org/10.1590/S0103-20032014000600002>
- Weber, M. (1999). *Economia e sociedade*. UNB.