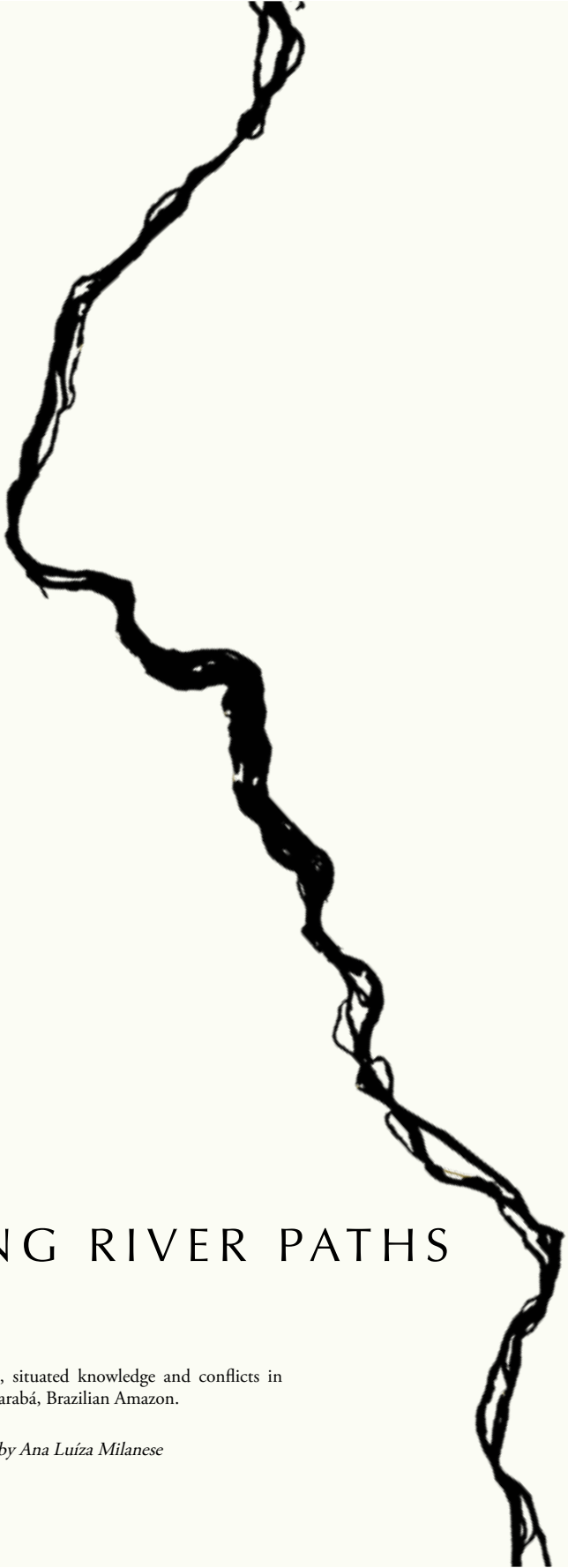
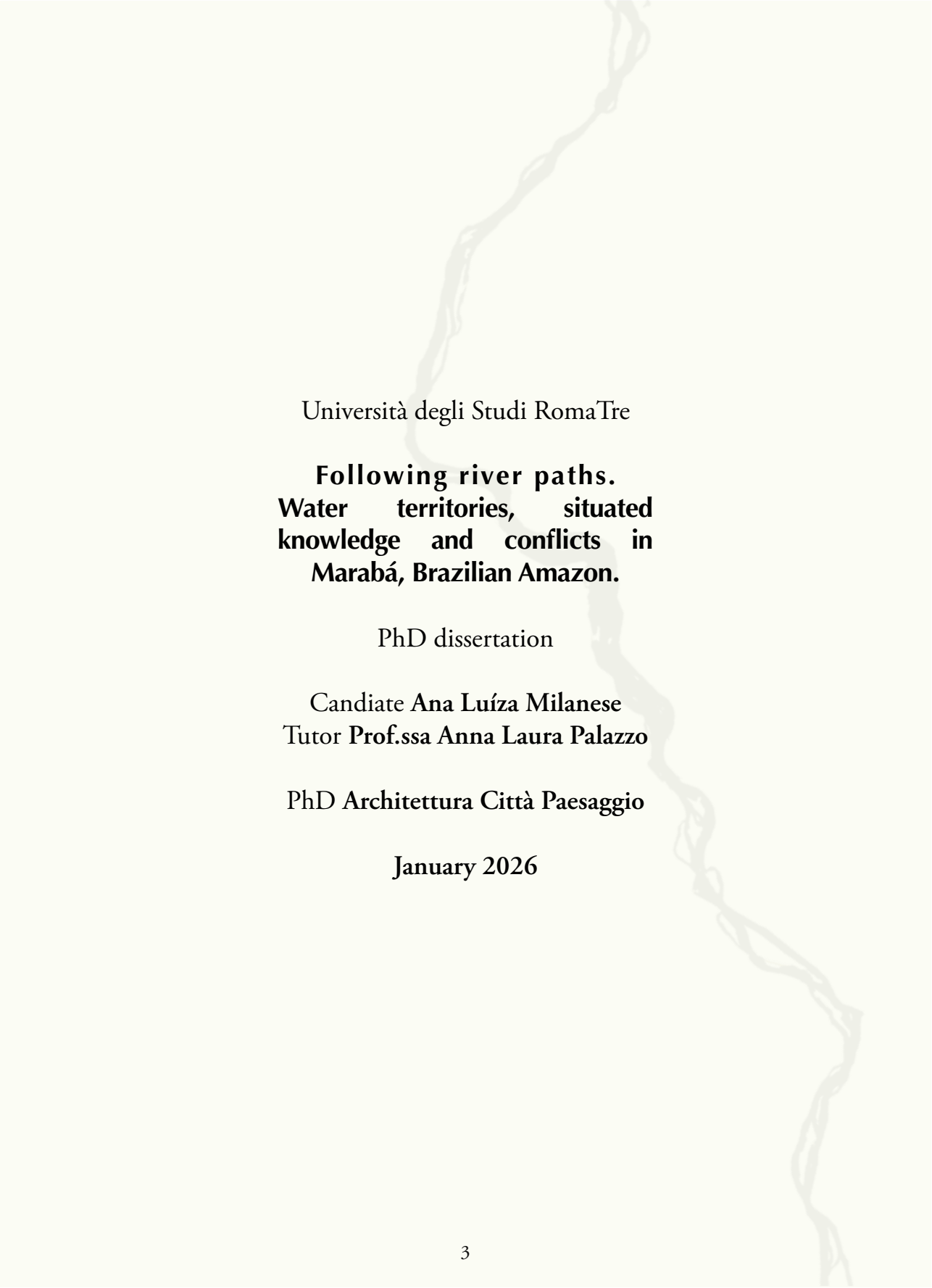




FOLLOWING RIVER PATHS

Water territories, situated knowledge and conflicts in
Marabá, Brazilian Amazon.

by Ana Luíza Milanese



Università degli Studi RomaTre

**Following river paths.
Water territories, situated
knowledge and conflicts in
Marabá, Brazilian Amazon.**

PhD dissertation

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AILTON KRENAK

“Os rios, esses seres que sempre abitaram o mundo em diferentes formas, são quem me sugerem que, se há futuro a ser cogitado, esse futuro é ancestral, porque já estava aqui.”

- Futuro Ancestral

LÉVI-STRAUSS

“Nessuna società è perfetta. Ognuna include per natura una impurità incompatibile con le norme che proclama e che si traduce concretamente in una certa dose di ingiustizia, d'insensibilità, di crudeltà. Come valutare questa dose?..”

- Tristi Tropici



Foreword

This research grew from a situated position: I am a Brazilian researcher from the South - born in Florianópolis and raised in São Francisco do Sul, both island and coastal cities in Santa Catarina, where land and water boundaries have always been constitutive of everyday life and social relations. The Amazon is geographically, culturally, and politically distant from where I grew up, and this distance shaped both the limits and the possibilities of this inquiry. It demanded a continuous attentiveness to the risk of projecting familiar frameworks onto unfamiliar worlds, and a reflexive negotiation between proximity and difference throughout the fieldwork.

I began this research with the intention of investigating how Indigenous systems of knowledge might integrate local governance in the Brazilian Amazon. My initial framework was guided by a dualistic assumption - that Indigenous communities were structurally oppressed actors in relation to dominant institutional and economic forces - and by the hypothesis that different territorial actors shared sufficiently common ground to enter into dialogue. These premises, though critically motivated, reproduced a relational logic that the fieldwork itself would unsettle.

The encounter with Marabá's peri-urban territories required a substantial revision of this framework. Rather than distinct worlds capable of confrontation or negotiation, I found a fragmented territorial condition in which Indigenous communities, riverine populations, urban residents, and institutional actors inhabit overlapping spaces without a shared epistemic or political language. Antagonism, where it exists, is unevenly distributed - often articulated only by actors equipped with political and institutional literacy, while others remain embedded in asymmetrical relations that constrain their capacity to intervene.

This empirical displacement pushed the research beyond its initial hypothesis. The analytical framework that emerged is attentive to asymmetry, partial connection, and epistemic distance rather than to dialogue or integration. Rather than assuming shared governance spaces, the thesis examines how different actors coexist within the same water territories while remaining anchored in distinct worlds of meaning and practice - worlds where conflict does not necessarily arise from direct confrontation, but from unequal capacities to articulate claims, negotiate recognition, and sustain forms of territorial autonomy.

highlights

- Water territories in the peri-urban Amazon are structured by an uneven co-presence of temporal regimes
- the simultaneous presence of extractive logistics, institutional risk management, riverine livelihoods, and Indigenous territorial practices within the same hydro-social field - revealing a structural feature of Amazonian urbanization rather than a governance anomaly.

- Governance without territory describes a structural condition in which regulatory instruments are formally active yet territorially misaligned: water is governed as a divisible resource while the relational and cumulative dimensions of hydro-social systems remain ungoverned.

- Dispossession from relational forms of territorial organization
- the gradual erosion of collective water relations through administrative, legal, and infrastructural mechanisms - constitutes a form of territorial loss that planning and policy frameworks are currently not equipped to address.

ABSTRACT

english version

Water operates simultaneously as ecological infrastructure, territorial boundary, and cultural mediator, shaping relations between urban expansion, extractive economies, and everyday life in the Brazilian Amazon. This thesis investigates these relations through the analytical lens of water territories, examining how different epistemologies, ontologies, and spatial practices intersect and conflict within the peri-urban context of Marabá - a rapidly transforming Amazonian city located along the Tocantins River - and within the Akrátikatêjê Indigenous territory of the Terra Indígena Mãe Maria.

The research adopts a qualitative, multi-scalar methodology combining spatial analysis, ethnographic observation, semi-structured interviews, and documentary research. Extended fieldwork enabled a situated reading of how riverine and Indigenous communities, urban residents, institutional actors, and extractive corporations engage with water not only as a resource but as a relational and symbolic entity. The positionality of the researcher - a Brazilian scholar from the South, working in a region geographically and culturally distant from her own origins - shapes the analytical perspective throughout.

Findings show that Marabá's water territories are structured by an uneven co-presence of temporal regimes: practices and meanings often treated as successive developmental stages - artisanal fishing, fluvial mobility, institutional risk management, and industrial extractive

logistics - coexist simultaneously along the Tocantins without converging into a shared governance framework. This condition is not an anomaly of incomplete modernization but a structural feature of Amazonian urbanization, produced by the superposition of global extractive economies onto historically inhabited relational territories.

Institutional and technocratic frameworks approach water through logics of control, infrastructure, and risk management, while riverine and Indigenous communities maintain relational understandings grounded in seasonal rhythms, ecological care, and embodied knowledge. These epistemic positions coexist in a condition of structural friction rather than hybrid integration. Such frictions reveal deeper asymmetries produced by dispossession from relational forms of territorial organization - the gradual erosion of collective water relations through administrative, legal, and infrastructural mechanisms that no compensation instrument can restore.

The thesis further develops the concept of governance without territory to describe a structural condition in which regulatory instruments are formally active but territorially misaligned - addressing water as a divisible resource while the hydro-social system through which everyday life is organized remains ungoverned in its relational and cumulative dimensions. These findings are grounded in the cases of Marabá and the Akrátikatêjê, whose experience of forced displacement, infrastructural entanglement, and partial territorial restitution exemplifies how water-based development, Indigenous land governance, and uneven urbanization intersect in the southeastern Amazon.

By following river paths rather than administrative boundaries, the research proposes water territories as an analytical lens capable of holding together practices, actors, scales, and temporalities that institutional governance systematically separates. This lens contributes to debates on relational urbanism, hydro-social systems, and decolonial approaches to territorial governance in the Global South.

keywords

relational governance; epistemic plurality; uneven co-presence; extractivism; Indigenous territoriality

highlights

- I territori dell'acqua nel periurbano amazzonico sono strutturati da una copresenza diseguale di regimi temporali - la presenza simultanea di logistica estrattiva, gestione istituzionale del rischio, mezzi di sussistenza riverini e pratiche territoriali indigene nello stesso campo idro-sociale - rivelando una caratteristica strutturale dell'urbanizzazione amazzonica piuttosto che un'anomalia di governance.

- La governance senza territorio descrive una condizione strutturale in cui gli strumenti regolatori sono formalmente attivi ma territorialmente disallineati: l'acqua è governata come risorsa divisibile mentre le dimensioni relazionali e cumulative dei sistemi idro-sociali rimangono non governate.

- La spoliazione dalle forme relazionali di organizzazione territoriale - l'erosione graduale delle relazioni collettive con l'acqua attraverso meccanismi amministrativi, giuridici e infrastrutturali - costituisce una forma di perdita territoriale che i quadri di pianificazione e politica non sono attualmente attrezzati ad affrontare.

ABSTRACT

italian version

L'acqua opera simultaneamente come infrastruttura ecologica, confine territoriale e mediatore culturale, configurando le relazioni tra espansione urbana, economie estrattive e pratiche quotidiane nell'Amazzonia brasiliana. Questa tesi indaga tali relazioni attraverso la lente analitica dei territori dell'acqua, esaminando come differenti epistemologie, ontologie e pratiche spaziali si intersechino e producano conflitti nel contesto periurbano di Marabá - città amazzonica in rapida trasformazione situata lungo il fiume Tocantins - e nel territorio indigeno Akrátikatêjê della Terra Indígena Mãe Maria.

La ricerca adotta una metodologia qualitativa e multi-scalare che integra analisi spaziale, osservazione etnografica, interviste semi-strutturate e ricerca documentaria. Un'estesa ricerca sul campo ha consentito una lettura situata di come comunità indigene e abitanti delle sponde, residenti urbani, attori istituzionali e imprese estrattive si relazionino all'acqua non solo come risorsa, ma come entità relazionale e simbolica. Il posizionamento della ricercatrice - studiosa brasiliana del Sud, che lavora in una regione geograficamente e culturalmente distante dalle proprie origini - orienta la prospettiva analitica dell'intero lavoro.

I risultati mostrano che i territori dell'acqua di Marabá sono strutturati da una copresenza diseguale di regimi temporali: pratiche e significati spesso trattati come fasi successive di sviluppo — pesca

artigianale, mobilità fluviale, gestione istituzionale del rischio e logistica estrattiva industriale - coesistono simultaneamente lungo il Tocantins senza convergere in un quadro di governance condiviso. Tale condizione non è un'anomalia di modernizzazione incompiuta, ma una caratteristica strutturale dell'urbanizzazione amazzonica, prodotta dalla sovrapposizione di economie estrattive globali su territori relazionali storicamente abitati.

I quadri istituzionali e tecnocratici tendono a concepire l'acqua secondo logiche di controllo, infrastrutturazione e gestione del rischio, mentre le comunità indigene e riverine mantengono comprensioni relazionali fondate su ritmi stagionali, cura ecologica e saperi incarnati. Queste posizioni epistemiche coesistono in una condizione di frizione strutturale piuttosto che di integrazione ibrida. Tali frizioni rivelano asimmetrie più profonde prodotte da una spoliazione dalle forme relazionali di organizzazione territoriale - l'erosione graduale delle relazioni collettive con l'acqua attraverso meccanismi amministrativi, giuridici e infrastrutturali che nessuno strumento compensativo può ripristinare.

La tesi sviluppa inoltre il concetto di governance senza territorio per descrivere una condizione strutturale in cui gli strumenti regolatori sono formalmente attivi ma territorialmente disallineati - trattando l'acqua come risorsa divisibile mentre il sistema idro-sociale attraverso cui si organizza la vita quotidiana rimane non governato nelle sue dimensioni relazionali e cumulative. Questi risultati sono fondati sui casi di Marabá e degli Akrátikatêjê, la cui esperienza di spostamento forzato, intreccio infrastrutturale e parziale restituzione territoriale esemplifica come lo sviluppo basato sull'acqua, la governance indigena del territorio e l'urbanizzazione diseguale si intersechino nel sudest dell'Amazzonia.

Seguendo i percorsi fluviali piuttosto che i confini amministrativi, la ricerca propone i territori dell'acqua come lente analitica capace di tenere insieme pratiche, attori, scale e temporalità che la governance istituzionale separa sistematicamente. Questa lente contribuisce ai dibattiti sull'urbanismo relazionale, sui sistemi idro-sociali e sugli approcci decoloniali alla governance territoriale nel Sud globale.

parole chiave

governance relazionale; pluralità epistemica; copresenza diseguale; estrattivismo; territorialità indigena

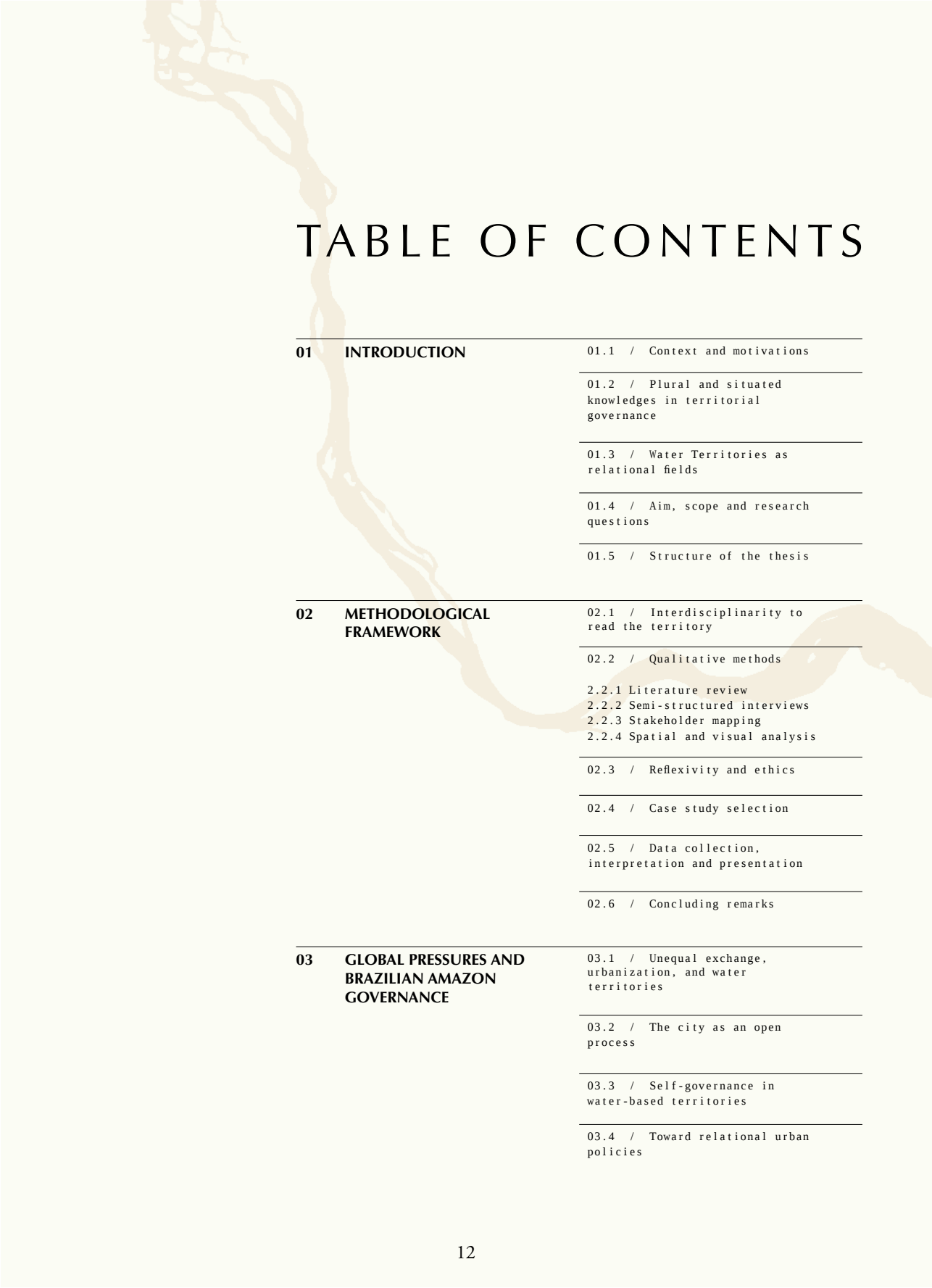


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LIST OF ABBREVIATIONS

-
1. ANA – Agência Nacional de Águas e Saneamento Básico – Brazil’s National Water and Basic Sanitation Agency responsible for water resource regulation and hydrological governance.
 2. ANM – Agência Nacional de Mineração – National Mining Agency responsible for regulating and supervising mining activities.
 3. DNIT – Departamento Nacional de Infraestrutura de Transportes – National Department of Transport Infrastructure; federal agency responsible for the planning, construction, and maintenance of transport infrastructure, including highways and waterways.
 4. FUNAI – Fundação Nacional dos Povos Indígenas – Federal agency responsible for the protection and promotion of Indigenous rights and the demarcation of Indigenous lands.
 5. IBAMA – Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis – Federal environmental agency responsible for environmental licensing, monitoring, and enforcement.
 6. ICMBio – Instituto Chico Mendes de Conservação da Biodiversidade – Federal institute responsible for managing protected areas and biodiversity conservation policies.
 7. IBGE – Instituto Brasileiro de Geografia e Estatística – Brazilian National Institute of Geography and Statistics; official provider of census, demographic, and territorial data.
 8. MMA – Ministério do Meio Ambiente e Mudança do Clima – Ministry of Environment and Climate Change.
 9. MME – Ministério de Minas e Energia – Ministry of Mines and Energy; responsible for national energy and mineral policies.
 10. MPF – Ministério Público Federal – Federal Public Prosecutor’s Office; independent constitutional body responsible for defending constitutional order, Indigenous

rights, environmental protection, and collective interests.

11. OTCA – Organização do Tratado de Cooperação Amazônica – Amazon Cooperation Treaty Organization; intergovernmental body promoting regional cooperation among Amazonian countries.
12. TI – Terra Indígena – Officially demarcated Indigenous Land recognized by the Brazilian state.
13. QR – Quilombo Remanescente – Official designation for recognized quilombola communities and their territories.
14. UFPA – Universidade Federal do Pará – Federal University of Pará.
15. MapBiomass – Projeto MapBiomass – Collaborative initiative producing annual land cover and land use maps for Brazil based on satellite imagery and remote sensing analysis.
16. GIS – Geographic Information Systems – Digital systems used for spatial data analysis and cartographic production.
17. TEK – Traditional Ecological Knowledge – Cumulative body of ecological knowledge, practices, and beliefs developed by Indigenous and local communities.
18. IK – Indigenous Knowledge – Knowledge systems developed within Indigenous epistemologies and territorial practices.
19. LK – Local Knowledge – Context-specific knowledge generated through situated practices and lived experience.

GLOSSARY

-
1. Amazonia / Pan-Amazonia: A multi-national bioregion extending across nine South American countries, characterized by dense tropical forests, vast hydrological systems, high biodiversity, and diverse Indigenous, riverine, and Afrodescendant territorialities.
 2. Water Territory: A relational socio-ecological space shaped by the interactions between water, land, actors, practices, infrastructures, and governance arrangements. Water is understood simultaneously as infrastructure, ecological system, cultural memory, and political actor.
 3. Garimpo: Informal or illegal small-scale mining, typically for gold extraction. Frequently associated with mercury contamination, deforestation, violence, and territorial conflicts, particularly within Indigenous lands.
 4. Mineração (Industrial Mining): Large-scale, state-authorized mineral extraction projects (e.g., iron ore, bauxite, nickel) characterized by intensive infrastructure, landscape transformation, and significant impacts on hydrological systems and local communities.
 5. Hydropower Development: The construction and operation of hydroelectric dams and associated infrastructures, producing major alterations in river regimes, sediment flows, fisheries, territorial access, and patterns of displacement.
 6. Urban Riverbank Occupation: Forms of settlement and spatial practices along river margins shaped by seasonal flooding, mobility systems, subsistence activities, and culturally embedded relationships with water.
 7. Traditional Ecological Knowledge (TEK): Cumulative body of ecological knowledge, practices, and beliefs developed across generations through observation, lived experience, ritual, and relational engagement with the environment.
 8. Indigenous Knowledge (IK): Holistic, cosmological, and relational systems of knowledge grounded in Indigenous

worldviews, in which rivers, forests, winds, and non-human beings are recognized as agents within territorial life.

9. Local Knowledge (LK): Situated and experiential knowledge formed through everyday interaction with the environment, practiced by riverine, urban, rural, and Afrodescendant communities.
10. Quilombola: Descendants of African populations who escaped enslavement and formed autonomous rural communities (quilombos). Recognized under Brazilian law as traditional peoples with collective territorial rights.
11. Akrátikatêjê: Indigenous group belonging to the Gavião (Ikólóéhj) people of the Jê linguistic family, located in southeastern Pará, Brazil.
12. Extractive Corridor: Territorial axis structured by infrastructures such as railways, waterways, highways, and transmission lines that enable large-scale commodity circulation. In Amazonia, extractive corridors connect mining and agro-industrial frontiers to export terminals, reorganizing river systems and land use patterns.
13. Internal Coloniality: The persistence of colonial power structures within postcolonial state formations, expressed through territorial control, extractive rationalities, racialized hierarchies, and asymmetric governance arrangements.
14. Flood Pulse: Seasonal hydrological oscillation that regulates ecological processes, sediment transport, fisheries, mobility, and settlement patterns in Amazonian river systems, constituting a structuring ecological rhythm of water-based territories.
15. Territorial Governance: Multi-scalar processes through which state institutions, Indigenous authorities, private actors, and local communities negotiate access to, control over, and regulation of land and water.
16. Land Grabbing: Large-scale acquisition or illegal appropriation of land, often involving overlapping claims, displacement, environmental degradation, and conflict, particularly affecting Indigenous and traditional territories.
17. Polycentric Urban Structure: Urban configuration characterized by multiple spatially distinct nuclei interconnected through infrastructural, economic, and social flows rather than organized around a single consolidated core.
18. Riverine Communities (Ribeirinhos): Populations whose livelihoods, mobility systems, and cultural practices are structured by seasonal river dynamics and fluvial ecologies.
19. Conservation Unit (UC): Legally designated protected area under Brazilian environmental legislation aimed at biodiversity

conservation and regulated land use.

20. Simultaneity: Condition in which heterogeneous temporalities, territorial logics, socio-ecological processes, and governance regimes coexist and interact within the same spatial field.

AKRĀTIKATÊJÊ

glossary

1. Airom: Forest; wild nature; more than a generic notion of “nature,” it refers to a territorial condition distinct from the village or built environment. It can be understood as a category of land use, ecological governance, and cosmological space, central to Indigenous territorial management and non-urban spatiality.
2. Kokinti: River; large watercourse. Refers to a flowing body of water understood not only as a physical feature but as a structuring element of mobility, subsistence, and territorial life.
3. Aikre: House; dwelling. The domestic unit as both architectural structure and social space.
4. Aikre Poti: Round house; circular dwelling form associated with collectivity, centrality, and social organization, reflecting spatial arrangements embedded in communal life.
5. Pyka: Territory; land; path; way. A term that connects spatial extension with movement, indicating territory as lived trajectory rather than fixed property.
6. Jokrin’: Center; village core. The political, ritual, and social nucleus where collective life is organized and decisions are enacted.
7. Pâm: Village; settlement. A localized community space structured through kinship, social relations, and cosmological orientation.
8. Tep: People; collective body. Refers to the social group as a relational entity rather than an aggregation of individuals.
9. Kà: Land; ground; territory. Land conceived as living territory, embedded in relational, spiritual, and ecological dimensions, rather than as a commodity or abstract resource.
10. Kô: Limit; boundary. Indicates a territorial demarcation that may be ecological, social, or cosmological rather than strictly juridical.

11. Xà: Meeting; gathering. Event-based spatiality in which space becomes political through collective presence, ritual, or decision-making processes.



Figure 1.0 | Marabá rapprochement | source: IBGE | author's elaboration

01 INTRODUCTION

01.1 Context and Motivations

In the Brazilian Amazon, the relationship between water and urban life is not primarily one of management or resource allocation - it is one of contested meaning, uneven power, and structurally differentiated ways of inhabiting shared territories. Latin American territories have long been organized around extractive logics oriented toward external markets rather than local socio-ecological balances (Galeano, 1971; Svampa, 2019). Ecological degradation, extractive expansion, and urban growth do not unfold separately from everyday life; they intersect with practices of care, subsistence, and resistance in ways that produce territories marked by deep asymmetries and permanently contested governance arrangements.

Water, in this context, operates not merely as a biophysical element but as a political and relational medium - a site through which spatial arrangements, responsibilities, and vulnerabilities are continuously negotiated. These dynamics are particularly visible in the Brazilian Amazon, where urbanization unfolds within a dense field of ecological interdependence, socio-political tension, and culturally differentiated ways of conceiving rivers, land, and forest. Here, rivers are not external to urban life: they constitute paths, presences, and agents within it (Krenak, 2022; Porto-Gonçalves, 2006).

Marabá, located at the confluence of the Tocantins and Itacaiúnas



Figure 1.1 | Confluence of Tocantins and Itacaiúnas rivers | author's archive

Rivers (Figure 1.0 – 1.1), exemplifies this condition with particular clarity. Its spatial configuration and everyday life emerge through the overlapping interactions of Indigenous peoples, quilombola communities¹, riverine inhabitants, public institutions, and extractive actors - each engaging water (Figure 1.2 – 1.4) through heterogeneous practices ranging from subsistence, hygiene, and mobility to leisure, ritual use, and industrial extraction. The result is a territorial condition in which governance is neither centralized nor uniform, but distributed across actors, scales, and competing rationalities. Conflicts over water in the Pará region already reflect this multi-actor condition; Marabá is continuously produced through negotiation, friction, and adaptation along the river (Maia et al., 2024; Souza, 2016).

At the foundation of this research lies a more fundamental recognition: that key territorial notions - nature, land, forest, river - do not hold universal meanings. In many Indigenous and Afro-descendant cosmologies, water, soil, and forest are not inert resources but living presences that actively participate in the production of territory and social life. These worldviews foreground relational ontologies grounded in confluence, reciprocity, and co-existence among human and non-human beings (Krenak, 2020; Bispo dos Santos, 2023). Within such frameworks, territory is not owned or controlled but inhabited relationally - produced through ongoing exchanges between communities, ecosystems, ancestors, and non-human agents.

This understanding stands in productive tension with the ontological premises of European modernity, which has historically operated through a sharp separation between culture and nature, shaping planning and governance practices organized around classification, control, and functional division (Latour, 1993; Descola, 2013; Scott, 1998). The divergent imaginaries of the forest offer a telling illustration. In European and Mediterranean traditions, the forest has frequently been conceived as exterior space - associated with alterity, danger, or moral ambiguity, positioned beyond the boundaries of the city and political order (Lévi-Strauss, 1955). In many Brazilian and Indigenous perspectives, by contrast, the forest is a space of origin, continuity, and relation. Cultural narratives such as *Macunaíma*² articulate a territorial understanding in which human life is inseparable from vegetal, animal, and spiritual presences, refusing the linear boundary between urban space and its supposed outside (De Andrade, 1928).

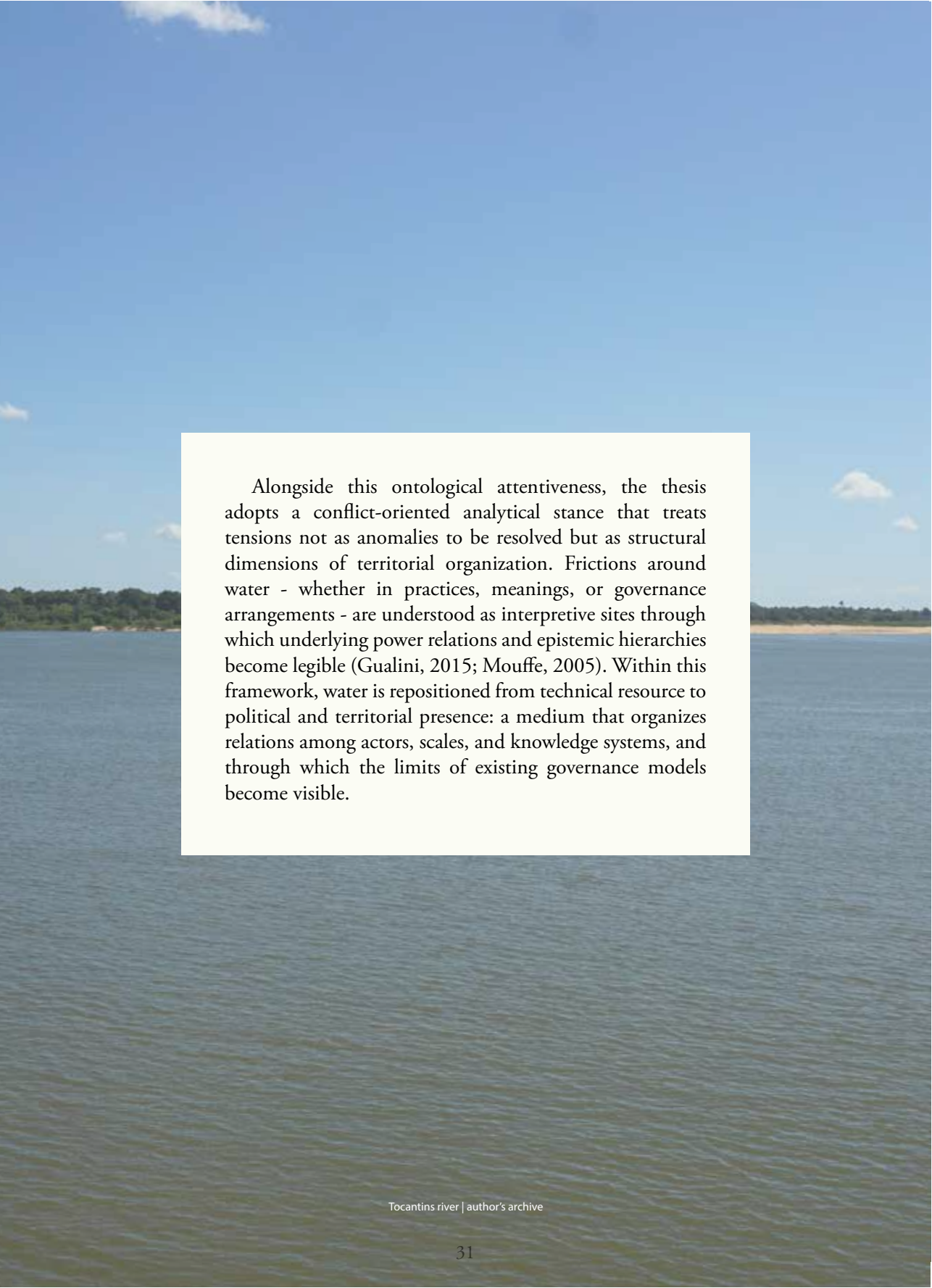
These are not simply cultural differences to be catalogued. They are divergent ontological premises with direct implications for how territory is governed, contested, and inhabited. Recognizing them as such - rather than as local variations on a universal framework - is one of the central analytical commitments of this research.

¹ Quilombola communities are Afro-descendant rural and riverine populations in Brazil whose collective identities and territorial claims are historically rooted in resistance to enslavement and racial oppression. Recognized under Article 68 of the 1988 Brazilian Constitution, quilombola territories are defined not only by land tenure but by collective forms of inhabiting and relating to land and water grounded in shared memory, ancestry, and everyday practices. Their territoriality is relational and processual, structured around rivers, forests, and seasonal cycles rather than fixed property boundaries (Almeida, 2002).

² *Macunaíma* (1928), by Mário de Andrade, reworks Indigenous mythologies and popular traditions to challenge Eurocentric conceptions of territory and identity. Read here as a cultural allegory rather than an ethnographic source, it foregrounds a relational understanding of space in which human and non-human dimensions are inseparable (Andrade, 1928/2019).



Figure 1.2 - 1.4 | People engaging with Tocantins river | author's archive



Alongside this ontological attentiveness, the thesis adopts a conflict-oriented analytical stance that treats tensions not as anomalies to be resolved but as structural dimensions of territorial organization. Frictions around water - whether in practices, meanings, or governance arrangements - are understood as interpretive sites through which underlying power relations and epistemic hierarchies become legible (Gualini, 2015; Mouffe, 2005). Within this framework, water is repositioned from technical resource to political and territorial presence: a medium that organizes relations among actors, scales, and knowledge systems, and through which the limits of existing governance models become visible.





01.2 Plural and Situated Knowledges in Territorial Governance

The Amazon constitutes a critical context for rethinking how knowledge about territory and governance is produced, legitimized, and mobilized. Dominant traditions of planning and territorial policy have historically relied on universalizing epistemologies that privilege abstraction, standardization, and technical expertise - frameworks that tend to obscure the situated, relational, and embodied nature of knowledge, and to marginalize forms of understanding that do not conform to institutional or scientific norms (Scott, 1998; Healey, 2006). In Amazonian territories, by contrast, governance unfolds within a plural epistemic field where Indigenous, quilombola, local, scientific, and institutional knowledges coexist, intersect, and frequently collide, shaping conflicting interpretations of water, land, and collective life (Haraway, 1988; Santos, 2014).

Building on this recognition, the research adopts the notion of plural and situated knowledges to acknowledge that no single epistemology can fully account for the complexity of water territories. Indigenous cosmologies articulate relational worlds in which rivers, forests, and atmospheric forces possess agency and perspective, and where territory is produced through reciprocal relations rather than through ownership or control (Krenak, 2020). Care, responsibility, and continuity are not peripheral values in these ontologies - they are central dimensions of territorial life. Quilombola epistemologies similarly challenge linear and hierarchical spatial categories,

grounding knowledge in confluence, coexistence, and collective modes of inhabiting territory (Bispo dos Santos, 2023). These forms of knowledge are not symbolic or residual; they function as practical systems for governing access to land, water, and resources through shared norms and everyday practices (Warren, 1992; Ostrom, 1990).

Scientific and technical knowledges contribute important descriptive and analytical tools, particularly in relation to hydrology, infrastructure, and environmental risk. However, when embedded within governance frameworks rooted in ontologies of separation and universality, these knowledges frequently reproduce forms of abstraction that detach policy from lived territorial relations. Such frameworks tend to privilege legibility, control, and functional segmentation - what Scott (1998) calls the logic of “seeing like a state” - limiting their capacity to engage with relational and historically inhabited environments. The resulting asymmetries do not stem from the inadequacy of scientific knowledge itself, but from the power relations through which certain epistemologies are institutionalized while others are rendered invisible (Quijano, 2000; Mignolo, 2011).

These epistemic hierarchies are inseparable from longer histories of colonial governance. Critical analyses of the Amazon have repeatedly shown how the region has been framed as a space of extraction, integration, or protection, rather than as a territory endowed with autonomous forms of knowledge and political organization (Loureiro, 2024; Acsegrad, 2004). This colonial logic continues to inform contemporary environmental governance and urban and territorial policies, producing what can be described as colonial continuities in decision-making processes - continuities in which plural knowledges are often acknowledged rhetorically yet excluded from effective participation (Palmer et al., 2022; Santos, 2014).

Anthropological perspectives offer additional tools for reading this condition. Benedict (1934) and Lévi-Strauss (1955) conceptualized cultures not as fixed or closed systems but as dynamic configurations of relations - a perspective that informs the understanding of territory adopted here as a process continuously produced through interactions among human and non-human actors, rather than as a stable spatial container. Governance, from this viewpoint, is not exercised solely through formal institutions or legal frameworks, but also through everyday practices, negotiated norms, and situated forms of authority embedded in social and ecological relations.

Political theory further deepens this perspective. Mouffe (2005) conceptualizes the political not as a domain of consensus-building but as a space constituted by antagonism - a condition that cannot be eliminated but only temporarily stabilized through hegemonic arrangements. Applied to territorial governance, this insight reframes conflict not as a failure of coordination but as a structural expression

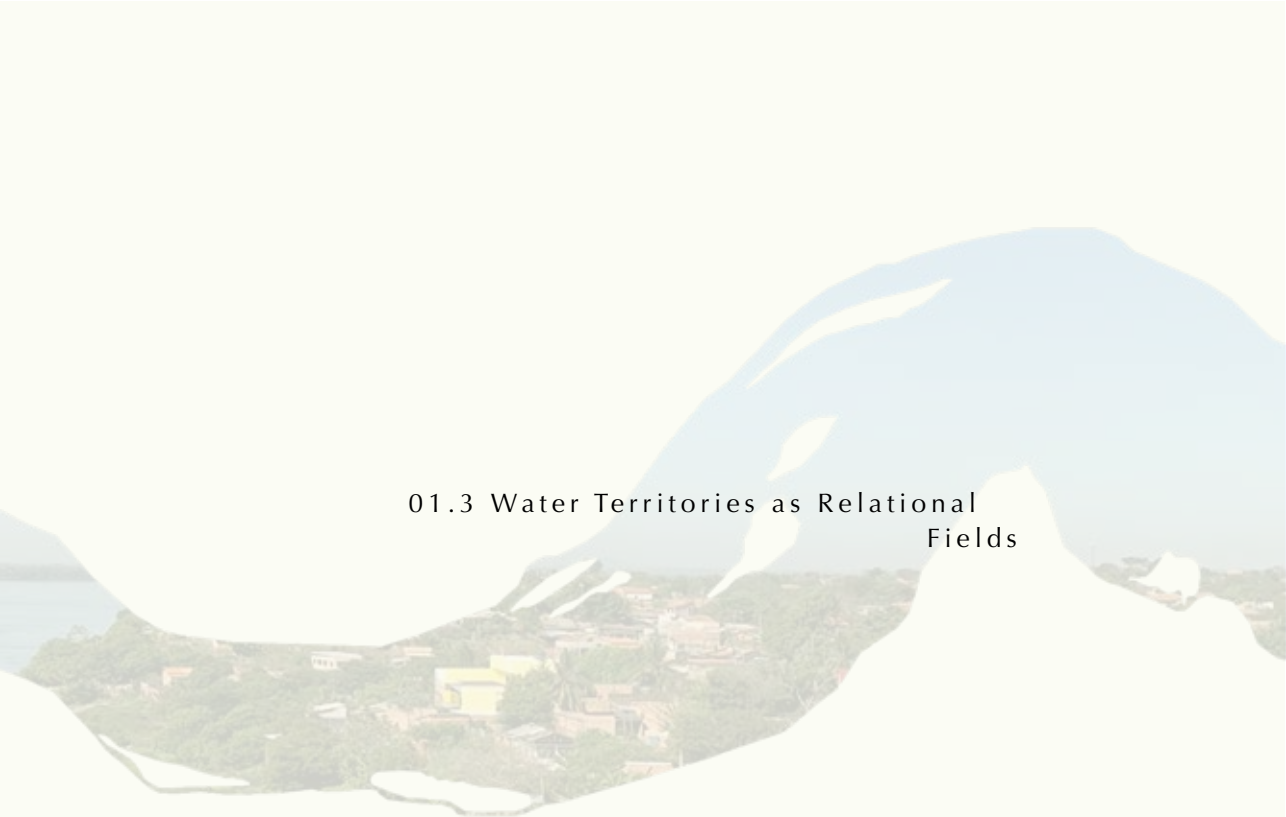
of divergent ontological premises and power relations. Governance does not emerge from the resolution of conflict but from the capacity to sustain plurality, disagreement, and shared responsibility over time - a condition particularly relevant in the Brazilian Amazon, where the gap between formal governance structures and lived territorial practices remains structurally pronounced.

This conflict-oriented reading allows the interactions among plural knowledges to be interpreted without reducing them to dysfunction. Frictions between epistemologies are structural, not accidental; they reveal how governance is continuously negotiated, contested, and reconfigured rather than imposed as a coherent or unified system (Escobar, 2008; Gualini, 2015). Planning and policy, within this framework, cannot be understood as neutral technical domains - they operate as arenas in which different epistemologies confront one another, and in which decisions about water, land, and infrastructure materialize unequal relations of power and knowledge.

This is precisely the condition that the *outorga de direito de uso da água*³ - Brazil's formal instrument for authorizing water use and mediating conflicts over access and allocation - makes visible. Formally designed to ensure equitable and sustainable water governance, its implementation frequently operates within technocratic and legal frameworks that privilege actors with economic, political, and technical capacity, while marginalizing riverine, Indigenous, and low-income populations (Maia et al., 2024). Rather than mitigating asymmetries, such instruments may reproduce or intensify them, compelling communities with limited institutional access to negotiate under structurally unequal conditions. The tension between formal governance instruments and situated territorial practices does not imply an absence of regulation - it reveals the limits of regulatory models insufficiently grounded in the relational, historical, and social complexity of water territories. It is within this gap between policy design and lived governance that this research positions its analytical inquiry.

³The *outorga de direito de uso da água* is a legal instrument established under Brazil's National Water Resources Policy (Law No. 9.433/1997), through which the State grants authorization for the use and extraction of surface and groundwater for specific purposes and durations - Brasil. Lei nº 9.433, de 8 de janeiro de 1997. Política Nacional de Recursos Hídricos.





01.3 Water Territories as Relational Fields

Building on the epistemological framework established in the previous section, this thesis adopts the concept of water territories as its central analytical lens - not as a fixed category but as a processual and relational field through which water organizes spatial relations, social practices, and governance arrangements across scales. Early interpretations describe water territories as living infrastructures in which ecological and social dynamics co-produce landscape rather than as fixed systems to be controlled or optimized (Escobar, 2008; Boelens, 2016). The contribution of this thesis lies in extending that framework to foreground the scalar, epistemic, and political dimensions that structure such fields under conditions of asymmetry and conflict.

In Marabá, the simultaneous presence of fishing, bathing, washing, leisure, mobility, and industrial extraction along the Tocantins River produces what can be described as a condition of territorial simultaneity - a coexistence of practices, temporalities, and rationalities that modern planning traditions have historically separated into distinct zones and functions (Palazzo, 2006; Lefebvre, 1991). This simultaneity is not incidental; it is structural. It reflects the layering of different historical formations, governance regimes, and ways of inhabiting water that have accumulated without resolution in the same spatial field. Similar logics of relational coexistence characterize Afro-descendant epistemologies, which interpret space

through coordinates shaped by embodied experience, environmental cues, and collective memory rather than through linear or Cartesian logics (Bispo dos Santos, 2023).

Indigenous knowledge systems reinforce this reading. As Raymond et al. (2010) observe, such systems are grounded in holistic worldviews that emphasize the interdependence of ecological, cultural, spiritual, and social dimensions - worldviews in which rivers, forests, and winds are not passive elements but active participants in shaping territorial life. Crucially, knowledge in these frameworks is not produced in isolation but through ongoing interaction among communities, institutions, and ecosystems: territories evolve as relationships evolve, and governance is embedded in that relational process rather than imposed upon it.

Yet the coexistence of multiple epistemic systems does not produce integration. As McGregor et al. (2023) observe, different forms of knowledge interact without fusion, generating frictions and partial translations rather than convergence. In water territories, this condition of non-convergence is productive analytically: it is precisely where epistemic worlds fail to align that the political dimensions of governance become most legible - where the unequal distribution of capacity to articulate claims, access institutions, and sustain territorial autonomy is exposed (Escobar, 2008; Gualini, 2015).

Indigenous and Afro-descendant ontologies make this divergence concrete. In these worldviews, water is never inert: it connects, remembers, and transforms, participating in processes of confluence, reciprocity, and becoming (Bispo dos Santos, 2023; Krenak, 2020). When rivers are stripped of their relational meanings and reduced to inert matter - as extractive and technocratic governance frameworks tend to do - they become vulnerable to dispossession and degradation. Recognizing water as an active territorial presence is therefore not only an epistemological position but a political one: it challenges the naturalist ontologies that separate nature from society and that underwrite governance models organized around control and abstraction (Latour, 1993; Swyngedouw, 1996).

Water territories, in this sense, share what Tsing (2005) calls a condition of friction - the productive but unequal encounters between different worlds, rationalities, and scales that generate both connection and displacement. They also share what Scott (1998) identifies as a resistance to full legibility: like forests, water territories cannot be entirely captured through technical categories, but require analytical sensitivity to interdependence, opacity, and situated meaning. These are not limitations of the analytical framework - they are constitutive features of the object itself.

Within this framework, water territories function as a methodological and analytical device that allows governance, spatial

configuration, and everyday practices to be read together across scales. Rather than treating water as a sectorial issue or environmental constraint, this lens foregrounds how decisions about water are inseparable from broader questions of power, knowledge, and territorial justice - and how the limits of existing governance models become visible precisely at the points where different epistemic worlds meet without merging.





01.4 Aim, Scope, and Research Questions

This research investigates the relationship between water, urbanity, and knowledge as a dynamic field shaped by coexistence, conflict, and continuous transformation - building on the understanding of water as relational medium and water territories as analytical lens developed in the preceding sections. In the Amazonian context, where global extractive pressures intersect with historically inhabited territories, water becomes a privileged site for observing how different epistemologies, actors, and scales produce - and contest - the conditions of territorial life (Loureiro, 2024; Acsehrad, 2004).

The main aim of the thesis is to understand how water territories are formed, inhabited, and governed in Amazonian urban and peri-urban contexts, and how these processes expose the limits of dominant frameworks of urban and territorial policy. By focusing on Marabá - a river city shaped by simultaneous uses, overlapping actors, and multi-scalar pressures - the research examines how relationships with water reveal not only the inadequacies of existing governance models but also the presence of alternative forms of territorial organization grounded in Indigenous, quilombola, and riverine practices. These alternatives are not idealized counter-models; they are situated, partial, and contested responses to conditions that dominant policy frameworks have repeatedly failed to engage.

The study pursues four interconnected objectives, each building on the previous. The first is epistemological: to examine how plural

and situated knowledges - Indigenous, quilombola, local, and scientific - participate in sustaining, interpreting, and negotiating water territories, tracing how different ontologies attribute meaning, agency, and responsibility to rivers, land, and forest. The second is analytical: to map how diverse actors engage with governance and the everyday management of water-based environments, revealing a landscape structured by tensions, asymmetries, and unequal capacities to articulate claims between centralized institutions, extractive industries, and local forms of self-governance. The third is critical and policy-oriented: to assess how existing urban and territorial policies engage with Amazonian water-based environments, and to identify the structural limitations that emerge when frameworks grounded in Western urban traditions are applied to relational, multi-scalar territories shaped by rivers. The fourth is methodological: to reflect on the implications of interdisciplinary approaches, exploring how the combination of spatial, qualitative, and observational tools can better capture the relational complexity of water territories and support more grounded forms of territorial analysis.

These objectives are articulated through four guiding research questions. First: how do relationships between actors and water shape governance practices, spatial configuration, and everyday life in urban and peri-urban Amazonian territories? Second: how do plural and situated knowledges operate within water governance, and under what conditions do they remain in structural friction rather than moving toward institutional recognition? Third: what limitations emerge when existing urban and territorial policies are applied to relational, multi-scalar water territories in the Amazon, and what do these limitations reveal about the assumptions embedded in those frameworks? Fourth: how can interdisciplinary frameworks capture the relational complexity of water territories across scales, bridging spatial, social, ecological, and political dimensions?

Methodologically, the research adopts a qualitative approach combining literature review, semi-structured interviews, spatial analysis, field sketches, direct observation, and documentary review. This integrated design supports not only a descriptive reading of how people inhabit and imagine water, but an interpretative understanding of the relational, political, and epistemic processes through which water territories are continuously produced and contested - a distinction that reflects the epistemological commitments established in the preceding sections.

The thesis positions itself at the intersection of urban and territorial studies, governance analysis, and situated knowledge systems. Its contribution lies not in proposing transferable models but in developing an analytical framework attentive to the specificity, historicity, and relational complexity of Amazonian territories - one

that opens space for more context-sensitive approaches to policy and planning in water-dependent contexts beyond the Amazon as well.





01.5 Structure of the Thesis

The thesis is structured to allow both linear and parallel reading, reflecting the multi-scalar and relational nature of its object. The opening chapters establish the conceptual, epistemological, and methodological foundations; the subsequent chapters develop complementary analyses of the ecological, political, and experiential dimensions that characterize Marabá's water territories. Movement across scales - from global extractive dynamics and governance frameworks to situated practices along the Tocantins River - is guided by a conflict-oriented and situated analytical gaze that makes visible how large-scale processes materialize in local tensions, negotiations, and forms of adaptation (Escobar, 2008; Porto-Gonçalves, 2006).

Chapter 1 establishes the conceptual and epistemological foundations of the research: its motivations, analytical framework, objectives, and guiding questions. Chapter 2 develops the methodological design, presenting the qualitative and interdisciplinary approach - combining spatial analysis, semi-structured interviews, direct observation, and documentary research - and reflects explicitly on the positionality of the researcher within the field. Chapter 3 situates the research within broader global debates on governance, extractivism, colonial continuities, and territorial transformation, constructing the critical backdrop against which contemporary water-related conflicts in the Amazon become legible. Chapter 4 narrows the scale to the Brazilian Amazon, tracing the historical, ecological,

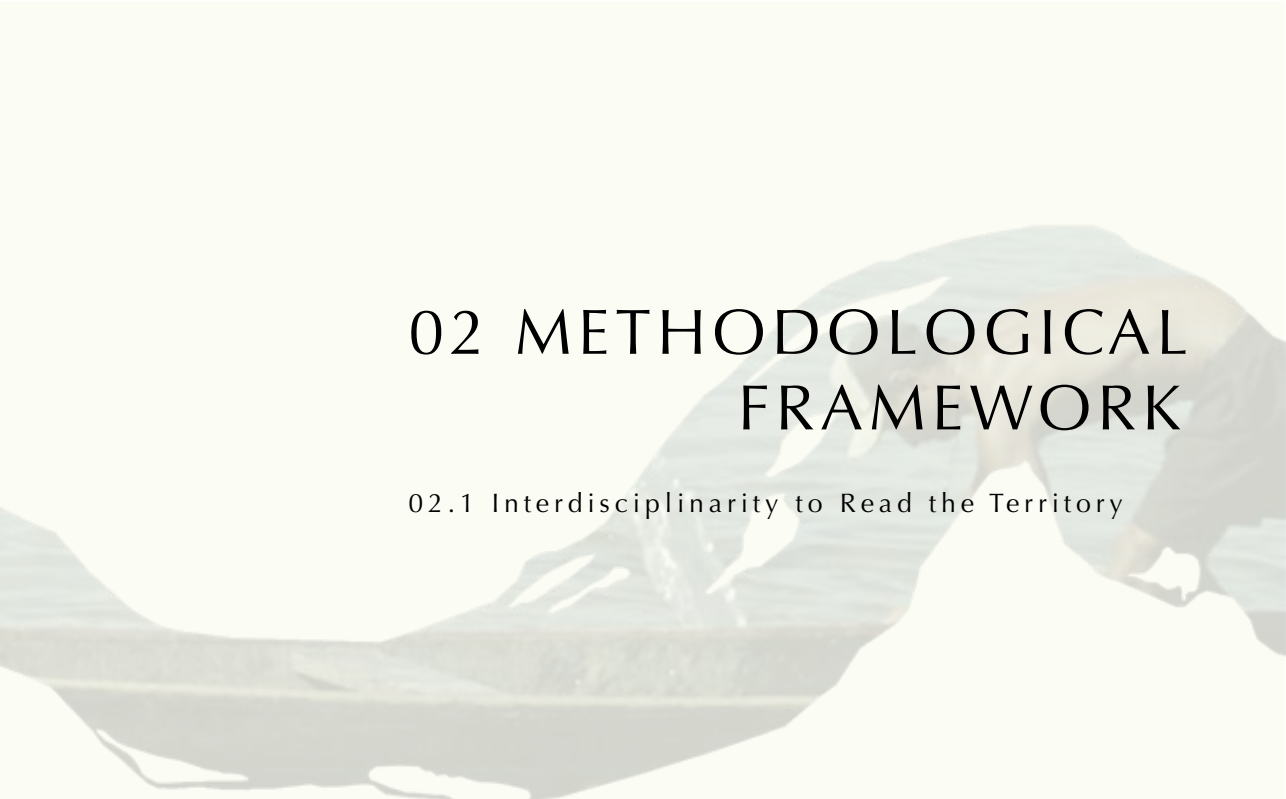
and socio-political processes that have shaped water governance and territorial organization, and examining how global dynamics intersect with - and are reconfigured by - local forms of life.

Chapter 5 presents the empirical findings from Marabá, illustrating how diverse actors engage with the Tocantins River through everyday practices and institutional arrangements that produce simultaneous and overlapping uses of water and space. Chapter 6 deepens this analysis through a focused examination of the Akrátikatêjê Indigenous territory, tracing ancestral territorial practices, the experience of forced displacement, and the ongoing entanglements between Indigenous governance and state infrastructure. Together, Chapters 5 and 6 constitute the empirical core of the thesis, grounding the theoretical framework in situated, place-specific realities.

Chapter 7 reads these empirical findings through the analytical lens of water territories, examining how conflicts, memory, and situated forms of self-governance contribute to the continuous negotiation of urban and peri-urban life along the river. Chapter 8 develops the broader analytical and methodological contributions of the research, reflecting on how a water-based and relational perspective can reorient urban and territorial governance and challenge control-oriented policy frameworks. Chapter 9 concludes the thesis by synthesizing the main insights, reflecting on the study's limitations, and outlining directions for future research - advancing policy-oriented considerations on how water-sensitive and participatory approaches grounded in territorial specificity might support more adaptive and inclusive forms of governance in Amazonian and other water-dependent contexts.

Taken together, the chapters trace a movement from conceptual foundations to empirical depth to analytical synthesis - a structure that mirrors the processual understanding of water territories that runs through the thesis itself.





02 METHODOLOGICAL FRAMEWORK

02.1 Interdisciplinarity to Read the Territory

Territorial processes in the Brazilian Amazon cannot be adequately understood through a single disciplinary or sectorial lens. Where water connects global extractive dynamics, institutional regulations, and everyday forms of inhabitation simultaneously, approaches that treat infrastructure, environment, and society as separable analytical domains reproduce precisely the fragmentation they claim to analyze (Zhou et al., 2018; Loureiro, 2024). This research responds to that condition by adopting an interdisciplinary and qualitative framework - not to achieve methodological completeness, but to address the structural disjunction between institutional governance frameworks and lived territorial realities.

That disjunction is particularly acute in Amazonian contexts. Indigenous, quilombola, local, scientific, and institutional knowledges coexist within the same territories without converging into a unified epistemic system - each operating according to distinct premises, producing different interpretations of water, territory, and responsibility. Conventional planning and policy analyses tend to render this plurality invisible, privileging formal instruments and technical expertise while marginalizing the situated knowledges and everyday negotiations through which water territories are actually governed (Scott, 1998; Santos, 2014). Interdisciplinarity here is therefore a political as much as a methodological stance: it refuses that invisibility.

The theoretical grounding for this approach draws on relational ontologies articulated in Indigenous and Afro-descendant thought. For Krenak (2020), worlds are constituted through relations among humans, non-human beings, rivers, winds, and ancestors - not through separations between society and nature. Bispo dos Santos (2023) conceptualizes territory as emerging from modes of life grounded in confluence, reciprocity, and collective experience. These perspectives do not simply add a cultural dimension to territorial analysis; they challenge the epistemological foundations of abstraction and control on which dominant governance frameworks rest. Interdisciplinarity, mobilized through this lens, becomes a practice that allows different epistemic worlds to encounter one another without forcing synthesis or consensus (Marques et al., 2020; Flyvbjerg, 2001).

Methodologically, this relational stance translates into the combination of spatial analysis, ethnographic engagement, and direct observation - approaches that make it possible to read territory as a living system in which water, infrastructures, actors, memories, and conflicts are interdependent. Rather than producing a comprehensive or total representation, the interdisciplinary design functions as a practice of translation: rendering visible the gaps, frictions, and asymmetries that structure water governance across scales (Tsing, 2005). The objective is not to reconcile divergent perspectives but to interpret how their coexistence shapes territorial configurations, conflicts, and the unequal possibilities for negotiation within water-dependent environments.

In this sense, interdisciplinarity operates here as both analytical position and ethical commitment - attentive to the ways in which governance systematically separates water, land, housing, and infrastructure despite their lived interdependence, and to the political implications of making those separations visible.





02.2 Qualitative Methods

This research adopts a qualitative methodological framework articulated through literature and documentary analysis, semi-structured interviews, stakeholder mapping, and spatial and visual analysis (Denzin & Lincoln, 2018; Table 01). These methods engage with different types of material - textual, institutional, spatial, and visual - but are unified by a single interpretive commitment: to trace territorial relations without reducing them to predefined categories, indicators, or administrative logics.

Spatial analysis functions here as a critical interpretive device rather than a purely technical tool (Corner, 1999). In Marabá, governance arrangements, everyday practices, and ecological processes are inseparable and continuously negotiated across scales - conditions that require methods capable of holding that complexity rather than resolving it prematurely. The methodological design therefore prioritizes depth and situated interpretation over representativeness or statistical generalization (Flyvbjerg, 2006).

Each method contributes a distinct analytical layer. Literature review and documentary analysis reconstruct institutional rationalities and policy frameworks, revealing the assumptions embedded in formal governance. Interviews foreground lived experiences and situated knowledges that remain invisible within those frameworks. Stakeholder mapping clarifies the relational field - who holds power, who is marginalized, and along what lines negotiation is structured.

Spatial and visual analysis renders visible what textual sources cannot capture: simultaneity, overlap, and scale misalignment within water-based territories.

The integration of these methods does not seek convergence or mutual validation across datasets, but triangulation in a specific sense - each method illuminates different and sometimes contradictory dimensions of the same territorial processes, revealing their interdependence and tensions rather than producing a unified picture (Denzin & Lincoln, 2018). This is consistent with the epistemological position established in the preceding sections: a research design that mirrors, in its structure, the plurality and friction it sets out to analyze.

TABLE 01 - Data sources, methods, and analytical outputs

	Source	Restriction	Method	Contribution	Limits
Literature Review	Online research platforms	No limits - 2025	Critical and systematic literature review and coding (NVIVO)	Theoretical framing, epistemological positioning, interpretation of conflict, governance and territoriality	Predominance of Western academic frameworks; uneven regional coverage
Semi-structured interviews	Local communities, institutional actors, industry representatives	2025	Interviews + thematic coding	Lived experience, situated knowledge, governance perceptions	Non-representative sample, relational bias
Documentary materials	Municipality of Marabá, Instituto Emilio Goeldi	No limits - 2025	Document analysis	Institutional narratives, policy rationales, planning frameworks	Fragmented and sectoral perspectives
Spatial datasets	ANA, IBGE, municipal GIS mapbiomas	2000–2024	GIS mapping and spatial analysis	Flood exposure, spatial overlap, scale misalignment	Data resolution limits, absence of informal settlements
Field sketches & photographs	Author	2025	Visual and spatial analysis	Spatial simultaneity, sensory and material dimensions	Subjective and partial perspective
Direct observation	Riverbanks, settlements, urban neighbourhoods	2025	Ethnographic observation	Everyday practices, temporal rhythms, spatial uses	Time-bound and situational

Source: Mixed materials systematized and elaborated by the author (2025–2026)





2.2.1 Literature Review

The literature review was conceived not as an exhaustive survey of existing scholarship but as a structured process for delimiting a coherent analytical field - identifying the conceptual domains and governance debates most relevant to water-based territorial governance in Amazonian contexts.

The selection process unfolded through three successive search protocols on the Web of Science database. The first two explored “Nature and Capitalism” and “Collaborative/Participatory Planning” - domains theoretically relevant but only partially aligned with the hydro-territorial focus of the research. A third protocol redefined the domains as: Ecosystem Services and River Landscape; Placemaking and River Landscape; and Indigenous Knowledge and River Landscape. Pairing each domain with “River Landscape” ensured thematic coherence and reinforced the spatial and ecological axis of the research. An initial keyword search generated 2,655 records; successive filtering stages - restricting to peer-reviewed articles in English, Spanish, and Portuguese, then applying exclusion criteria based on engagement with socio-territorial and governance dimensions - produced a final corpus of 111 articles for in-depth analysis.

This corpus provided a structured entry into debates on knowledge pluralism, participatory governance, and river landscape, revealing recurring tensions between ecological valuation frameworks and situated forms of knowledge, and identifying analytical gaps in the

relational governance of water territories in Amazonian contexts specifically. The review is further elaborated in a peer-reviewed journal article presenting its analytical structure in systematic form (Annex B); within the dissertation, it functions as a methodological and interpretive device rather than a self-contained theoretical synthesis.

Crucially, literature was read throughout in continuous relation to empirical material - interviews, field observations, spatial analysis, and documentary sources. Concepts and governance categories were interrogated against lived territorial practices rather than treated as abstract explanatory models.





2.2.2 Semi-Structured Interviews

Semi-structured interviews were conducted to explore relational dynamics between people, water, and territory, treating them not as instruments for extracting individual opinions but as situated encounters through which knowledge, memory, and interpretations of territory are co-produced (Kvale & Brinkmann, 2009; Haraway, 1988). Fieldwork took place between July and September 2025, complemented by online follow-ups where necessary.

Participants were selected to reflect the heterogeneity of actors involved in or affected by water-related territorial processes in Marabá - not to achieve representativeness, but to capture differentiated positions within the same water territory (Flyvbjerg, 2006). The corpus includes Indigenous leaders, residents of riverine and Afro-descendant neighborhoods, representatives of rural movements, university researchers, municipal officials, environmental agency staff, and actors connected to extractive activities. An overview of participants, roles, dates, and thematic focus is provided in Table 2. This selection responds directly to the multi-actor condition of Marabá's water territories established in Chapter 1: each interviewee occupies a structurally distinct position within the same contested spatial field.

Each interview lasted between 14 and 120 minutes and was guided by open thematic prompts focusing on everyday relations with water, perceptions of environmental change, experiences of governance and

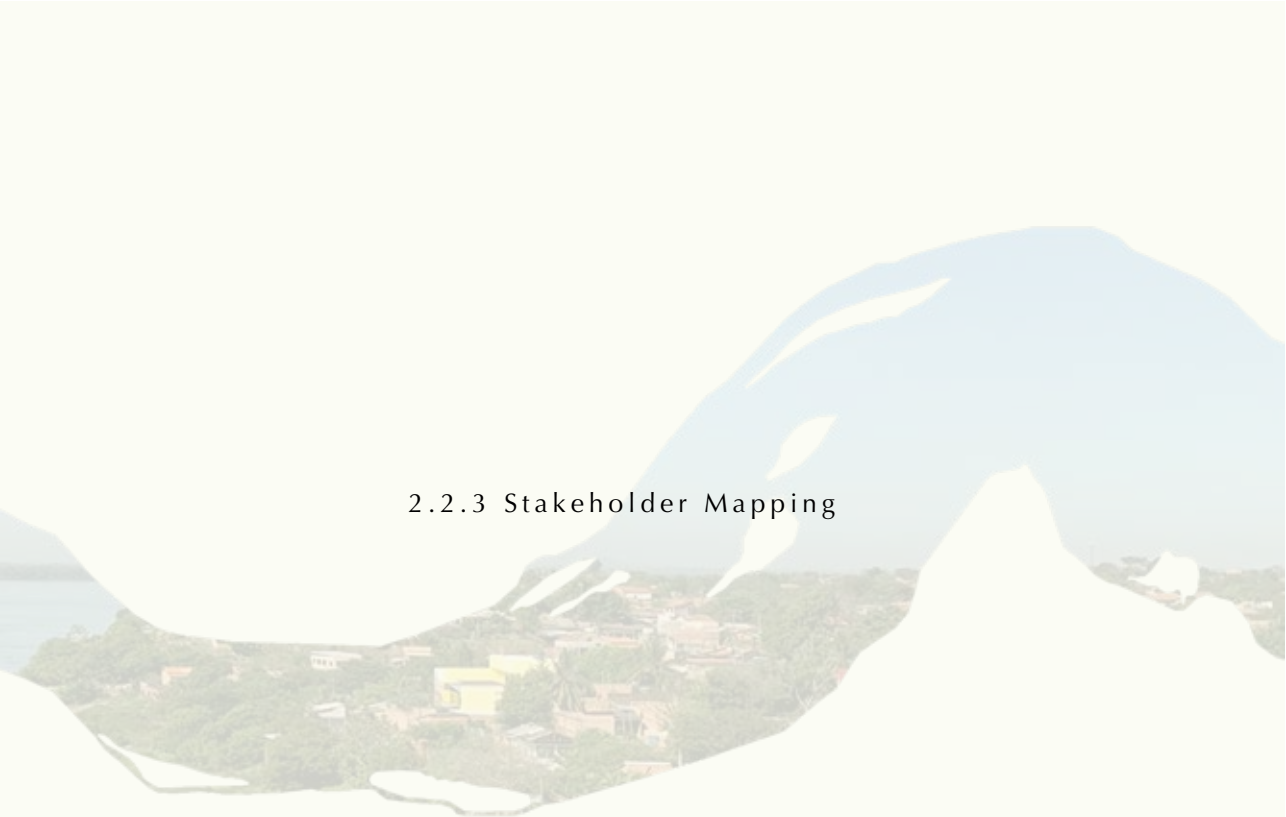
TABLE 2 - List of Interviews

Code / Interviewee	Affiliation	Date 2025	Main Themes
Interview 01 – Kátia Silene	Leader of the Akrátikatê-jê Indigenous community	July 05	Indigenous territorial governance; water as cultural, spiritual, and subsistence element; impacts of hydroelectric dams; leadership and gender; forest and water protection; climate change; conflicts with infrastructure projects.
Interview 02 – Leonardo Brasil	Professor of Geology, UNIFESSPA	July 07	Fluvial geomorphology; impacts of dredging and blasting (Pedral do Lourenção); hydroelectric infrastructure; risks to water quality and ichthyofauna; socio-environmental conflicts related to waterways.
Interview 03 – Fernando Michelotti	Professor of Geography, UNIFESSPA	July 11	Political ecology of large-scale projects; agro-hydro-mining nexus; waterway projects and agribusiness expansion.
Interview 04 – Patrícia Capanema	Coordinator of the Executive Secretariat of the Master Plan Steering Council, SEPLAN (Municipal Planning Secretariat)	July 14	Urban planning and riverfront governance; sanitation and water supply deficits; informal settlements; privatization of riverbanks; institutional fragmentation; limits of municipal action.
Interview 05 – Bernardo Tomchinsky	Professor of Biology, UNIFESSPA	July 15	Socio-environmental governance; Pedral do Lourenção and hydrovia project; environmental licensing and consultation; conservation units and territorial mosaics; basin-scale governance; data gaps; mining impacts; participatory mapping.
Interview 06 – Anonymous	VALE employee	July 16-18	Informal land occupation; Vale's presence in urban development; everyday perceptions of water and rivers in Marabá.
Online			
Interview 07 – Matheus (ICMBio)	Environmental Manager, ICMBio	August 15	Public environmental governance; conservation units management; creation of river basin committees; water quantity vs. quality; climate change impacts; illegal mining and mercury contamination; institutional roles and limitations.
Interview 08 – Ana Luísa Rocha da Silva	Representative of the Afro-descendant community of Cabelo Seco	September 02	River as livelihood and identity; pollution and sewage discharge; sand extraction impacts; effects of dams on fishing; environmental injustice; community mobilization; socio-environmental vulnerability of riverine and Afro-descendant communities.
Interview 09 – Pablo Neri	Representative of the Movimento dos Trabalhadores Rurais Sem Terra (MST)	September 28	Agrarian struggle and water; settlements and rivers; degradation inherited from agribusiness; springs and flooding; commons and privatization of riverbanks; solidarity with riverine communities; opposition to Pedral do Lourenção; territorial justice.
Source: data collected and systematized by the author (2025-2026)			

participation, and cultural meanings attached to territory and memory (Nash et al., 2018). The flexible structure allowed interviewees to emphasize issues they considered most relevant, enabling the emergence of unanticipated themes around conflict, adaptation, and coexistence.

Transcripts were analyzed through open and thematic coding, focusing on patterns of meaning and recurrent relational configurations: how different actors describe their engagement with water, how they position themselves in relation to institutions and infrastructures, and how they articulate vulnerability, responsibility, and agency (Sibilla, 2018). In the analytical chapters, interview material is mobilized selectively - to illuminate specific territorial relations, governance tensions, or perceptions of change - rather than as illustration or generalization. Participants are cited using full names where consent was explicitly granted, and anonymized codes for sensitive roles or contexts.





2.2.3 Stakeholder Mapping

Stakeholder mapping is employed here as a qualitative and interpretive device to examine power relations, asymmetries, and fields of negotiation within Marabá's water territory - not as a decision-support or optimization tool, but as a means of reconstructing how governance is produced through interactions between heterogeneous actors whose interests, capacities, and forms of engagement with water differ fundamentally (Bryson, 2004). In water-dependent and conflict-prone contexts, rivers and water infrastructures constitute hydro-social systems shaped by the simultaneous presence of local communities, state institutions, and capital-intensive actors, each advancing distinct territorial projects (Swyngedouw, 2009; Boelens et al., 2016).

Based on fieldwork, interviews, and documentary analysis, four analytical categories of actors were identified - not as fixed or internally homogeneous groups, but as relational constructs that help interpret configurations of power and negotiation:

Indigenous, quilombola, and riverine communities, whose practices of fishing, bathing, washing, subsistence agriculture, and social life are directly dependent on the river and its seasonal dynamics. These actors engage water as a lived territorial relation rather than a resource, and their governance practices are largely informal, embodied, and transmitted through everyday interaction.

Civil society organizations and social movements - including rural

movements such as the MST - which articulate collective claims around land, water access, and environmental justice, mediating between local practices and institutional arenas.

Institutional actors, including municipal administrations, state and federal environmental agencies, and public universities, whose engagement with water governance through regulation, monitoring, and planning is frequently fragmented across sectors and administrative scales (Cardoso, 2010).

Private sector actors, particularly extractive and logistical corporations such as Vale S.A., whose capital-intensive operations exert decisive influence on territorial transformation through governance rationalities grounded in efficiency, control, and economic optimization.

These asymmetries are further intensified in the Brazilian Amazon by historical processes of dispossession, uneven urbanization, and development strategies oriented toward extraction rather than territorial continuity (Loureiro, 2024; Porto-Gonçalves, 2006). Relations among these actors were analyzed across three dimensions: power - the capacity to influence decisions affecting water and territory; interest - the degree of dependence on water for livelihoods or economic activity; and engagement - the extent and form of participation in governance processes, whether formal or informal (Bryson, 2004; Ramos et al., 2018). These dimensions were qualitatively assessed through triangulation between interviews, observation, and documentary sources, and are summarized in Table 3.

The resulting matrix does not stabilize actors into static positions but reveals relational patterns of influence, marginalization, and negotiation - making visible how decision-making power, water dependency, and modes of engagement are unevenly distributed across the territory. This analytical move provides the relational ground for interpreting how conflicts, alliances, and exclusions materialize in the empirical chapters that follow.

TABLE 03 - Stakeholder Matrix

Stakeholder	Examples	Main interests in water	Relative power over decisions	Dependence on river	Engagement in governance	Main relational dynamics
Indigenous communities	Akrãti-katêjê leadership	Cultural survival, subsistence, territorial autonomy, protection of forest and rivers	Low institutional power / high territorial legitimacy	High	High but structurally marginalized	Conflict with extractive and infrastructural actors; limited recognition in formal governance
Riverine and Afro-descendant communities	Cabelo Seco residents	Fishing, domestic use, identity, environmental justice	Low	Very high	Low-medium (often excluded)	Exposure to pollution, flooding, displacement pressures
Rural and social movements	MST	Land reform, water commons, territorial justice	Medium (mobilization capacity)	High	Medium-high	Political mediation between communities and institutions; conflict with agribusiness/infrastructure
Academic and scientific actors	UNIFESSPA researchers	Knowledge production, environmental monitoring, critical analysis	Medium symbolic power	Medium	High	Knowledge mediation; support to communities; limited decision authority
Municipal governance	SEPLAN, municipality	Urban infrastructure, flood control, sanitation	Medium-high (formal authority)	Medium	High but fragmented	Institutional mediation with limited autonomy
Federal environmental agencies	ICMBio	Conservation, regulation, basin governance	Medium	Medium	High but resource and timing-constrained	Regulatory presence with limited enforcement capacity
Private extractive sector	Vale S.A.	Mining logistics, territorial control, infrastructure	Very high	Low (instrumental relation to water)	Selective/formal	Strong influence on territorial transformation; conflicts with communities

Source: Author's fieldwork and interviews (2025).





2.2.4 Spatial and Visual Analysis

Spatial and visual analysis is employed here as an interpretive device to expose simultaneity, overlap, and misalignment between administrative representations and lived water-based territorialities - not to stabilize territory into coherent or bounded units (Corner, 1999). In Marabá, governance, everyday practices, and environmental processes unfold across overlapping scales and temporalities that conventional cartographic abstractions alone cannot capture.

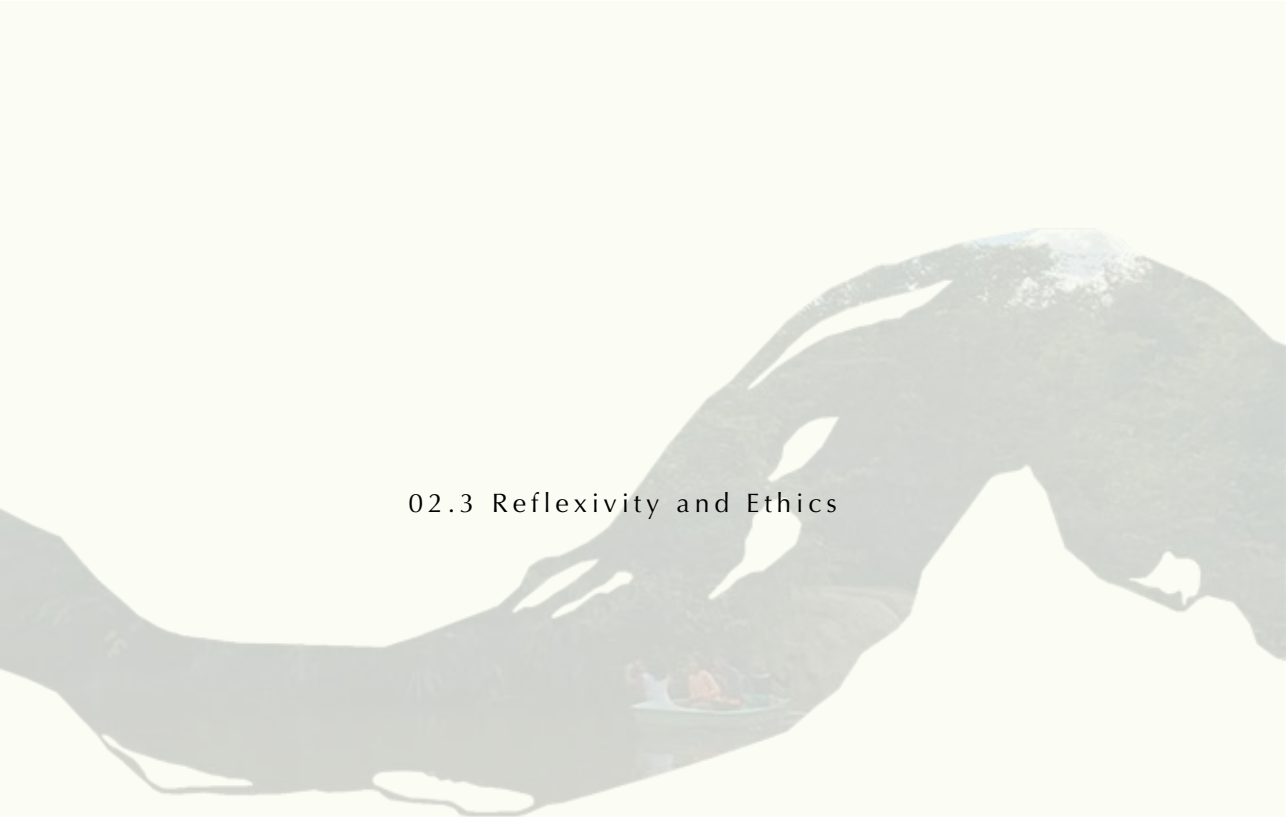
GIS was used selectively to assemble and overlay spatial layers - hydrography and basins (ANA), administrative boundaries and census grids (IBGE), urban infrastructure and transport corridors, and protected or designated territories (FUNAI, INCRA) - not to produce definitive spatial classifications but to reveal points of tension, exposure, and contradiction between formal territorial representations and everyday water uses. This aligns with Qualitative GIS approaches that mobilize spatial tools to interpret social relations, narratives, and power asymmetries rather than generate quantitative outputs (Pavlovskaya, 2017). Flood-prone areas, riverbank occupations, infrastructural corridors, and sites of extractive circulation were mapped to situate interviews and observations within a broader territorial configuration - supporting a multi-scalar reading where decisions taken at basin or regional scales materialize as localized exposure, constraint, or conflict along the river.

Field sketches, photographs, and annotated maps produced during

fieldwork were treated as analytical materials rather than illustrative supplements. These visual practices captured dimensions of territorial experience absent from administrative maps: rhythms of occupation along riverbanks, informal access points, sensory conditions, and the coexistence of domestic, subsistence, and extractive activities within the same spaces. This approach draws on critical cartography's long-standing argument that mapping practices both reflect and produce territorial hierarchies, exclusions, and silences - particularly in contexts marked by colonial legacies and extractive governance (Harley, 1989; Crampton & Krygier, 2006; Acselrad, 2008). By combining institutional maps with field-generated visual materials, the research exposes these hierarchies rather than reproducing them.

Direct observation grounded both spatial layers and visual materials in lived territorial practices - focusing on patterns of river use, material conditions of infrastructure and housing, temporal cycles of flooding and seasonal change, and sensory dimensions such as sound, smell, and bodily proximity to water. Together, spatial analysis, visual methods, and direct observation operate as a relational bridge across scales and methods: each illuminates different dimensions of how water territories are produced through interaction, negotiation, and conflict.





02.3 Reflexivity and Ethics

The positionality of the researcher - introduced in the Foreword - shaped not only access to the field but the form of knowledge produced throughout the research process. As Limulja (2022) argues, research encounters are constituted not only by what the researcher seeks to understand, but also by the desires, projections, and anticipations of those encountered; knowledge emerges as a relational and contingent outcome of mutual positioning rather than neutral extraction. This understanding had direct implications for how methods were applied and interpreted.

In Marabá, the conditions under which research is conducted are inseparable from the conditions under which governance, conflict, and everyday life unfold. Environmental factors - extreme heat, seasonal rainfall, and river-level fluctuations - directly affected mobility, observation, and the temporal organization of fieldwork. Social and political dynamics shaped trust, access to spaces, and the circulation of narratives, particularly in territories where conflicts over land and water intersect with institutional regulation and corporate interests (Loureiro, 2024). Rather than guaranteeing transparency, the researcher's position of partial familiarity - Brazilian but not Amazonian, urban-trained but field-embedded - required continuous negotiation of trust, distance, and expectation throughout the four months of fieldwork.

Methods were therefore not treated as neutral instruments but as

situated practices embedded in specific social and territorial relations. Access to interviewees, the framing of questions, and the interpretation of narratives were shaped by positionality and by existing power asymmetries among actors. Critical territorial scholarship has shown that mapping, interviewing, and observation inevitably participate in the production of visibility and invisibility, reinforcing or challenging power relations embedded in spatial governance (Porto-Gonçalves, 2006; Harley, 1989). Acknowledging these limits does not weaken the research - it clarifies its epistemic boundaries and reinforces the need for reflexivity when engaging with territories shaped by historical inequality and contested governance.

Ethical considerations were integral to this framework and inseparable from positionality (Israel & Hay, 2006). Informed consent, respect for anonymity, and attention to potential risks guided all interactions with participants, particularly where political and economic pressures make exposure potentially harmful for individuals and communities. Whenever possible, preliminary interpretations were shared with local actors, allowing for feedback, clarification, and moments of reciprocal learning. Ethics was not treated as an external protocol applied after data collection, but as an ongoing dimension shaping methodological decisions and interpretive responsibility throughout the research process.





02.4 Case Study Selection

Marabá was selected as the primary case study not for its representativeness but for its analytical density - a territorial configuration in which water operates simultaneously as ecological infrastructure, social medium, and political arena. Located at the confluence of the Tocantins and Itacaiúnas rivers, the city constitutes a hydrological node where river dynamics, urban expansion, extractive infrastructures, and water-based everyday practices intersect within the same spatial field (Cardoso, 2010; 2022). It is not treated as a typical Amazonian city nor as an exception, but as a site where multiple processes that characterize contemporary Amazonian territories become simultaneously legible - the superposition of river-based livelihoods and large-scale extractive logistics, the coexistence of legally recognized and weakly protected territorialities, and the convergence of urban growth with hydrological variability and environmental risk.

Marabá's territorial formation is inseparable from successive cycles of displacement, relocation, and infrastructural intervention associated with flooding, state-led planning, and extractive expansion. Rather than producing a coherent urban structure, these processes generated a polycentric and fragmented configuration in which different nuclei, riverbanks, and peri-urban areas maintain differentiated relationships with water (Silva & Nascimento, 2020). This form of urbanization by accumulation and superposition - in which planning interventions coexist with informal adaptation and river-oriented practices rather

than replacing them - is a structural condition of Amazonian cities, not a transitional phase (Haesbaert, 2020; Bibas & Cardoso, 2016).

The Akrātikatêjê Indigenous territory was selected as a second and complementary case for reasons that go beyond geographic proximity to Marabá. The Akrātikatêjê offer a direct analytical counterpoint to the urban case: their territorial practices, governance arrangements, and relationships with water are grounded in ontologies and temporalities that stand in structural tension with both the extractive rationalities and the institutional frameworks examined in the urban context. Their experience of forced displacement, reduced territoriality, and ongoing infrastructural entanglement makes visible the most acute form of the epistemic and political asymmetries that run through the entire thesis. Reading the two cases together - rather than separately - allows the research to trace how the same hydro-social system is inhabited, governed, and contested through radically different worlds of meaning and practice.

From a methodological standpoint, Marabá's spatial concentration of river dynamics, infrastructures, and everyday practices allows the full integration of interviews, observation, mapping, and documentary analysis within a single territorial field, while still engaging multiple scales of governance (Palazzo, 2006; Cardoso et al., 2020). The city's location within the Tocantins–Araguaia hydrographic system further enables connections between urban and peri-urban dynamics and basin-scale processes, supporting a relational reading grounded in hydrological continuities rather than administrative boundaries.

Both cases function as analytical devices rather than bounded objects of study (Flyvbjerg, 2006): they allow the research to examine how water organizes urban life, governance arrangements, and conflict as interdependent processes within a shared and contested hydro-social space.





02.5 Data Collection, Interpretation and Presentation

Data collection, interpretation, and presentation are conceived here as interdependent phases of a single analytical process rather than sequential steps. Materials were treated not as neutral inputs but as situated traces of territorial relations, produced through specific encounters, temporalities, and conditions of access. Their organization was guided by a relational logic aimed at maintaining the contextual integrity of practices, narratives, and spatial configurations observed in the field.

Interview transcripts, field notes, photographic documentation, sketches, maps, and institutional documents were organized into a structured qualitative database and coded thematically - focusing on recurring patterns related to everyday practices, environmental perception, governance arrangements, conflict, and adaptation. Coding was not used to fragment narratives into isolated categories but to trace relationships between actors, water, infrastructures, and territorial processes across scales (Sibilla, 2018). Spatial data were analyzed through GIS layers to identify overlaps, proximities, and misalignments between administrative rationalities and lived water-based territorialities, while visual materials captured atmospheres, rhythms, and forms of simultaneity that resist articulation through text or cartography alone.

Interpretation emerged through continuous triangulation of these heterogeneous materials - interviews read in relation to specific

sites and moments documented through observation and mapping, individual accounts situated within broader territorial dynamics, macro-scale processes held together with micro-scale practices of care and adaptation along the river. Table 04 represents how different methods contributed to distinct analytical dimensions: interviews illuminated governance perceptions and conflict narratives; observation foregrounded everyday practices and temporal rhythms; spatial analysis revealed patterns of exposure and infrastructural pressure; documentary sources clarified institutional rationalities; visual tools rendered simultaneity and relational density legible (Creswell, 2013).

This mode of organization responds to the recognition that a linear or compartmentalized presentation of data would risk reproducing the same sectorial fragmentation observed in governance frameworks. The thesis therefore adopts a structure in which different forms of knowledge and representation coexist, allowing tensions and inconsistencies to remain visible rather than resolved - consistent with the epistemological position that analytical clarity does not require epistemic closure.

TABLE 04 - Analytical triangulation across methods and territorial dimensions

Method	Governance configurations	Situated water relations	Spatialized exposure and infrastructural pressure	Relational conflict and negotiation
Interviews	Primary: perceptions of institutional roles, participation, and legitimacy	Primary: lived relations with rivers, memory, and everyday dependence	Supportive: narrated environmental change and vulnerability	Primary: conflict narratives, positional tensions, and claims-making
Field observation	Supportive: informal governance interactions and micro-negotiations	Primary: rhythms of use, mobility, subsistence and care practices	Primary: material exposure to flooding, pollution, and seasonal variation	Primary: embodied frictions, adaptations, and coexistence
GIS and spatial analysis	Primary: scale misalignments and infrastructural rationalities shaping territory	Supportive: spatial distribution of practices and settlements	Primary: overlaps between risk zones, infrastructures, and habitation	Supportive: spatialization of disputes and pressure points
Documentary and policy sources	Primary: planning frameworks, licensing regimes, and regulatory logics	Supportive: institutional framing of water uses and urban development	Supportive: formal classifications of risk and protection	Primary: institutional arenas of dispute and negotiation
Visual materials (photography, sketches)	Supportive: visible manifestations of governance and infrastructural presence	Primary: atmospheres, simultaneity, and relational density of river life	Supportive: perceptible traces of exposure and environmental transformation	Primary: coexistence of incompatible territorial projects

Primary = central analytical contribution

Supportive = complementary interpretive contribution

Source: Author's elaboration based on research design and empirical materials (2025–2026).





02.6 Concluding Remarks

The methodological framework developed in this chapter treats research practice as part of the territorial field it investigates rather than as an external apparatus applied to a pre-existing object. In water-based territories such as Marabá, governance, everyday life, and environmental dynamics are co-produced through relations that unfold across scales and temporalities - conditions that require a method designed to read territory relationally, holding together institutional instruments, infrastructural transformations, and lived practices without reducing them to separate analytical domains.

The interdisciplinary and mixed-method design combines qualitative inquiry with spatial and visual analytical devices to make overlap, simultaneity, and scale misalignment legible. Interviews, documents, observation, mapping, and visual materials are mobilized as interpretive tools that foreground partial visibility and epistemic plurality rather than produce comprehensive representation or convergent validation. Triangulation is used not to resolve friction but to preserve it as an analytical resource - precisely where governance categories and lived territorial relations fail to align, the political dimensions of water territories become most visible.

Marabá and the Akrátikatêjê territory are approached in the empirical chapters not as bounded objects of study but as complementary analytical sites where infrastructures, institutions, and communities continuously negotiate coexistence under conditions of

uncertainty and asymmetry. The methodological choices made here - relational, situated, attentive to power and epistemic plurality - enable those chapters to examine how water organizes urban life and territorial governance through conflict, adaptation, and differentiated forms of knowledge, without forcing these dynamics into sectorial or normative frames.



Figure 3.0 | Global exportations general view of Brazilian Amazon | Source: MDIC, ANM, IBGE | author's elaboration

GLOBAL EXPORTS



Soy
World's leading exporter
75% of the Brazilian
production



Beef
Among the world's leading
exporters
24% world share



Poultry meat
33% world share



Sugar
44% world share



Coffee
27% world share

Beyond agricultural commodities, the Amazônia Legal is also a significant mineral export region. Its main mineral exports include iron ore (the dominant product), as well as bauxite and alumina, copper, manganese, nickel, and gold. These resources are primarily shipped to industrial economies such as China, the European Union, the United States, and Japan, highlighting the region's role as both an agricultural and a mineral frontier in the global market.

CARBON CREDITS

For carbon credits associated with the Amazônia Legal, the market is primarily based on REDD+ / JREDD+ mechanisms, with very high growth potential but transaction volumes that are still in the process of consolidation.

03 GLOBAL PRESSURES AND BRAZILIAN AMAZON GOVERNANCE

The Amazon occupies a contradictory position within contemporary global geographies: simultaneously a planetary ecological regulator and a strategic resource frontier, it is subjected to climate governance agendas, carbon markets, deforestation dynamics, large-scale infrastructural projects, and commodity extraction that converge from the outside while their costs remain localized within (Carrero et al., 2022; Porto-Gonçalves, 2006). This dual positioning generates structural asymmetries whose spatial expression is illustrated in Figure 3.0, which situates the region within global networks of extraction and circulation. External interests frequently override local specificities, reconfiguring land, rivers, and social relations through development trajectories that rarely involve meaningful participation (Zhou et al., 2016).

Global urban growth intensifies these dynamics. Recent United Nations projections indicate that more than half of the world's population now lives in urban areas, with further increases expected in the coming decades (UN, 2023)⁴. This process extends far beyond metropolitan cores - drawing forested and water-based territories into global networks of extraction, logistics, and infrastructural expansion (Brenner & Schmid, 2014; Cardoso, 2022). Urbanization, in this sense, operates not only through the growth of cities but through the territorialization of urban logics across regions historically considered peripheral (Haesbaert, 2020). The Amazon is not an exception

⁴United Nations, Department of Economic and Social Affairs, Population Division (2023). World Urbanization Prospects: The 2023 Revision. New York: United Nations.

to global urbanization but one of its most revealing expressions: a terrain where planetary-scale governance agendas intersect with local livelihoods, ecological systems, and historically situated territorial practices.

The region itself is far from homogeneous. Biogeographical definitions of the Amazon biome, legal-administrative delimitations such as the Brazilian Legal Amazon, Pan-Amazonian geopolitical framings, and national statistical regions only partially overlap - as shown in Figures 3.1 and 3.2 (Neves et al., 2021; Santos et al., 2021). This thesis adopts the Brazilian Legal Amazon delimitation as its study area. These discontinuities complicate basin-wide governance and expose structural asymmetries between national interests and transboundary ecological processes. At the geopolitical level, the *Organização do Tratado de Cooperação Amazônica*⁵ coordinates environmental and territorial governance across national borders, with all Amazonian countries participating except French Guiana, whose status as an overseas department of France prevents its inclusion in an intergovernmental South American treaty (OTCA, 2023). This political discontinuity highlights the fragility of transboundary governance arrangements and reinforces patterns in which the Amazon is imagined as a connective corridor within continental strategies rather than as a constellation of inhabited territories with their own political rationalities (Porto-Gonçalves, 2006; Zibechi, 2012).

Against this background, the chapter examines how global urbanization, territorial governance, and plural epistemologies intersect in Amazonian water territories - moving from planetary frameworks through the Brazilian Amazon to the conditions that make Marabá a critical analytical site.

⁵Amazon Cooperation Treaty Organization (ACTO/OTCA), Monitoring Deforestation, Logging and Land Use Change in the Pan-Amazonian Forest (Brasília: ACTO, n.d.), which defines the Pan-Amazonian region as the transboundary Amazonian forest shared by the eight member countries—Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Suriname, and Venezuela—constituting a common regional space for cooperation and sustainable management.



Figure 3.1 | Different delimitations of Amazon | Source: IBAMA and OTCA | author's elaboration



Figure 3.2 | Different delimitations of Amazon in Brazil | Source: IBGE | author's elaboration

	
302.073 km²	8.510.345,54 km²
58.943.122 inhabitants	213.317.639 inhabitants
198 ab/km²	25 ab/km²
20 regions 80 provinces	5 regions 26 federal states
euro €	reais R\$ 1 € = 6 R\$
0.892 HDI	0.765 HDI
8° country GDP	10° country GDP



03.1 Unequal Exchange, Urbanization, and Water Territories

Since the mid-twentieth century, development narratives have framed the Amazon as an underutilized space whose value could be unlocked through connectivity, technical intervention, and economic exploitation - a reservoir of resources and spatial availability to be incorporated into global economic circuits through infrastructures, extractive corridors, and urban expansion. Critical political economy has shown that such integration has operated predominantly through unequal exchange: rather than producing balanced development, it has relied on the outward transfer of ecological value, raw materials, and territorial stability, while environmental degradation, social disruption, and infrastructural risk remain concentrated within Amazonian territories (Galeano, 1971; Emmanuel, 1972; Porto-Gonçalves, 2006).

In the Amazon, unequal exchange⁶ materializes spatially. Rivers are transformed into logistical infrastructures serving global commodity chains (Figure 3.3); forests and floodplains are converted into extractive frontiers; cities are repositioned as service nodes for mining, agribusiness, and energy production. This reproduces a persistent asymmetry between territories that supply resources and absorb environmental externalities, and distant centers where accumulation, financial control, and political authority are concentrated. The dependency produced is not limited to economic relations - it extends

⁶ Unequal exchange describes a structural condition within international trade whereby differences in wage levels between countries lead to systematic transfers of value from low-wage to high-wage economies. Even when goods are exchanged at market prices, the global price system reflects unequal labour remuneration, resulting in a persistent appropriation of surplus from peripheral regions by industrialised capitalist economies. Arghiri Emmanuel, *Unequal Exchange: A Study of the Imperialism of Trade* (New York: Monthly Review Press, 1972 [1969]).



- Major waterbodies
- Brazilian states
- Brazilian legal Amazonia
- Study case - Marabá
- Hydroelectric operating
- BR-230 Trans-Amazonian Highway
- Planned section of the Trans-Amazonian
- Major Export Corridors

Figure 3.3 | Logistical Corridors of the Brazilian legal Amazon | Source: DNIT, ANTAQ, IBGE | author's elaboration

WATER COVERAGE



Total area: ~5 million km²
Amazon basin: ~7 million km²
Surface of water coverage: ~8%
of the territory



Over 20,000 km of navigable
rivers (seasonally variable)
Extensive seasonal floodplains



Amazon river
Length: ~6,400 km
Max. width: 50 km
Countries crossed: Peru,
Colombia, Brazil

HYDROPOWER



Large hydroelectric operating:
21 major plants
Contains approximately:
40-45% of Brazil's total
hydroelectric potential



Large dams significantly alter
river flow regimes
Major impacts include:
Changes in sediment transport
Fish migration disruption
Displacement of communities
Methane emissions

Trans-Amazonian Highway



Total planned length: ~4,260 km
Constructed length: ~4,000 km
Year launched: 1970



Crosses: 7 Brazilian states
Connects Atlantic coast to
the western Amazon
Key urban nodes: Marabá,
Altamira and Itaituba

to institutional and political dimensions, as planning frameworks and environmental regulations align with external demands rather than locally situated needs, marginalizing practices of subsistence, care, and territorial continuity (Santos, 2000; Becker, 2005).

Water territories make these dynamics particularly visible. The same river systems that sustain mining logistics, hydropower production, and long-distance circulation simultaneously bear the cumulative effects of contamination, altered flows, and displacement (Zhou et al., 2016; Wantzen et al., 2016). Urbanization along rivers thus becomes a spatial expression of unequal exchange - global accumulation and local vulnerability concentrated within the same hydro-social space. These recurring patterns, through which development narratives translate into specific territorial dependencies, are summarized in Table 05.

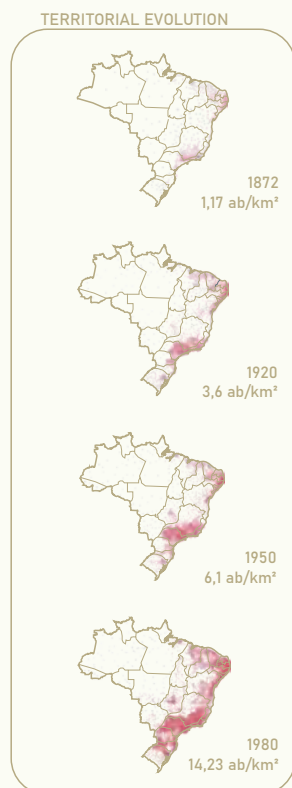
TABLE 05 - Development narratives and forms of territorial dependency in Amazonian water territories

Development narrative	Dominant instruments	Territorial reconfiguration	Forms of dependency produced
Modernization and territorial integration	Large-scale transport and energy infrastructures (hydro-power, waterways, corridors)	Rivers reconfigured as logistical and energy corridors serving extra-regional circulation	Structural dependency on extractive and infrastructural flows
Economic growth and competitiveness	Mining expansion, agribusiness, export-oriented production	Forests, floodplains, and river margins converted into extractive and production frontiers	Ecological depletion and economic dependency on volatile global markets
Urban development and regional integration	Expansion of service cities and logistical nodes	Amazonian cities repositioned as support hubs for extractive and circulation systems	Institutional and fiscal dependency on externally driven development
Environmental protection and climate governance	Conservation units, carbon policies, environmental regulation	Territorial restrictions and zoning regimes imposed without proportional local autonomy	Political and epistemic dependency within global environmental governance

Source: Author's elaboration based on political ecology and Amazonian development literature (2025–2026).



Historical Trajectories of Territorial Occupation and Governance



Prior to colonization, Indigenous societies shaped the Amazon through relational territorialities grounded in mobility, reciprocity, and multisensory engagement with rivers and forests. These landscapes were not empty or untouched but actively produced through fishing systems, cultivation practices, and fluvial networks - a historical condition that directly challenges modern narratives framing the region as pristine or vacant (Neves et al., 2021; Oliveira, 1998). Colonization profoundly reconfigured these territorial systems (Figure 3.4). Successive extractive cycles unfolded through displacement, enslavement, and the reorganization of rivers as logistical infrastructures serving external markets - establishing enduring patterns of territorial control in which local ecologies were subordinated to global circuits of accumulation (Galeano, 1971; Loureiro, 2024).

During the twentieth century, state-led infrastructural projects consolidated these dynamics. The Transamazônica⁷ embedded colonial imaginaries within modern development agendas, reinforcing the vision of the Amazon as a space to be opened, integrated, and governed from outside (Becker, 2005). This logic echoes the nineteenth-century Three Americas Railway project - conceived to connect the continent through corridors optimized for raw material circulation toward imperial ports - revealing a long geopolitical continuity in which the Amazon is repeatedly positioned as a connective medium rather than an inhabited and politically differentiated territory (Zibechi, 2012).

Figure 3.4 | Configuration of the territory | Source: IBGE | author's elaboration

The Transamazônica stands as both a road and a worldview: imposing new regimes of mobility, land ownership, and settlement that reshaped territorial relations and governance structures.

In recent decades, global climate governance has introduced a new layer of this same dynamic. The Amazon River system - the core of the largest hydrological basin on the planet, central to regulating atmospheric circulation, continental humidity, and carbon cycles at global scale (Nobre et al., 2021) - has become subject to international conservation agendas that frequently override locally situated priorities. Conflicts emerge around protected areas, conservation models, and development restrictions, particularly where urban growth intersects with Indigenous, quilombola, and riverine territories. Planetary ecological concerns, in this way, can reproduce unequal exchange when global benefits are secured at the expense of local autonomy.

Water territories are where these historical trajectories converge and take material form. Rivers today function simultaneously as ecological regulators, mobility axes, sources of subsistence, repositories of cultural memory, and sites of political dispute. Urban growth in the Amazon is not simply an expansion of built form but an unfolding territorial process rooted in long histories of occupation, resistance, and transformation - one in which unequal exchange is not a past condition but a continuously reproduced structure shaping how water, land, and infrastructure are governed and how vulnerabilities are distributed across space and time.

⁷The Transamazônica (BR-230) is a federal highway in Brazil that extends approximately 4,260 km from the coastal city of Cabedelo, in the state of Paraíba, to Lábrea, in the state of Amazonas. Conceived in the early 1970s as part of a national integration strategy, the highway crosses the Brazilian Northeast and traverses large portions of the Amazon region, functioning as a major infrastructural axis intended to promote territorial occupation, regional integration, and economic development within the Amazon basin.

Situated Knowledge and Plural Territorialities

The forms of knowledge introduced in Chapter 1 - situated, Indigenous, quilombola, and local - do not exist outside governance. They are continuously produced within fields of negotiation, conflict, and asymmetrical power relations, operating as practical systems through which communities interpret environmental risk, organize care, regulate access to resources, and negotiate territorial boundaries (Bohensky & Maru, 2011; McGregor et al., 2023). In the Brazilian Amazon, these epistemic systems are further shaped by the historical trajectories described in the preceding section: continuously reconfigured through extractive pressure, infrastructural expansion, and fragmented governance, they nonetheless persist as active modes of organizing space and sustaining life.

Indigenous, quilombola, riverine, and small-scale fishing communities articulate forms of territorial belonging that exceed rigid institutional and epistemic classifications. Their knowledges are rooted in everyday practices of dwelling, mobility, subsistence, and care - and are continuously reshaped through interaction with extractive economies, urban expansion, and fragmented governance regimes (Cardoso, 2010). Critical Indigenous thought frames this condition in explicitly political terms: environmental degradation in the Amazon is not a technical problem but a relational rupture - the dismantling of the systems through which knowledge, life, and territory are sustained together (Krenak, 2020). From Yanomami cosmology, ecological devastation is understood as the unraveling of the

relations that hold the world together, rather than the degradation of a passive environment (Kopenawa & Albert, 2015). These perspectives challenge linear, extractive, and land-centered conceptions of space that underpin contemporary planning and governance models, foregrounding territorialities defined not by cadastral boundaries but by flows of water, memory, kinship, mobility, and seasonal rhythms. For quilombola communities, territorial belonging is shaped through collective labor, shared histories of resistance, and relational practices of care (Bispo dos Santos, 2023). For riverine populations, it is articulated through fishing practices, seasonal adaptation, and spiritual relations with water. For Indigenous peoples, it is embedded in cosmologies that attribute agency and perspective to rivers, forests, winds, and other non-human beings (Danowski & de Castro, 2014).

At the global scale, several governance systems have progressively sought to recognize these epistemologies within formal planning and environmental management. In Canada, Indigenous knowledge has influenced environmental impact assessment and land management, particularly in extractive contexts where co-management mechanisms have been institutionalized. In Australia and Aotearoa New Zealand, Indigenous land rights and ecological knowledge have been incorporated into conservation strategies, formally acknowledging Indigenous authority over territorial decision-making. In Norway, Sámi knowledge has been recognized within Arctic land-use planning, particularly in relation to mining regulation and climate adaptation (McGregor et al., 2023; Makondo & Thomas, 2018). In Latin America, Bolivia's Constitution explicitly recognizes Indigenous autonomies and plural territorialities, redefining the state as plurinational and embedding Indigenous governance systems within national institutional structures - a paradigmatic case of epistemic plurality translated into constitutional form (Castro-Gómez & Grosfoguel, 2007; Haesbaert, 2020).

These experiences demonstrate that recognizing situated and Indigenous knowledges is not a cultural gesture but a political intervention that reshapes governance arrangements and redistributes authority. Conflicts around water in the Amazon emerge not from the absence of regulation but from the simultaneous presence of divergent ways of knowing, inhabiting, and governing territory - a condition that the empirical chapters of this thesis examine directly through the cases of Marabá and the Akrátikatêjê territory. The distinctions between forms of knowledge summarized in Table 06 should be read as analytical orientations rather than rigid categories: in practice, these epistemic systems overlap and co-evolve, and their interaction with extractive and institutional pressures is precisely what makes Amazonian water territories analytically irreducible to Western governance frameworks.

TABLE 06 - Forms of knowledge and their territorial and governance implications

Knowledge framework	Mode of production	Territorial ontology	Governance implications
Local Knowledge (LK)	Emerges from lived experience and continuous interaction with specific environments	Territory understood through practice, routine engagement, and place-based familiarity	Regulates everyday access to resources and space through informal norms, adaptation, and pragmatic decision-making
Indigenous Knowledge (IK)	Embedded in cosmological, relational, and intergenerational knowledge systems	Territory constituted as a living relational field involving human and non-human beings	Grounds authority, responsibility, and collective decision-making within Indigenous governance systems and territorial autonomies
Traditional Ecological Knowledge (TEK)	Transmitted across generations through observation, ritual, and collective memory	Closely aligned with long-term ecological cycles, seasonal rhythms, and multispecies relations	Supports ecological continuity and adaptive resource management across temporal scales
Situated Knowledge (SK)	Produced through embodied, relational, and partial engagement with territory and power relations	Territory defined through ongoing interaction between water, land, infrastructures, and social relations	Functions as an operative governance practice enabling negotiation, adaptation, and everyday territorial regulation

Source: Author's elaboration (2025-2026) based McGregor et al., 2023 and Bohensky & Maru, 2011.



⌚ OVERLAPPING REALITIES
Sovrapposizione di realtà

0 500 km

- Major waterbodies
- Indigenous lands
- Brazilian states
- Legal mining spots
- Brazilian legal Amazonia
- Illegal mining spots
- Study case - Marabá
- Major urbanized cities

Figure 3.5 | Overlapping realities, power, and perimetrations | Source: Mapbiomas, IBGE, FUNAI, ANM | author's elaboration

INDIGENOUS LANDS



Total area: ~117 million ha
The recognize Indigenous land
in Brazil represents 25%
of the Brazilian Amazon territory



Indigenous lands are legally
protected under the 1988
Brazilian Constitution



Indigenous population in
Brazilian Amazon: ~500.000
people
More than 170 ethnic groups

MINING



Legal mining
Major materials: iron ore, bauxite,
copper, gold, manganese
Mining represents a major
share of Amazonian
export value



Illegal mining
Major driver of localized
deforestation
Gold is the main extracted
material
It is particularly severe inside
Indigenous Lands

CITIES



Population of Brazilian Amazon:
~28 million people
Urban population: 70%



Major cities:
Manaus - major industrial
free-trade zone
Belém: Atlantic gateway of
the Amazon

Urban Growth, Knowledge, and Water Territories

Urban growth in the Amazon cannot be understood independently from the territorialities and knowledge systems that precede, accompany, and often exceed the modern city. Rather than unfolding as a linear transition toward standardized urban forms, contemporary urbanization overlays itself onto pre-existing socio-ecological arrangements shaped by river dynamics, seasonal cycles, and long-standing practices of inhabitation. As urban expansion follows riverbanks, logistical corridors, and extractive infrastructures, it intersects with Indigenous lands, quilombola territories, conservation units, and informal settlements structured by fluvial mobility and ecological rhythms (Figure 3.5; Cardoso et al., 2020; Silva, 2022). These intersections generate spaces where different temporalities, normative orders, and forms of authority coexist - producing a governance condition that is fragmented, negotiated, and frequently contested.

Water operates within this condition not only as an environmental element but as a territorial mediator that exposes the limits of dominant governance frameworks. The same spatial field connects global climate agendas, national development strategies, and local practices of subsistence and care: hydropower production, mining logistics, and conservation policies coexist with fishing, washing, ritual practices, and everyday mobility along riverbanks. This simultaneity challenges planning instruments grounded in functional separation

and sectoral regulation, revealing how water-related conflicts emerge from the structural misalignment between institutional categories and lived territorial realities (Maia et al., 2024).

Formal governance instruments reflect these tensions. Water-use concessions aim to regulate access and prevent overexploitation, yet their implementation frequently fails to account for uneven power relations and the plurality of water uses in Amazonian cities - operating through abstract and standardized criteria that privilege corporate and infrastructural actors while marginalizing informal, subsistence-based, and culturally embedded practices (Maia et al., 2024; Zhouri et al., 2016). Governance, in this sense, does not simply manage water flows; it actively redistributes vulnerability, legitimizing certain territorial practices while rendering others invisible or illegal. Table 07 analytically contrasts dominant urban growth logics with the knowledge systems they marginalize - not as binary oppositions but as coexisting rationalities whose interaction produces the specific tensions observed in Amazonian water territories.

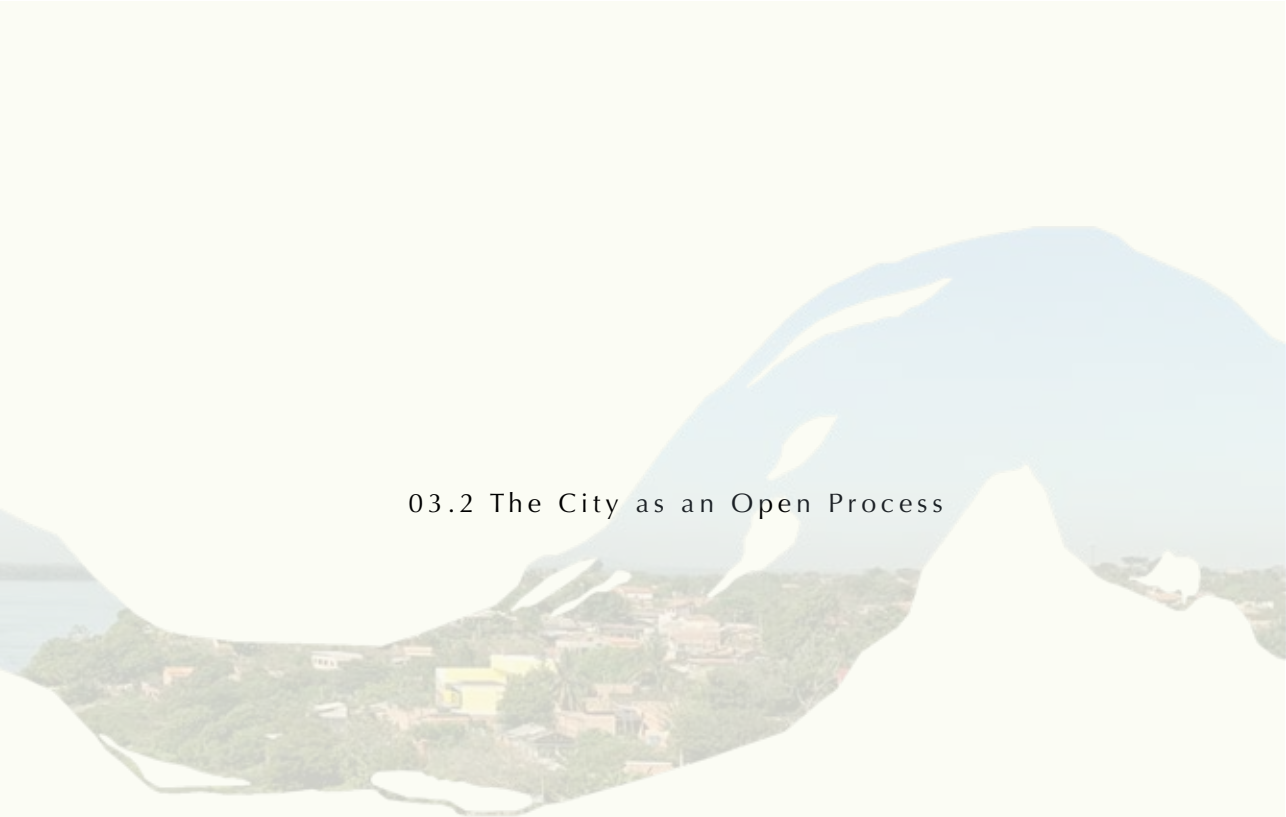
Analyzing urban growth through the lens of water territories brings these dynamics into sharper focus, shifting attention away from land-centered and city-bounded models toward hydro-social processes that connect scales, actors, and temporalities (Swyngedouw, 2009; Cardoso, 2022). Water territories reveal how governance is enacted not only through formal policies and plans but through everyday negotiations, conflicts, and practices of care along rivers and floodplains - and how Amazonian urbanization is continuously produced through interaction, overlap, and adjustment rather than through linear development trajectories. This understanding grounds the transition to the following section, which approaches the city not as a fixed form but as an open process characterized by complexity, simultaneity, and adaptation.

TABLE 07 - Urban growth, situated knowledge, and territorial effects

Analytical dimension	Dominant urban growth logic	Situated practices and knowledge systems	Resulting territorial effects
Spatial logic	Connectivity, efficiency, and infrastructural optimization	Ecological and relational continuity across river, forest, and settlement	Fragmentation, overlap, and spatial tension
Relation to water	Water treated as technical infrastructure and resource	Water understood as lived, relational, and cultural entity	Conflict, simultaneity, and competing uses
Knowledge base	Technical, standardized, and expert-driven	Situated, experiential, and collectively transmitted	Epistemic asymmetry and selective recognition
Governance mode	Sectoral, hierarchical, and project-driven	Negotiated, everyday, and practice-based	Uneven recognition and redistribution of vulnerability
Temporal orientation	Project-based and short-term planning cycles	Seasonal, cyclical, and adaptive temporalities	Functions as an operative governance practice enabling negotiation, adaptation, and everyday territorial regulation

Source: Author's elaboration (2025-2026)





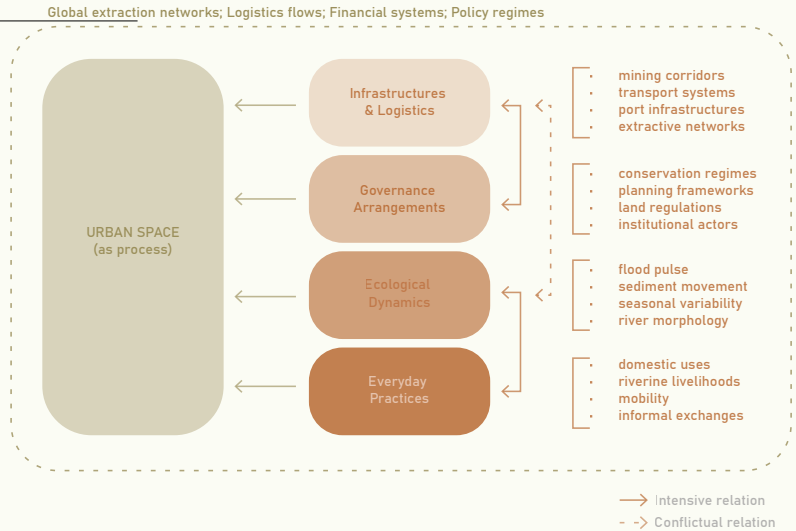
03.2 The City as an Open Process

Understanding the Amazonian city requires moving beyond fixed representations of urban form toward the city as a continuously negotiated process - a relational field shaped by ecological dynamics, social practices, and power asymmetries rather than a stable or finalized outcome. Contemporary urban theory increasingly replaces deterministic models of urbanization with approaches attentive to complexity, multiplicity, and relationality (Cardoso, 2022; Haesbaert, 2020). The Amazon offers a particularly revealing context for this shift: its cities materialize tensions between global economic drivers, ecological systems, and situated everyday practices that unfold simultaneously within the same spatial field.

Urban space in this perspective is not a coherent and unified form but a living system of interdependent processes - as represented schematically in Figure 3.6, where infrastructures and logistics, governance arrangements, ecological dynamics, and everyday practices do not simply feed into urban space but co-produce it through intensive and conflictual relations that move in multiple directions simultaneously. This relational understanding foregrounds simultaneity as a defining condition: different uses, temporalities, and territorial logics unfold in parallel, sometimes in coordination and sometimes in friction (Bibas & Cardoso, 2017). In Amazonian contexts, industrial operations, riverine livelihoods, conservation regimes, and ancestral territorialities overlap within the same spaces,

producing urban configurations that resist simplification and challenge conventional planning categories.

Figure 3.6 | Urban space as an assemblage of interacting processes | Sources cited on the text | author's elaboration



These dynamics resonate with planetary urbanization theory, which emphasizes how urban processes extend far beyond the boundaries of the traditional city (Brenner & Schmid, 2015). Urbanization operates through networks of extraction, logistics, infrastructure, and governance that connect distant territories and reconfigure ecological and social relations at multiple scales - making Amazonian cities neither exceptions nor peripheral anomalies but integral components of global urban processes. River corridors, mining zones, and infrastructural enclaves become key sites where the urban and the non-urban, the ecological and the built, the local and the planetary intersect and blur (Cardoso, 2010).

Simultaneity is particularly evident along riverbanks, where domestic practices, subsistence activities, leisure, everyday mobility, and large-scale logistical operations unfold side by side (Figures 3.7–3.11). These overlaps reveal urbanity not as a linear sequence of development stages but as a condition in which multiple modernities coexist - shaped by the persistence of local, Indigenous, and riverine knowledge systems alongside contemporary governance frameworks and extractive pressures. Riverbanks emerge as paradigmatic spaces where simultaneity materializes through the coexistence of heterogeneous practices, temporalities, and claims within the same spatial field.

Adaptation is the third constitutive dimension of this open process. In the Amazon, seasonal floods, sediment movements, and changing river pulses continuously reconfigure patterns of land occupation, mobility, and housing - making adaptation not a reaction to

environmental variability but a constitutive mode of urban formation. Governance in such contexts must therefore operate under conditions of uncertainty, acknowledging that ecological processes and social arrangements evolve together rather than separately (Wantzen et al., 2016; Cardoso et al., 2020).

While this thesis draws on insights from anthropology, ecology, and geology to understand Amazonian environments and cosmologies, its analytical focus remains rooted in urban planning - on the processes through which urban space is produced, contested, and transformed, and on how governance and planning frameworks interact with everyday practices in water-based urban contexts. Complexity, simultaneity, and adaptation are not problems to be resolved but intrinsic conditions of urban life that invite planning to develop interpretive and relational methods capable of engaging multiplicity and negotiating conflict.



Figure 3.7 - 3.11 | Coexistences in riverbank: 3.7 - Leisure; 3.8 - Housing; 3.9 - Tourism; 3.10 - Food-services; 3.11 - Hydropower infrastructure | Source: author archive and google maps (3.11)





03.3 Self-governance in Water-based Territories

Within the fragmented and contested governance field described in the preceding sections, self-governance⁸ emerges as a critical analytical lens for understanding how communities navigate, negotiate, and partially reshape the forces that affect their daily lives. Rather than standing in opposition to formal institutions, it operates relationally - embedding forms of autonomy within existing power asymmetries and territorial constraints (Haesbaert, 2020; Porto-Gonçalves, 2006).

In Amazonian water territories, self-governance materializes through concrete practices: agreements on fishing seasons, informal regulation of flood-prone areas, shared mobility arrangements, collective care around wells and riverbanks. Flood-control interventions may restrict access to riverbanks historically used for washing, fishing, or mobility; sand extraction may be governed through community-based norms and peer enforcement that operate without formal licensing; decisions about when to move, where to build, and how to share water access are rarely codified yet produce tangible spatial effects - shaping patterns of settlement, mobility, and exposure to risk (Figure 3.8). These are not marginal adaptations but operative governance mechanisms that coexist with, and are often subordinated to, dominant institutional regimes.

Cosmological dimensions are inseparable from these practices. In many Amazonian contexts, water is part of a living relational field that includes rivers, forests, winds, and non-human beings - and

⁸The term self-governance is used here to indicate forms of collective coordination and decision-making that emerge through everyday practices, informal arrangements, and negotiated relations, rather than through formally institutionalized governance structures. This usage does not imply autonomy from state or market forces but refers to situated forms of agency operating within asymmetrical power relations.

this ontological understanding directly shapes governance, situating decision-making within ecological and spiritual cycles that formal frameworks cannot capture (Krenak, 2020; Bispo dos Santos, 2023; Kopenawa & Albert, 2015). Community-led environmental monitoring, co-management arrangements, and participatory territorial mapping demonstrate how relational knowledge, landscape memory, and ecological observation function as effective governance tools in contexts where centralized institutions struggle to respond to complex socio-environmental dynamics (McGregor et al., 2023; Bohensky & Maru, 2011).

Territorial conflicts are where these dynamics become most legible. Disputes over fishing rights, riparian occupation, flood management, and access to clean water are not governance failures but structural expressions of overlapping territorial logics - diagnostic conditions that reveal how authority is negotiated across multiple registers and scales (Zhou et al., 2016). Water governance is not a technical matter but a deeply relational process shaped by historical trajectories, cosmological understandings, and power asymmetries: the friction between water understood as infrastructure and water lived as territory, between abstract regulation and situated practice (Rocha et al., 2024; Wantzen et al., 2016).

From the perspective of urban planning, these insights call for a redefinition of governance as a field of translation rather than prescription - where participation is not a formal consultation procedure but a continuous territorial practice enacted through everyday life along the river. Self-governance thus emerges not as an alternative to planning but as a condition that planning must learn to read, engage with, and work through. It functions both as an analytical category and as a methodological orientation, allowing governance to be examined through practices, relations, and situated negotiations rather than through formalized norms alone - revealing the conditions under which planning operates in contexts characterized by ecological variability, epistemic plurality, and structural inequality.





03.4 Toward Relational Urban Policies

Urban and territorial policies in the twenty-first century face conditions that challenge the epistemic and operational assumptions on which they have traditionally relied. Climate change, extractive-driven territorial transformation, and structural governance inequalities expose the limits of frameworks grounded in stability, sectorial separation, and technical control (Cardoso, 2022; Haesbaert, 2020). Amazonian water territories make these limits particularly visible: policy effectiveness here depends less on the capacity to impose standardized solutions than on the ability to engage relational complexity and uncertainty.

The most fundamental implication concerns the relationship between policy and knowledge. When urban policies disregard the epistemic dimensions through which Indigenous, quilombola, and riverine communities relate to territory - attributing agency to rivers and forests, integrating memory and ancestry into spatial practice, articulating care as a principle of territorial organization - they tend to reproduce exclusion rather than reduce vulnerability. Conflicts around water governance are not the result of inadequate regulation; they are structural expressions of actors operating from fundamentally different ontological positions, for whom water is not a shared resource but divergent worlds of relation and responsibility (Viveiros de Castro, 2004; Descola, 2013).

Comparative experiences in place-based and relational governance

confirm that policies become more effective when they recognize and engage situated knowledges rather than subsuming them into standardized frameworks (Palmer et al., 2022; McGregor et al., 2023). This points toward a reconfiguration of the role of urban policy - from instruments of control and prescription toward platforms for coordination, negotiation, and adaptive learning across scales. Such an orientation implies moving beyond the separation of housing, infrastructure, environmental management, and social policy, engaging these domains through a relational understanding of territory in which governance is enacted through everyday practices and collective forms of care alongside formal regulation (Wantzen et al., 2016).

This reconfiguration transforms the role of institutions and policymakers. Urban policies are increasingly called upon to mediate between heterogeneous forms of knowledge, acknowledge the legitimacy of Indigenous and local territorialities, and create conditions for participation that extend beyond procedural inclusion. This does not imply the idealization of self-governance or the substitution of institutional authority - it means recognizing that governance in water territories is already distributed across multiple actors, practices, and scales, and that policy interventions inevitably interact with these existing arrangements (Cardoso, 2022; Haesbaert, 2020).

Applied to Amazonian water territories, this means acknowledging uncertainty, conflict, and partiality not as deviations to be corrected but as intrinsic conditions of territorial governance. Policies informed by situated knowledges operate through engagement with coexistence, negotiation, and adaptation - remaining attentive to ecological cycles, social relations, and non-human agency. Water territories, in this sense, offer a critical perspective for rethinking urban and territorial policies as relational practices grounded in care, translation, and long-term responsibility toward living and contested territories.

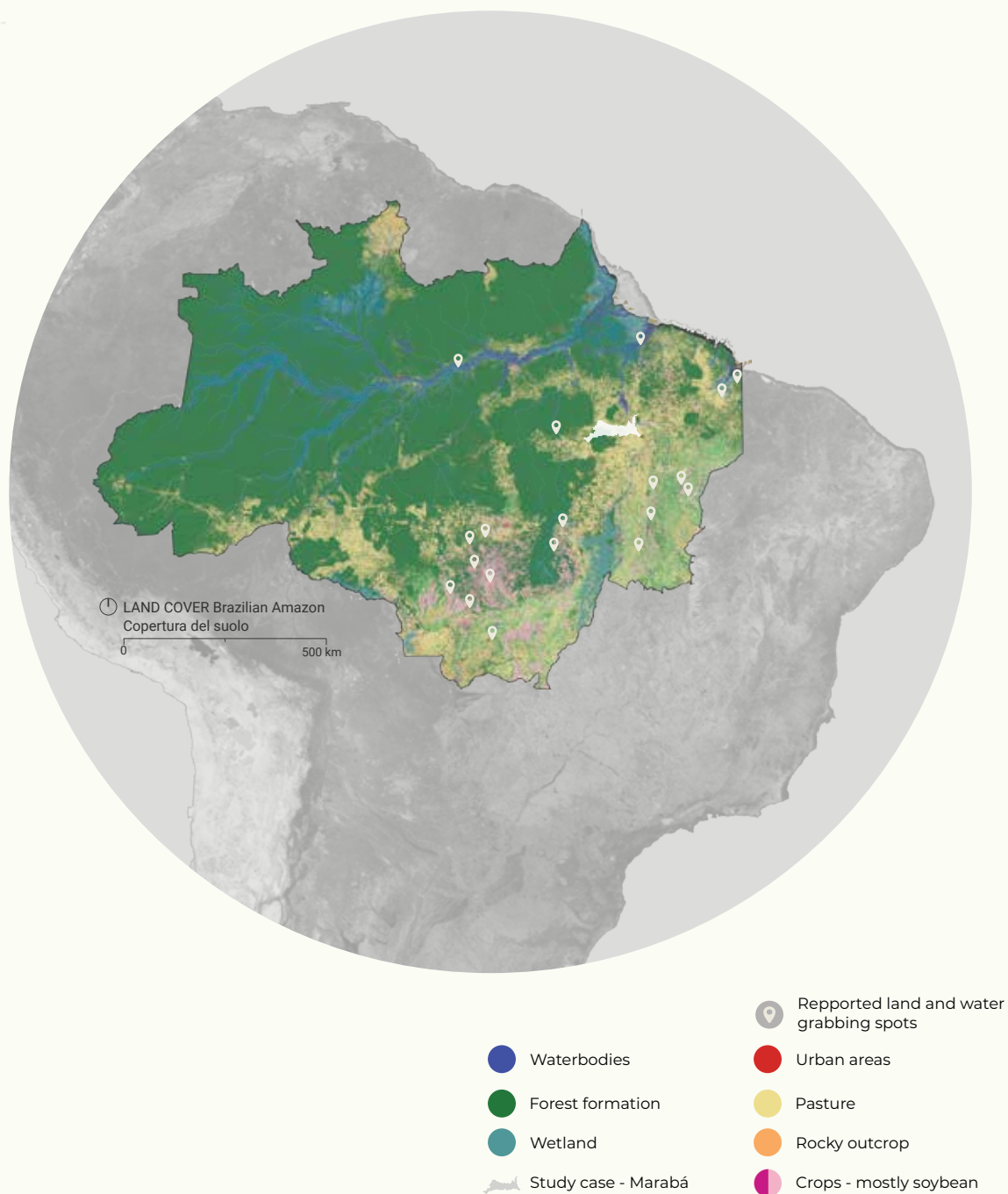


Figure 4.0 | Land-cover distribution and Land grabbing in Brazilian Amazon | Source: Mapbiomas and Land Matrix

Figure 4.0, when read in comparison with Figure 3.5, makes explicit the territorial structure of extractive expansion in the Brazilian Amazon.

While Figure 3.5 illustrates the concentration of infrastructures, urban settlements, hydropower facilities, and mining operations along river corridors, Figure 4.0 expands the perspective to the regional scale, showing the distribution of forest formations, pasture-lands, and agricultural plantations across the Amazon. The juxtaposition of the two maps reveals that the fluvial corridors identified in Figure 3.5 operate as structuring axes of territorial transformation: extraction and infrastructural development follow waterways, and their effects radiate outward into surrounding landscapes.

At the same time, Figure 4.0 highlights a significant spatial overlap between preserved forest formations and Indigenous territories, suggesting that forest continuity is closely associated with Indigenous forms of territorial governance. In contrast, areas beyond these territories are more extensively converted into pasture and monocrop plantations. When considered together, the two maps expose a differentiated territorial pattern: river-based infrastructures and extractive activities function as vectors of expansion, while Indigenous lands emerge as zones of relative ecological persistence within a broader matrix of agricultural and extractive transformation.

04 GOVERNANCE IN AMAZONIAN WATER TERRITORIES

The Brazilian Amazon constitutes a strategic field for analyzing how global pressures translate into concrete governance frameworks and territorial configurations. Rather than operating at the margins of state regulation, the region has long been central to national and transnational strategies of territorial integration, extraction, and infrastructural development - positioning it within global circuits of accumulation through logics oriented toward resource exploitation, logistical connectivity, and geopolitical control (Loureiro, 2024; Becker, 2005). Urbanization in the Brazilian Amazon must be understood within this historical and political configuration. The region is not characterized by an absence of cities but by metropolitan regions, regional hubs, and mid-sized cities that structure extensive urban, peri-urban, and fluvial networks. These urban formations are not incomplete versions of Western urban models but outcomes of specific processes in which modern administrative structures and regulatory frameworks have been superimposed onto territories historically organized through rivers, seasonal cycles, and mobility. The contradictions of modern urban development - environmental degradation, socio-spatial inequality, infrastructural vulnerability - become spatially concentrated and simultaneously visible rather than progressively sedimented (Cardoso, 2010; Cardoso, 2022). Read in conjunction with Figure 3.5, Figure 4.0 makes explicit the territorial structure of this process. While Figure 3.5 illustrates the

concentration of infrastructures, urban settlements, hydropower facilities, and mining operations along river corridors, Figure 4.0 expands the perspective to the regional scale - showing the distribution of forest formations, pasturelands, and agricultural plantations across the Brazilian Legal Amazon. The juxtaposition reveals a differentiated territorial pattern: fluvial corridors function as structuring axes of extractive expansion, while Indigenous lands emerge as zones of relative ecological persistence within a broader matrix of agricultural and extractive transformation. This spatial overlap between preserved forest formations and Indigenous territories suggests that forest continuity is closely associated with Indigenous forms of territorial governance - a relationship that the governance analysis developed in this chapter sets out to examine. Within this configuration, water operates as a primary territorial structure through which governance is enacted. Rivers, hydrological regimes, and water-related infrastructures connect urban centers, extractive corridors, and lived territories across multiple scales, producing forms of territorial continuity that exceed administrative boundaries. Governance instruments addressing water, land, environment, energy, and urban development are formally articulated through national policies and sectorial frameworks - yet their spatial and epistemic assumptions remain poorly aligned with water-based territorial organization, producing conflict not as an exceptional outcome but as a structural condition (Acselrad, 2004; Porto-Gonçalves, 2006). This chapter examines the governance architecture of Brazilian Amazonian water territories - moving from the historical formation of urban and extractive systems, through the specific challenges posed by Indigenous and quilombola territorialities, to the instruments and mechanisms through which governance produces differential exclusion and territorial conflict. The concept of governance without territory, developed in the final section, provides the analytical synthesis through which these dynamics are read before the transition to the case of Marabá.





04.1 Urban Growth and Water-Territories Formation

Before colonial occupation, the Amazon was already a densely inhabited and actively managed territory, structured through relational engagements with rivers, forests, and seasonal cycles. Indigenous societies organized settlement, mobility, and production through fluvial networks and ecological rhythms, shaping landscapes through selective management rather than fixed land enclosure (Neves et al., 2021). These territorial formations established enduring spatial logics in which water functioned simultaneously as connector, resource, and organizing principle - logics that colonial expansion did not erase but progressively overlaid with extractive infrastructures and administrative apparatuses oriented toward external markets (Krenak, 2020; Galeano, 1971).

Colonial and postcolonial extraction profoundly reconfigured these systems. Successive cycles of rubber, timber, mineral, and agricultural exploitation reorganized rivers as logistical corridors and instruments of territorial control, while urban settlements emerged to support missionary activity, military presence, trade, and administration (Loureiro, 2024; Becker, 2005). These processes produced a form of internal coloniality that persisted beyond formal independence, embedding extractive rationalities within the institutional architecture of the Brazilian state - with water functioning throughout as both infrastructure and medium through which power was exercised over territory and population (Figures 3.5 and 4.0).

During the twentieth century, state-led development intensified this orientation. Large-scale infrastructural projects - highways, energy systems, and logistical corridors - were implemented to consolidate national integration and facilitate commodity circulation. The Transamazônica exemplified a developmental rationality that framed the Amazon as a space to be opened, stabilized, and connected to national and transnational circuits (Becker, 2005; Zibechi, 2012). Urban growth followed these infrastructures, concentrating population, administrative functions, and services along river systems and transport networks, while federal investment patterns decisively shaped the trajectories of intermediate cities and regional hubs (Cardoso & Lima, 2009; Cardoso, 2010).

Rivers have remained the primary structuring element throughout this process. Cities and metropolitan areas expanded along fluvial corridors where hydrological continuity supports mobility, trade, and extraction; seasonal variability, flood regimes, and sediment dynamics continue to shape settlement patterns and everyday urban functioning (Figures 3.5 and 4.0; Cardoso et al., 2020; Silva, 2022). Peri-urbanization in the Amazon does not represent a transitional phase toward consolidated urban form but a durable territorial condition produced by the interaction between extractive economies, state infrastructures, and water-based spatial organization - where urban expansion occurs through the superposition of cadastral and sectorial planning instruments onto territories structured by mobility, seasonal use, and hydrological continuity (Haesbaert, 2020).

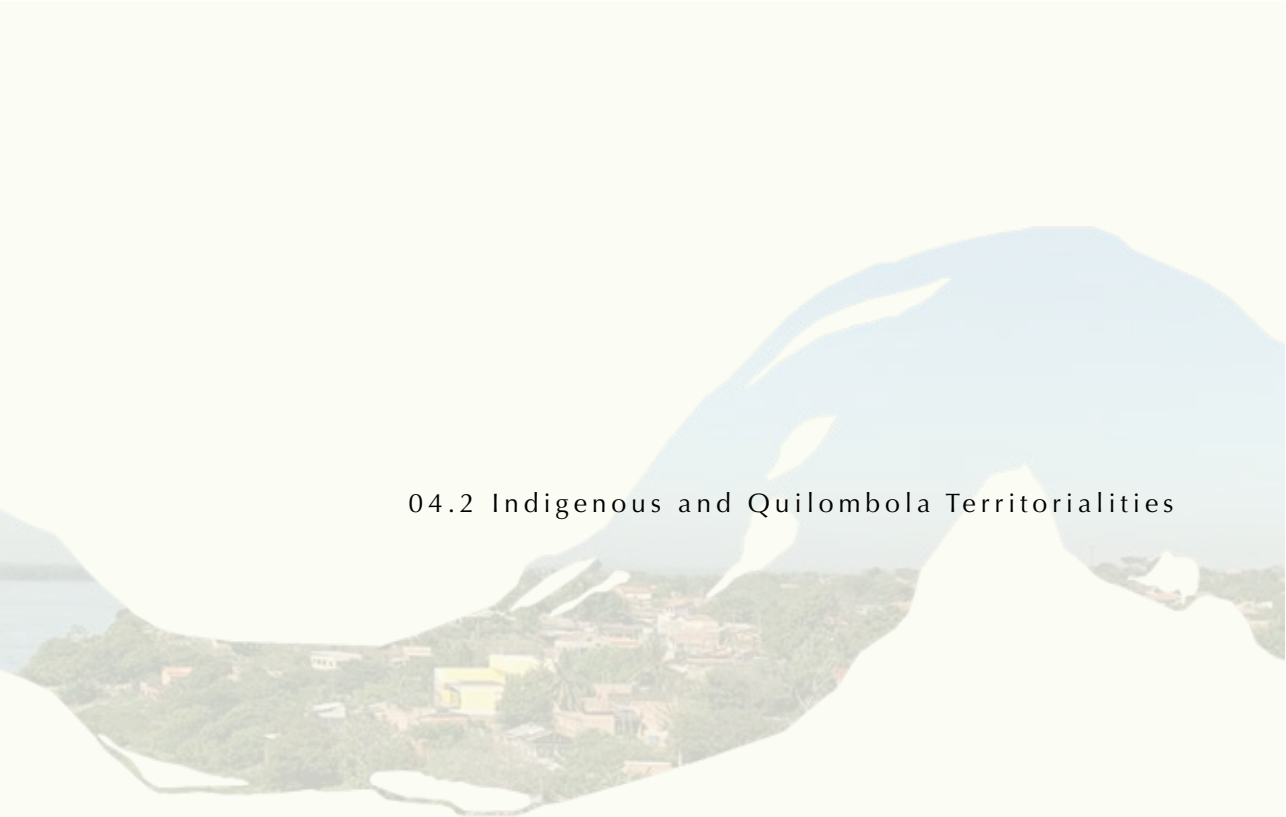
Relational territorial logics organized around water persist within these configurations. Practices of fluvial mobility, seasonal adaptation, and river-dependent livelihoods continue to operate within increasingly regulated and infrastructurally dense spaces, producing zones of friction where governance instruments presupposing spatial stability encounter territories structured by continuity, simultaneity, and negotiated use. The Brazilian Amazon thus concentrates urban growth, extractive infrastructure, and water-based territorial organization within the same spatial field - a concentration whose historical drivers and territorial implications are summarized in Table 08, and whose governance consequences structure the analysis that follows.

TABLE 08 - Historical drivers of urban formation and their implications for water territories in the Brazilian Amazon

Historical driver	Governance rationale	Urban-territorial configuration produced	Implications for water territories
Colonial extractivism	Resource extraction for external accumulation	River-based administrative nodes and missionary settlements; displacement of Indigenous territorial systems	Rivers consolidated as corridors of control and instruments of colonial authority
State-led territorial integration (20th century)	National consolidation and infrastructural expansion	Linear infrastructures (highways, ports, energy systems); emergence of intermediate urban hubs	Rivers rearticulated within multi-scalar infrastructural networks
Large-scale mining and logistical systems	Integration into global commodity chains	Urban concentration near railways, ports, and extractive enclaves; demographic influx	Water redefined as transport surface and extractive medium
Hydropower development	Energy security and national modernization	Reservoir cities, forced displacement, altered settlement patterns	Transformation of hydrological regimes and restructuring of river-based livelihoods
Peri-urban and informal expansion	Insufficient or uneven urban regulation	Hybrid urban-rural territories; occupation of floodplains and river margins	Water as both livelihood infrastructure and vector of environmental risk

Source: Author's synthesis based on Cardoso (2010); Cardoso et al. (2020); Silva & Cardoso (2021); Silva (2022); Bibas & Cardoso (2016), and related literature.





04.2 Indigenous and Quilombola Territorialities

Indigenous and quilombola territorialities constitute a structural component of urban and peri-urban configurations in the Brazilian Amazon. Their presence within cities is neither residual nor anomalous but the outcome of long historical trajectories marked by displacement, forced mobility, and continuous circulation between forest territories, river systems, and urban settlements. Seasonal and cyclical movements between territories and cities persist for reasons related to health, education, political articulation, and access to services, while other forms of urban settlement result from environmental degradation, hydropower expansion, contamination of fishing grounds, and territorial violence (Nunes, 2010; Rosa & Reis, 2023; Cardoso et al., 2022). Amazonian cities cannot therefore be interpreted as spaces detached from pre-existing territorial systems - urban space operates as one of the environments through which relational territorial practices continue to be enacted and renegotiated.

Water plays a central structuring role within these dynamics. Rivers function simultaneously as corridors of mobility, sources of subsistence, sites of memory, and media through which ecological change is perceived and interpreted. Everyday practices - river crossings, fishing, washing, observation of water levels - sustain connections between urban settlements and broader territorial networks, challenging interpretations of the city as a land-based and functionally separated space. In response to institutional and extractive pressure, Indigenous

and quilombola communities recompose territorial relations through collective care, kinship-based coordination, and negotiated access to water and riverbanks - practices that constitute situated forms of territorial regulation operating alongside, and often in tension with, formal policy instruments (Bispo dos Santos, 2023; Gallois, 2004; Oliveira, 1998).

Legal and institutional frameworks partially recognize Indigenous and quilombola territorial rights yet remain poorly equipped to address their urban and peri-urban configurations. In Brazil, Indigenous territorial rights are constitutionally protected and grounded in original occupation, while quilombola recognition is based on collective memory, resistance, and shared forms of land use. Both frameworks, however, remain anchored to rural, bounded, and land-centered conceptions of territory. Urban, fluvial, and mobile territorialities - especially those shaped by displacement and infrastructural encroachment - are difficult to accommodate within existing governance instruments, producing situations of juridical invisibility or partial recognition (Arruti, 1995; Gallois, 2004; Nunes, 2010).

This misalignment does not stem from the absence of policy but from the ontological and spatial assumptions embedded in governance instruments. Urban policies operate through land-based categories, project-oriented temporalities, and sectorial competencies, while Indigenous and quilombola territorialities are organized through water-based relations, cyclical temporalities, and negotiated forms of collective care. As urban expansion advances - encircling Indigenous territories with industrial corridors, transport infrastructures, and speculative developments - water becomes the primary site where this structural mismatch materializes: regulatory frameworks oriented toward control and efficiency encounter relational territorial logics grounded in situated knowledge, intensifying conflicts over access, pollution, land tenure, and environmental risk (Zhou et al., 2018; Acselrad, 2004).

Despite these pressures, Indigenous and quilombola territorialities continue to shape urban and peri-urban space through river pulses, fishing grounds, kinship relations, ritual cycles, and embodied engagements with water and forest - generating urban water territorialities in which ecological processes, cultural meanings, and political claims converge outside formal planning frameworks. Their continued presence demonstrates that governance in the Brazilian Amazon is enacted through negotiated coexistence, conflict, and adaptation, and that water remains the central territorial structure through which these processes are organized. The process through which governance frictions emerge from this condition is schematically traced in Table 09.

TABLE 09 - Process of governance misalignment in Indigenous and quilombola urban territorialities

Process stage	Territorial condition	Institutional interaction	Resulting governance configuration
1. Pre-existing territorial systems	Relational, water-based, and collectively enacted territorialities structured by mobility, seasonality, and kinship	Limited recognition within land-based legal and planning frameworks	Partial visibility within institutional governance
2. Urban and infrastructural expansion	Increasing overlap with extractive corridors, conservation units, and urban growth	Application of cadastral, sectoral, and project-based planning instruments	Spatial and juridical misalignment
3. Regulatory and spatial friction	Continued practice of river-based livelihoods and collective territorial use	Enforcement of zoning, environmental regulation, and property regimes	Enforcement of zoning, environmental regulation, and property regimes Conflicts over access, legitimacy, and territorial authority
4. Everyday negotiation and adaptation	Collective care practices, negotiated access, mobility across territories	Selective accommodation or informal tolerance by institutions	Hybrid and unstable governance arrangements
5. Structural outcome	Persistence of relational territorialities within urban space	Governance frameworks unable to fully accommodate fluid territorial logics	Chronic partial recognition and fragmented authority
<i>Author's elaboration based on Haesbaert (2020); Porto-Gonçalves (2006); Acseirad (2004); Gallois (2004); Nunes (2010); Cardoso (2010); and fieldwork (2025–2026).</i>			





04.3 Governance and territorial conflict

Governance in the Brazilian Amazon operates through a fragmented, hierarchical, and sectorially differentiated architecture in which water constitutes a central object of regulation, extraction, and dispute. Federal, state, and municipal institutions intervene simultaneously within the same river basins - alongside constitutionally protected Indigenous and quilombola territories - without an integrated framework capable of addressing the cumulative, relational, and downstream effects of their actions. The persistent recurrence of conflict is not characterized by regulatory absence but by the coexistence of multiple regimes whose spatial and temporal assumptions remain structurally at odds with the hydrological and relational organization of water territories (Cardoso, 2010; Acselrad, 2004; Porto-Gonçalves, 2006). Water governance in Brazil is formally structured through the *Política Nacional de Recursos Hídricos* (Lei nº 9.433/1997), which conceptualizes water as a public good, introduces the river basin as the basic territorial unit for planning and management, and formally defines governance as decentralized and participatory - involving public authorities, water users, and civil society within shared decision-making arenas (Maia et al., 2024; Castro, 2006; ANA, 2018). This framework constitutes the normative foundation through which access to water, allocation of uses, and conflict mediation are institutionally addressed across the national territory. When applied to Amazonian water territories, however, this framework encounters

structural limitations. Governance instruments remain operationalized through sectorial mandates, administrative jurisdictions, and project-oriented temporalities that fragment hydrological continuities rather than governing them relationally. The river basin functions more as an abstract planning unit than as a territorial scale capable of mediating cumulative impacts and negotiated coexistence across upstream–downstream relations (Castro, 2006; Boelens et al., 2016). Conflict is structurally generated by governance rather than corrected by it - an intrinsic outcome of superimposing incompatible rationalities onto the same hydro-social space.

Fragmented governance and overlapping water regimes

Water governance in Brazil is implemented through a dense constellation of institutions and legal instruments operating across multiple scales. At the federal level, the Agência Nacional de Águas e Saneamento Básico (ANA), IBAMA, ICMBio, FUNAI, and the Ministério de Minas e Energia exercise sector-specific mandates over water allocation, environmental licensing, biodiversity protection, Indigenous territories, energy planning, and mineral extraction. Although these competences overlap spatially along river systems, they remain administratively separated - producing governance arrangements that address water as a divisible and allocable resource rather than as a relational territorial structure (ANA, 2018; Castro, 2006; Maia et al., 2024). States exercise concurrent authority through environmental licensing and land-use regulation, while municipalities manage urban planning, sanitation, housing, and risk - frequently left to absorb the downstream consequences of decisions taken at higher scales, including demographic influx, land speculation, and exposure to hydrological risk. This scalar disjunction produces governance environments characterized by institutional gaps where extractive activities coexist with formal regulation yet escape comprehensive territorial oversight (Cardoso, 2010; Porto-Gonçalves, 2006).

Within this architecture, the Comitês de Bacia Hidrográfica function as deliberative bodies for water allocation, basin management plans, and conflict mediation, following a tripartite structure involving

public authorities, water users, and civil society. While conceived as participatory arenas, their effective operation relies heavily on technical expertise, administrative continuity, and legal capacity - conditions that systematically shape who can participate, whose claims are rendered legible, and which territorial practices are recognized within decision-making processes (Castro, 2006; Acselrad, 2004). The *outorga de direito de uso da água* further structures access by transforming water use into a legally defined entitlement that presupposes stable patterns of use, technical documentation, and formal recognition - thereby favoring actors capable of ensuring legal compliance and operational continuity, and in practice aligning closely with energy production, mining, and large-scale infrastructural projects (Maia et al., 2024). Additional instruments - the *enquadramento dos corpos d'água*, basin management plans, and environmental licensing - define quality standards, prioritize uses, and authorize interventions across different scales and temporalities, yet remain institutionally fragmented despite their material interconnection through hydrological continuity.

The cumulative territorial effects of these overlapping instruments thus remain structurally ungoverned. Each mechanism addresses a specific dimension of water use in isolation, while the relational and downstream consequences of their combined operation accumulate without an integrated governance response - producing the conditions under which conflict, exclusion, and environmental risk are redistributed across Amazonian water territories rather than resolved (Boelens et al., 2016; Zhouri & Laschefski, 2010).

Hydropower and River Governance

Hydropower has been one of the primary instruments through which the Brazilian state has sought to integrate and develop the Amazon. With the national energy matrix strongly dependent on hydroelectricity, Amazonian rivers are positioned as strategic energy infrastructure within a developmental project oriented toward territorial integration, energy security, and commodity circulation. Large dams - Tucuruí, Belo Monte, Jirau, Santo Antônio - have been implemented through environmental licensing, impact assessments, and compensation mechanisms that frame hydropower as a technically governable and spatially circumscribed intervention, reducible to measurable impacts and manageable risks (Observatório OLMA, 2017; Guimarães, 2017).

These instruments operate through project-based and sectorial logics that fragment river systems into discrete sites of intervention. Alterations to flood regimes, sediment transport, fish migration, and water quality extend far beyond dam locations, reconfiguring livelihoods, settlement patterns, and urban dynamics along entire river networks. Indigenous and quilombola territories are frequently intersected by these transformations - experiencing displacement, loss of fishing grounds, and increased downstream vulnerability. Hydropower development thus functions not only as an energy project but as a territorial reordering device whose effects propagate unevenly across water-based social and spatial relations (Loureiro,

2024; Swyngedouw, 2015; Cardoso, 2010).

Rather than engaging the structural causes of these disruptions, governance instruments translate territorial complexity into administratively manageable units - treating energy production, water management, urban policy, and territorial rights as separate domains despite their material interdependence through hydrological continuity. Affected communities are repositioned as beneficiaries of compensation rather than as political subjects embedded in relational water territories. Governance thereby stabilizes conflict through negotiated adjustments while leaving intact the extractive logics that underpin river regulation (Acselrad, 2004; Zhouri & Laschefski, 2010; Boelens et al., 2016).

Mining, Garimpo⁹, and Extractive Water Use

⁹ Agência Nacional de Mineração (ANM), “Garimpo and the Garimpeira Mining Permit (PLG),” which defines garimpo as small-scale mineral extraction carried out by individuals or cooperatives under a simplified permitting regime (PLG), generally characterised by limited mechanisation and restricted to specific mineral substances.

Mining constitutes a second major axis of water-related governance in the Brazilian Amazon, particularly in Pará, where industrial extraction of iron ore, bauxite, copper, and gold has become structurally intertwined with hydrological systems and regional urbanization. Large-scale operations depend extensively on water for mineral processing, waste management, and logistical circulation, while railways, ports, and processing facilities are strategically positioned along river corridors to facilitate integration into global commodity chains. Amazonian rivers thus function simultaneously as sources of industrial water supply, transport infrastructures, and sinks for mining residues (Loureiro, 2024; Porto-Gonçalves, 2006).

Environmental licensing, water use permits, and sectorial regulatory instruments formally govern individual mining operations - yet remain oriented toward project-level assessment rather than cumulative territorial process. The long-term transformation of hydrological systems produced by landscape fragmentation, tailings disposal, and sediment displacement along river basins thus remains structurally under-regulated, reinforcing patterns of environmental degradation and socio-territorial inequality across urban and peri-urban regions (Zhou & Laschefski, 2010; Cardoso, 2010).

Alongside industrial extraction, garimpo represents one of the most destructive forms of extractive water use in the Amazon. Operating within informal, illegal, or semi-regulated conditions, it

expands through enforcement gaps and institutional fragmentation, relying on river systems for sediment processing and generating mercury contamination, deforestation, and severe alterations to aquatic ecosystems. These transformations directly affect Indigenous and riverine territories - undermining subsistence practices, contaminating fisheries, and exposing populations to long-term health risks. The governance response oscillates between repression and tacit tolerance, reflecting structural tensions between extractive economic priorities and constitutional territorial rights; institutional interventions frequently displace rather than resolve conflict through episodic enforcement (Acsehrad, 2004; Zhouri & Laschefski, 2010).

Taken together, industrial mining and garimpo reveal how water is simultaneously regulated as an economic resource, contested as a territorial right, and transformed as a material substrate of extraction - reconfiguring the hydrosocial conditions under which urbanization, territorial rights, and collective livelihoods are negotiated. Governance instruments designed for water allocation and environmental impact mitigation remain misaligned with the relational and cumulative character of these transformations, a condition that the following section examines through the lens of differential exclusion.

These overlaps between hydropower infrastructure, mining areas, Indigenous and quilombola territories, and major river basins are spatially legible across the Brazilian Amazon (Figure 3.5), and their scalar and cumulative governance implications are outlined in Table 10.

TABLE 10 - Multi-scalar governance instruments and cumulative territorial effects in Amazonian water territories

Governance scale	Instrument	Regulatory logic	Scalar limitation	Cumulative territorial effect
Federal	Hydropower concessions	Energy security and national development	Operates at project scale, detached from basin-wide socio-ecological continuity	Downstream risk redistribution and hydrological disruption
Federal	Mining concessions	Integration into global commodity chains	Sectoral licensing without integrated watershed assessment	Territorial fragmentation and contamination
Federal/State	Environmental licensing	Impact mitigation and project approval	Focus on project-based EIAs rather than cumulative impacts	Formal compliance with persistent socio-territorial conflict
Federal/State	Water-use permits (outorga)	Technical allocation of water rights	Prioritization of economically legible uses	Marginalization of subsistence and customary water relations
Municipal	Master plans and zoning	Land-use regulation within administrative boundaries	Inability to govern hydrological continuities across jurisdictions	Governance gaps at river-basin scale
<i>Author's synthesis based on Cardoso (2010); Castro (2006); Acselrad (2004); Zhouri & Laschefski (2010); and Brazilian water governance legislation.</i>				





04.4 Differential Exclusion and the Limits of Governance

¹⁰ Within Brazilian environmental licensing procedures, mechanisms such as *compensação ambiental* (environmental compensation), resettlement (*reassentamento*), and financial indemnification (*indenização*) are formally designed to mitigate social and environmental impacts of large-scale projects. However, policy and planning literature has shown that these instruments frequently function as tools for conflict management and project viability rather than as mechanisms ensuring territorial protection or substantive recognition of affected populations. See Henri Acelrad, *Conflitos Ambientais no Brasil* (Rio de Janeiro: Relume Dumará, 2004); Andréa Zhouri and Klemens Laschefski, eds., *Desenvolvimento e Conflitos Ambientais* (Belo Horizonte: Editora UFMG, 2010); and Raquel Rolnik et al., "Urban Conflicts and Displacement in Large-Scale Development Projects," in proceedings of the *Encontro Nacional da ANPUR (ENANPUR)*, which examine compensation and resettlement policies as instruments of negotiated viability within Brazilian planning and environmental governance frameworks.

Within governance arenas structured by asymmetrical transactions, large-scale infrastructural and extractive actors engage Indigenous, quilombola, and riverine communities through formalized participation mechanisms that translate territorial claims into monetizable values. Under conditions of environmental degradation, loss of water access, and regulatory enclosure, communities are frequently compelled to accept agreements that ensure project continuity while eroding territorial autonomy. What is formally framed as consultation or compensation¹⁰ thus functions as governance through cooptation - consent produced under structural constraint rather than through deliberative choice (Zhouri & Laschefski, 2010; Santos, 2014).

Differential exclusion names the specific mechanism through which this condition is reproduced across populations and spaces. Governance in Amazonian water territories does not distribute protection, recognition, and negotiability uniformly - it produces a hierarchy structurally embedded in legal frameworks, policy instruments, and institutional practices. Indigenous territories, despite persistent violations and enforcement gaps, occupy the most visible position: constitutionally recognized *Terras Indígenas* carry distinct legal status, dedicated federal agencies, and a baseline of institutional recognition that shapes how conflicts involving these territories are addressed within governance arenas (De Paula, 2017; Gallois, 2004). Quilombola territories occupy a more precarious position -

recognition grounded in historical resistance and collective memory, yet juridically slow, fragmented, and frequently contested, particularly in peri-urban and fluvial zones where territorial boundaries intersect with municipal jurisdictions, conservation units, and extractive concessions (Bispo dos Santos, 2023; Arruti, 1995; Campos, 2024).

Beyond legally recognized collective territories, large segments of the Amazonian population remain structurally outside governance instruments altogether. Riverine dwellers without formal territorial status, informal urban settlers, and low-income households in flood-prone areas are not addressed as legitimate territorial subjects - their presence managed through sectorial policies focused on risk containment, sanitation, or housing relocation rather than through mechanisms capable of engaging their water-based territorial relations (Rosa & Reis, 2023; Cardoso et al., 2022). Flood control infrastructures, sanitation projects, and riverbank redevelopment initiatives reproduce this logic by treating water as a hazard to be contained or a resource to be optimized, reclassifying water-based livelihoods as risk exposure or informality and narrowing the set of legitimate interlocutors to those able to operate through cadastral categories, standardized documentation, and stable addresses (Cardoso, 2010).

The result is a differentiated geography of exclusion actively produced through governance itself - not a uniform landscape of marginalization but a hierarchy of visibility in which Indigenous territories trigger institutional response and legal contestation, quilombola communities encounter fragile and contested recognition, and riverine and low-income urban populations appear only as statistical aggregates within housing, sanitation, or disaster management programs. Exclusion operates not only through asymmetrical transactions but through the systematic limitation of who is allowed to appear as a negotiating subject within governance processes at all (Santos, 2014; Acselrad, 2004; Haesbaert, 2020).

These dynamics become particularly acute in peri-urban water territories, where extractive infrastructures, urban expansion, and hydrological variability converge. Governance instruments fragment responsibility across agencies and scales, normalizing exclusion as a technical or administrative condition while deferring structural transformation through unequal negotiation. Understanding who is excluded from governance in Amazonian water territories - and how that exclusion is actively produced - is the analytical prerequisite for reading the case of Marabá in the chapters that follow.





04.5 Land Grabbing, Water Grabbing and Extractive governance

Land grabbing¹¹ and water grabbing¹² constitute central mechanisms through which contemporary extractive governance operates in the Brazilian Amazon (Figure 4.0). These processes do not function as isolated phenomena or reducible to illegal appropriation - they emerge through the interaction between global demand for land, minerals, energy, and water, and governance frameworks that reconfigure territorial access, control, and use in favor of extractive actors. In Amazonian contexts, the two processes are deeply intertwined: appropriation of land is inseparable from control over rivers, aquifers, floodplains, and hydrological infrastructures (Boelens et al., 2016; Loureiro, 2024).

Unlike classical expropriation, contemporary land grabbing in the Amazon is frequently mediated by legal and administrative mechanisms - mining concessions, hydropower licenses, agribusiness expansion, and infrastructure projects - that fragment responsibility across sectors and scales while converging spatially along river basins and logistical corridors. This fragmentation enables cumulative enclosure without unified territorial authority (Harvey, 2003; Sauer & Leite, 2012). Water grabbing materializes through the reconfiguration of entire waterscapes - a process of hydro-territorialization in which rivers and floodplains are progressively incorporated into extractive governance regimes while subsistence, mobility, and collective territorial practices are rendered residual or informal (Boelens et al., 2016).

¹¹The term land grabbing is used here to refer to large-scale processes of control over land and associated natural resources that operate through legal, financial, and administrative mechanisms, including concessions, titling reforms, credit systems, and investment frameworks, rather than exclusively through illegal dispossession. See Saturnino M. Borras Jr., Jennifer Franco, and Cristóbal Kay, "Land Grabbing in Latin America and the Caribbean," *Journal of Peasant Studies* 39, no. 3–4 (2012): 845–872; and Saskia Sassen, *Expulsions: Brutality and Complexity in the Global Economy* (Cambridge, MA: Harvard University Press, 2014).

¹²Water grabbing refers to the appropriation of control over water resources through infrastructural, legal, or regulatory mechanisms—such as dams, diversion systems, licensing regimes, or basin governance reforms—often without the formal privatization of water itself. See Rutgerd Boelens, Jaime Hoogesteger, Erik Swyngedouw, Jeroen Vos, and Philippus Wester, "Hydrosocial Territories: A Political Ecology Perspective," *Water International* 41, no. 1 (2016): 1–14; and Rutgerd Boelens, Tom Perreault, and Jeroen Vos, eds., *Water Justice* (Cambridge: Cambridge University Press, 2018).

Governance does not stand outside these processes but enables them. Environmental licensing, water use authorizations, and territorial concessions translate complex water-based territories into administratively legible units, facilitating their incorporation into extractive projects and depoliticizing territorial disputes while reorganizing access in favor of capital-intensive actors (Acsehrad, 2010; Santos, 2014). Where 4.3.2 examined hydropower as a governance instrument for river regulation, here it appears in a different register: long-term concessions over river stretches and floodplains constitute a legalized form of water grabbing, reallocating control to energy producers while distributing downstream costs through compensatory mechanisms (Zhouiri & Valencio, 2014; Swyngedouw, 2015). Mining and agribusiness operate through the same logic - consolidating territorial control through licensing while externalizing environmental costs onto riverine populations and subordinating common waters to productive imperatives (Coelho et al., 2017; Sauer & Borrás, 2014).

These processes intersect directly with the territorialities examined in 4.2. Extractive governance frequently advances through surrounding areas, upstream interventions, and infrastructural corridors that undermine territorial integrity without direct expropriation - particularly for quilombola and riverine communities whose territorial relations are less formally delimited, producing gradual loss of access rather than singular acts of dispossession (Almeida, 2012; Bispo dos Santos, 2023). Land and water grabbing converge spatially along river systems and infrastructural corridors visible in Figure 4.0, concentrating vulnerability in urban peripheries already under extractive pressure.

Land and water grabbing thus function as governance processes rather than exceptional violations - mechanisms through which extractive rationalities are inscribed into the legal and administrative architecture of Amazonian territories. Their effects are not rural but urban, shaping patterns of settlement, risk exposure, and water access within cities. This analytical framing connects directly to the concept developed in the following section: governance without territory.





04.6 Governance Without Territory

The persistent recurrence of territorial conflict, environmental degradation, and urban vulnerability in the Brazilian Amazon cannot be attributed to an absence of governance. Legal frameworks, regulatory agencies, planning tools, and participatory devices operate simultaneously across federal, state, and municipal levels - the problem is not regulatory void but structural misalignment. Governance without territory names this condition: a configuration in which policies and instruments are formulated through spatial, temporal, and epistemic assumptions that do not correspond to the relational organization of water territories (Cardoso, 2010; Maia et al., 2024).

The misalignment operates across all the instruments examined in this chapter. Administrative boundaries fragment river basins; sectorial competences separate water from land and urban policy; project-based interventions isolate sites of action from the broader hydro-social systems within which they are embedded; participation mechanisms are structured around procedural inclusion rather than recognition of water territories as collective and relational systems. The cumulative effect is not the resolution of conflict but its spatial redistribution - environmental risk, infrastructural pressure, and regulatory gaps displaced downstream and inward toward peri-urban spaces where water-based territorial relations intersect with urban expansion (Acsehrad, 2004; Swyngedouw, 2015; Santos, 2014).

In riverine cities, governance without territory materializes

concretely: recurrent flooding, contested riverbank access, exposure to contamination, and informal occupation of risk-prone areas are not governance failures but structural outcomes of basin-scale interventions, extractive logistics, and policy fragmentation living simultaneously within the same urban space. Medium-sized Amazonian cities occupy a particularly exposed position - neither fully insulated from upstream decisions nor equipped with institutional capacity to govern their downstream effects (Cardoso et al., 2020; Loureiro, 2024).

Marabá exemplifies this condition with analytical precision. Located at the confluence of the Tocantins and Itacaiúnas rivers and integrated into national and global extractive networks, the city concentrates hydropower influence, mining logistics, peri-urban expansion, and water-dependent livelihoods within the same spatial field - rendering visible how governance instruments coexist without integration, how conflicts are displaced rather than resolved, and how water organizes urban life beyond the categories through which it is formally regulated. It is from within this condition that the following chapters examine Marabá as a situated water territory where governance, conflict, and everyday life intersect materially and daily.



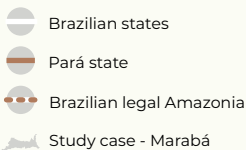
Figure 5.0 | Marabá location map | Source: IBGE | author's ellaboration

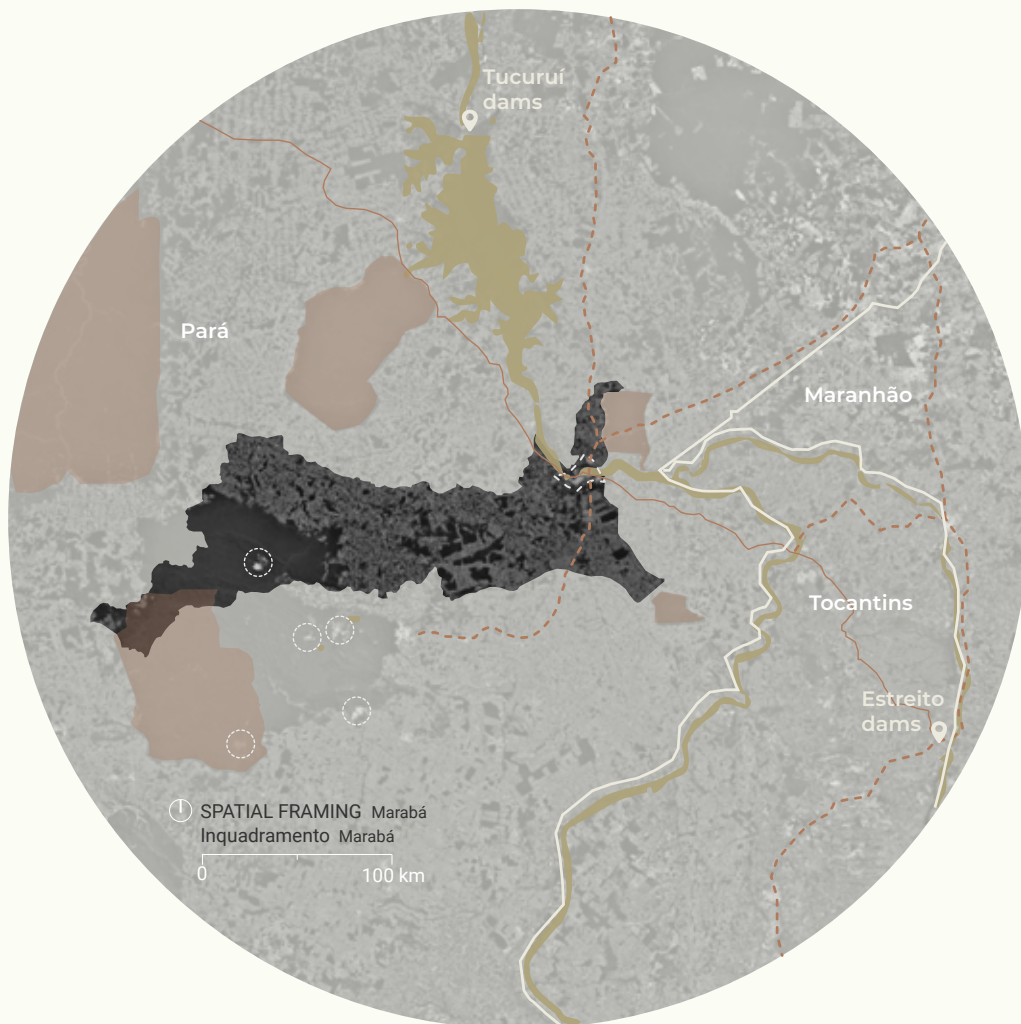
05 MARABÁ:

Water Territories in action

Marabá lies at the confluence of the Tocantins and Itacaiúnas rivers in southeastern Pará (Figures 5.0–5.1), within the Tocantins–Araguaia hydrographic region - one of Brazil’s major fluvial systems. This strategic junction has historically structured settlement patterns, mobility, and regional circulation, making the city not simply an urban agglomeration but a territorial node whose functioning is inseparable from basin-scale hydrological continuities and from the infrastructures and actors that operate through them (ANA, 2018; Cardoso, 2010).

Administratively, Marabá covers 15,127 km² and had 266,533 inhabitants at the 2022 Census, with an estimated population of 290,975 in 2025 (IBGE, 2024). This disproportion between the municipal scale and the comparatively compact urbanized footprint is characteristic of Amazonian urbanization, where municipal territories encompass forests, rural settlements, Indigenous lands, extractive corridors, and river systems that exceed the city as a bounded object. Marabá should therefore be read as a node within a broader water territory shaped by basin processes, overlapping territorial practices, and multi-scalar governance arrangements (Figure 5.1; Cardoso, 2010).





- Tocantins river
- Indigenous lands
- Urban center of Marabá
- Brazilian states
- Marabá delimitation
- BR-230 Trans-Amazonian Highway
- Other main highways
- Mining spots
- Hydropower stations

Figure 5.1 | Marabá spatial framing | Source: IBGE, FUNAI | author's ellaboration

MARABÁ



Total area: 15,127.872 km²
Reference: Lazio's area:
17.242 km²



Population: 266,533
Indigenous population is not
count as part of the inhabitants
in Marabá

TOCANTINS RIVER



Drainage basin area: 767.000 km²
Entirely within Brazil
States crossed: Goiás, Tocantins,
Maranhão and Pará



Total length: 2.450 km²
Average width: 300m to 1km
Maximum width: 2-3km

Historically a major axis of
colonial penetration and
territorial integration

MÃE MARIA LAND



Indigenous land: 620 Km²
Inhabitants: 2.000
Indigenous groups: 18
The land was formally conceded
on 1937, the original land
was where the hydropower
Tucuruí was constructed.

The city's contemporary urban form is polycentric - composed of distinct nuclei (Marabá Pioneira, Nova Marabá, Cidade Nova, São Félix, Morada Nova) whose emergence is linked to flooding dynamics, state-led planning interventions, and successive migration cycles associated with mining, infrastructure construction, and agrarian expansion (Figure 5.2). Rather than following a linear trajectory of consolidation, the city has expanded through displacement, relocation, and informal occupation, producing a fragmented yet hydrologically interconnected urban landscape (Cardoso, 2010).

Hydrological dynamics continue to structure everyday life. Seasonal flood pulses, sediment transport, and water-level fluctuations shape housing strategies, mobility routes, and exposure to risk - and are not solely determined by rainfall variability but also by upstream hydropower infrastructures, most notably the Tucuruí dam, whose operational regimes influence downstream discharge patterns, sediment transport, and the predictability of seasonal water levels. Interviews with academic and institutional actors describe how downstream populations experience these basin-scale interventions as a progressive erosion of hydrological regularity: fluctuations in river level, sediment behavior, and fish availability are interpreted locally in relation to upstream infrastructural operations, even when causal chains remain difficult to isolate through formal monitoring systems (Leonardo Brasil interview; Matheus, ICMBio interview).

Marabá's urban and peri-urban territories thus operate within a hybrid hydrological regime in which seasonal cycles intersect with infrastructural management logics. Flood alerts, emergency thresholds, and everyday anticipatory practices reflect a condition of partial predictability, where basin-scale decisions materialize locally as altered risk exposure and adaptive routines. The Tocantins River functions simultaneously as ecological system, infrastructural corridor, and governance medium - connecting distant interventions to situated forms of dwelling and livelihood, and making visible the condition of governance without territory that the preceding chapter examined at the regional scale.

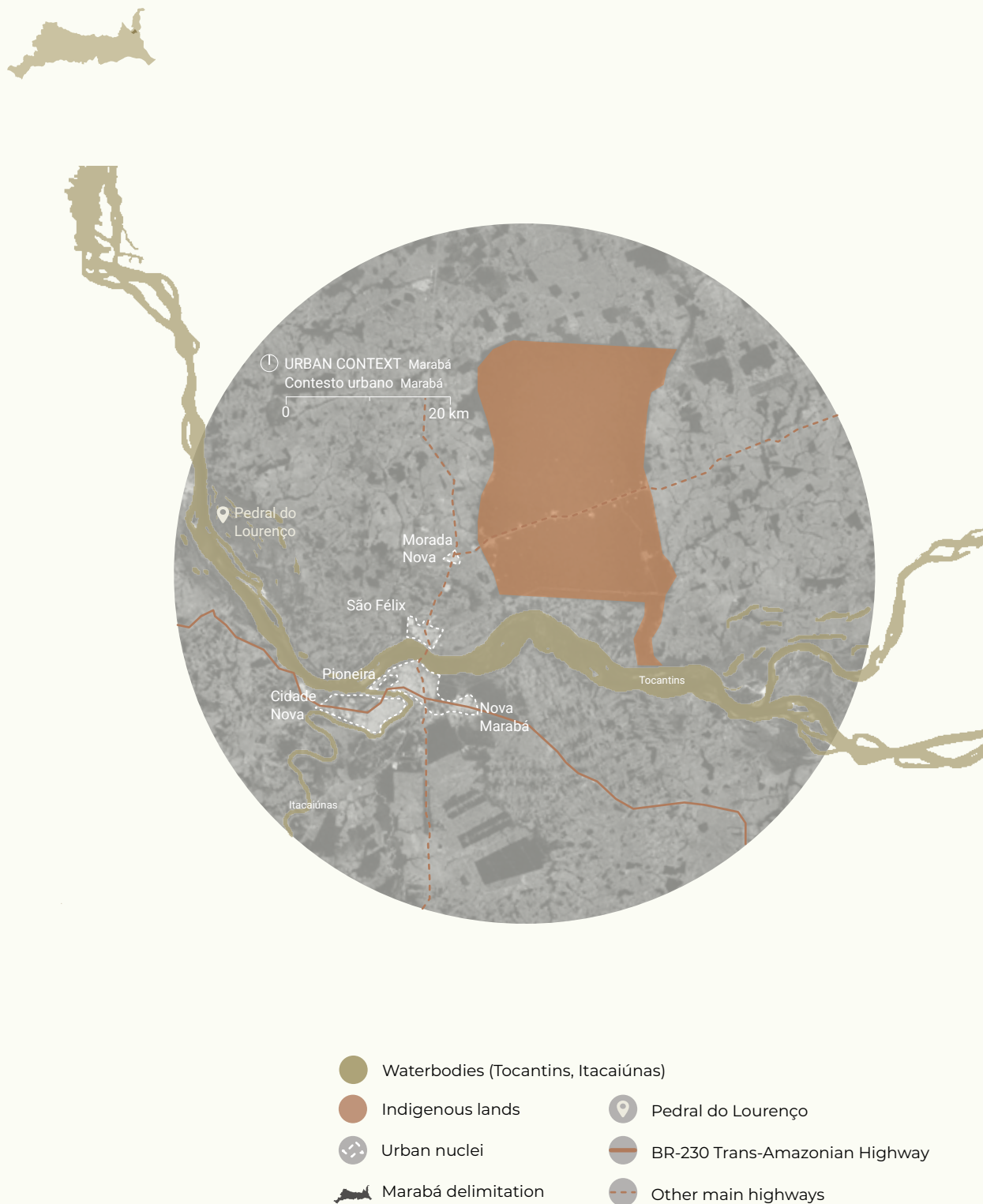
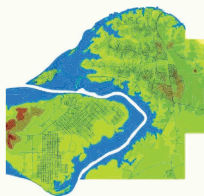


Figure 5.2 | Marabá urban context | Source: Plano diretor, Marabá's municipality | author's elaboration

FLOODS



Flooding simulation
on Cidade Nova, Pioneira and
Nova Marabá.

Source: Geomarabá, 2006



05.1 Tocantins River

The Tocantins River constitutes the primary territorial structure through which Marabá is organized, inhabited, and governed. Rather than operating as a background natural feature, it functions as a spatial system that connects circulation, subsistence, risk exposure, and urban form across multiple scales - linking everyday practices to basin-wide ecological and infrastructural processes (Figure 5.3; Cardoso, 2010).

The river operates simultaneously across three registers that this section traces in sequence. As ecological infrastructure, floodplains sustain fisheries, regulate local microclimates, and maintain várzea soil fertility, supporting a range of subsistence and small-scale economic activities. Cumulative pressures - untreated urban sewage, sand extraction, mining and logistics corridors, and informal upstream garimpo - are reported to affect water quality, sediment dynamics, and river morphology. Interviews describe a gradual deterioration of ecological conditions, particularly in fish availability and water turbidity, while highlighting the difficulty of attributing changes to single causes within a highly interconnected basin (Matheus, ICMBio interview; Pablo Neri interview).

As infrastructural corridor, the Tocantins–Araguaia hydrographic region has long been central to national energy production, mineral logistics, and territorial integration. Upstream hydropower infrastructures, particularly the Tucuruí dam, have introduced a hybrid hydrological regime in which seasonal cycles interact with operational variability associated with reservoir management and

energy production. Even where rainfall patterns suggest continuity, downstream water levels fluctuate due to controlled releases, sediment retention, and altered flow regimes - reducing the predictability historically associated with seasonal river behavior and complicating local strategies of anticipation and adaptation (Leonardo Brasil interview; Matheus, ICMBio interview). For populations whose livelihoods depend on fishing (Figure 5.4), riverbank cultivation, and seasonal mobility, this altered predictability is experienced not as a technical problem but as a transformation of the temporal rhythms through which territory is inhabited. Flood alerts, emergency thresholds such as the locally recognized quota 82, and informal monitoring practices reflect ongoing attempts to interpret water-level changes shaped by basin-scale decisions as much as by climatic variability.

As social infrastructure, swimming, fishing, washing, crossings, leisure, and everyday sociability concentrate along riverbanks, often immediately adjacent to logistical corridors and transport infrastructures (Figure 5.5). This proximity produces a condition in which subsistence practices, urban expansion, and extractive circulation coexist within the same riverine space - making inequality materially visible through water. Those most directly dependent on the river for daily life are frequently those most exposed to pollution, flood impacts, and displacement pressures. As expressed by riverine residents and local researchers, the river simultaneously sustains life and concentrates vulnerability, functioning as both connective medium and site of uneven territorial exposure (Ana Luísa Rocha da Silva interview; Fernando Michelotti interview).

Taken together, these three registers are not separable analytical layers but mutually constitutive dimensions of a single hydro-social system in which distant operational choices materialize locally as altered risk, adaptive routines, and contested territorial relations. Interviews with local actors consistently identify the river as the primary spatial reference through which risk, livelihood, and belonging are interpreted - a condition that the following sections examine through the actors, practices, and conflicts that give it concrete form.



Figure 5.3 - 5.5 | Tocantins river as: 5.3 - mobility corridor; 5.4 - subsistence space (fisherman community); 5.5 - riverbank housing (inside old boats) | author's archive

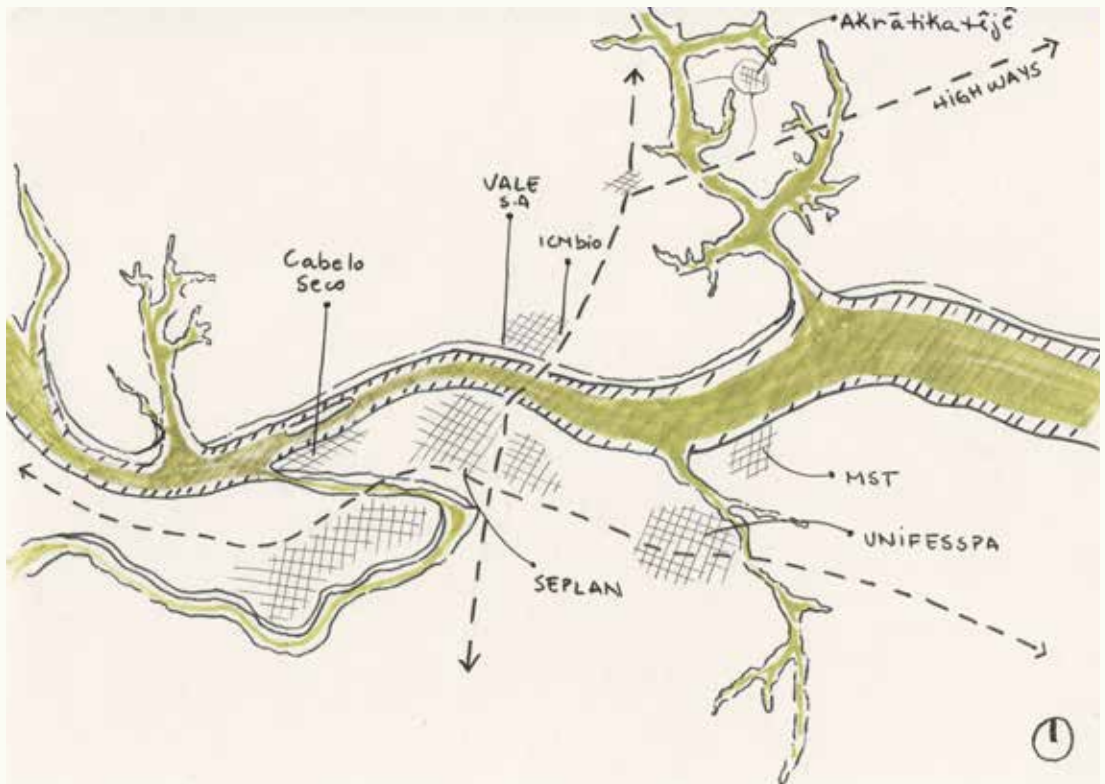


Figure 5.6 | Stakeholders (left to right) - VALE; Cabelo Seco inhabitant; Akratikatêjê leader | Source: author's archive

05.2 Local Framework

Actors

Marabá's water territory is produced through the interaction of heterogeneous actors whose relations to the Tocantins basin differ in scale, institutional recognition, and capacity to influence territorial transformation. Rather than forming a coherent governance field, these actors operate within overlapping yet asymmetrical configurations structured by hydrological continuity and uneven access to decision-making arenas. The river functions as a shared spatial reference across social groups and institutional domains, while access to protection, recognition, and political visibility remains profoundly differentiated - a local instantiation of the differential exclusion examined in Chapter 4 (Fernando Michelotti interview; Matheus, ICMBio interview).

Riverine and Afro-descendant communities, particularly in historically consolidated areas such as Cabelo Seco, maintain continuous and embodied relations with the river through fishing, bathing, washing, leisure, and everyday sociability. These practices are sustained through intergenerational transmission and collective memory, producing forms of territorial knowledge grounded in observation of seasonal variation, sediment dynamics, and riverbank transformation. Despite this continuity, such communities often lack formal territorial recognition and remain weakly represented within institutional governance processes.

The river functions simultaneously as a space of livelihood and social life and as a site of exposure to contamination, flooding,

and infrastructural pressure, without corresponding inclusion in decision-making arenas (Ana Luísa Rocha da Silva interview; Patrícia Capanema interview). MST-linked rural settlements occupy peri-urban and rural territories hydrologically connected to the Tocantins basin through streams, floodplains, and groundwater systems. Agricultural cycles, soil fertility, and mobility patterns depend directly on hydrological variability, while infrastructural support and political recognition remain limited. These settlements operate at the margins of urban governance despite being materially connected to the same hydro-social system that structures Marabá's urban life - a peripheral position that restricts their capacity to influence decisions on water use, environmental licensing, and infrastructural development (Pablo Neri interview).

The Akrátikatêjê Indigenous territory occupies a differentiated yet interconnected position. Formal land demarcation and legal recognition provide a degree of institutional protection absent in many other contexts. However, proximity to major transport corridors, mining logistics, and urban expansion areas connects the territory materially to the same hydrological and infrastructural dynamics affecting surrounding populations. Upstream and downstream interventions - hydropower operations, river navigation projects, extractive expansion - produce effects that exceed the boundaries of demarcated land, reinforcing a shared condition of basin-wide exposure that formal recognition alone cannot mitigate (Kátia Silene interview; Matheus, ICMBio interview).

Institutional actors - municipal government departments, environmental agencies, federal bodies, and academic institutions such as UNIFESSPA - operate through sectoral mandates that address sanitation, flood risk, environmental licensing, and land regulation. Interviews point to limited coordination across sectors and scales, and to persistent difficulties in engaging riverine, rural, and Indigenous actors within existing governance frameworks. Responsibilities remain fragmented across administrative competences that rarely correspond to hydrological continuities or to the lived territorial relations structured by water. The absence of integrated governance mechanisms is particularly acute: as Patrícia Capanema observes, Marabá has no river basin committee, no drainage committee, and no mobility commission - "a city that grows while ignoring all these layers - water, soil, subsoil, population.

There is a lot of dispersed knowledge that does not connect. And that is the biggest problem" (Patrícia Capanema interview). Extractive and logistical actors, particularly Vale S.A., exert disproportionate influence over territorial transformation through rail and road corridors, mineral transport systems, and investment capacity. Operating primarily at regional and national scales, their infrastructures intersect directly

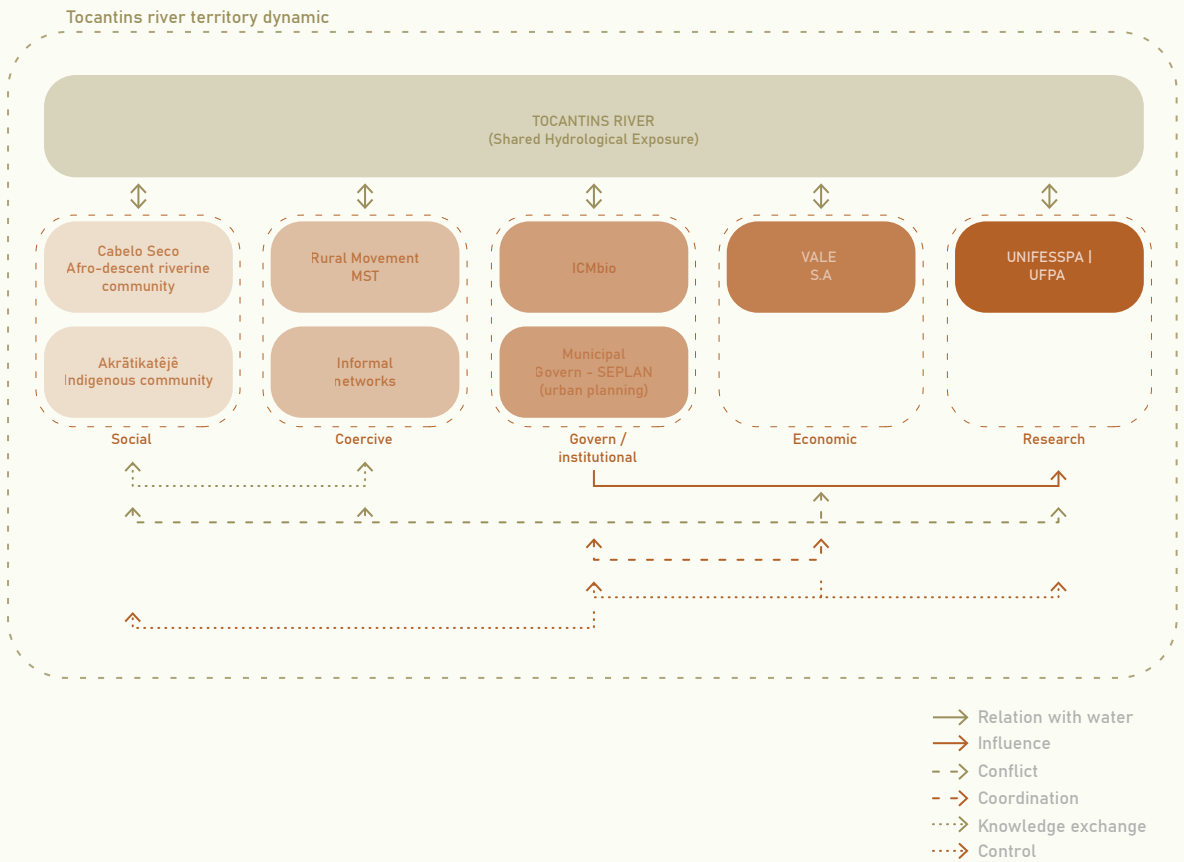


Figure 5.7 | Actors in Marabá's water territory dynamics | Source: Interviews | author's elaboration

with local water territories while decisions affecting the river system are frequently taken beyond the arenas accessible to most local actors. This asymmetry extends to environmental knowledge itself: Vale is the primary operator of environmental monitoring within the basin - yet does not share its data with other actors, including public agencies and research institutions. Knowledge about the very system that structures everyday life in Marabá is thus concentrated in the hands of the actor with the greatest interest in its extractive transformation (Bernardo Tomchinsky interview; Fernando Michelotti interview).

Interview material also indicates the presence of informal and coercive territorial dynamics in certain peri-urban areas. Criminal networks and illicit economic activities influence mobility, land occupation, and access to specific riverfront zones, introducing additional layers of insecurity and constraint on local autonomy. Given the sensitivity of these issues and the variability of available documentation, this dimension requires careful treatment grounded in verifiable interview excerpts and corroborating sources before final publication.

Taken together, these actors do not constitute discrete or isolated categories but operate within the same hydro-social system through distinct territorial rationalities, institutional capacities, and temporal horizons. The resulting configuration is one of coexistence without equivalence - multiple forms of territorial agency intersecting without converging into a unified governance framework, where some actors participate through institutional procedures, others through everyday adaptation and negotiation, and others through economic or coercive power exercised at a distance. This configuration is schematically visualized in Figure 5.7 as an overlapping hydro-social field rather than a fixed stakeholder hierarchy.

Practices

Everyday practices along the Tocantins and Itacaiúnas rivers unfold within a spatial field characterized by overlap rather than functional separation. Riverbanks host multiple and simultaneous uses that resist clear distinction between domestic, productive, and infrastructural domains: washing and bathing areas, fishing zones, informal crossings, and leisure spaces coexist with sanitation discharge points, sand extraction sites, and the constant movement of trains, trucks, and fluvial transport associated with extractive logistics. These proximities generate a territorial condition in which distinct practices share the same spatial substrate without converging into a coordinated system of use or regulation.

Access points to the river are often informal and temporally variable - expanding or disappearing in response to seasonal water levels, sediment redistribution, and infrastructural occupation. Residents identify locations suitable for washing, bathing, or fishing not through formal designation but through accumulated experience and shared local knowledge. These micro-geographies of use are continuously reconfigured in response to contamination, erosion, or changes in river morphology, producing a form of territorial adjustment that operates entirely outside formal planning instruments (Ana Luísa Rocha da Silva interview; Anonymous interview).

The coexistence of subsistence practices and large-scale infrastructural systems intensifies this adaptive condition. Extractive

corridors - rail lines, ports, and transport routes - intersect directly with spaces of daily water use, producing spatial compression and increased exposure to risk rather than integration or coordinated management. Noise, vibration, and pollution associated with heavy infrastructure alter the sensory environment of riverbanks, while logistical priorities consistently take precedence over local uses. The result is a layered territorial configuration in which different rationalities of use remain simultaneously present but rarely interact through shared governance mechanisms (Fernando Michelotti interview; Patrícia Capanema interview).

Water-related practices also structure temporal organization in ways that diverge from institutional schedules. Daily routines of washing, fishing, and crossing are synchronized with river levels, rainfall patterns, and seasonal variation rather than with administrative timetables or service provision cycles. During flooding or heightened contamination, households reorganize mobility routes, water collection strategies, and social activities through informal coordination and mutual observation - adjustments that occur continuously and collectively yet remain largely invisible within policy frameworks that recognize water primarily through infrastructure, service delivery, or risk management categories (Matheus, ICMBio interview).

The multiplicity of practices concentrated along river margins does not produce a unified territorial logic but a condition of functional coexistence without integration - actors engaging the same spatial environment through distinct and sometimes incompatible uses, interacting through partial awareness and negotiated distance rather than through shared regulatory frameworks. Everyday practices thus reveal a water territory structured less by formal allocation of functions than by ongoing adjustment to overlapping and often conflicting spatial demands - a condition that becomes most politically visible through the conflicts examined in the following section.



Figure 5.8 | Practices in Tocantins river (left to right) - Logistics; Bathing and fishing; Tourism | Source: author's archive

Conflicts

Conflicts constitute one of the most visible dimensions through which Marabá's water territory becomes politically legible - emerging not as isolated disputes but as structural conditions produced where extractive and infrastructural interventions intersect with subsistence practices, ecological dynamics, and everyday river uses. Across interviews, conflict appears less as episodic confrontation than as a persistent field of tension embedded in the hydro-social organization of the Tocantins basin: the same river that sustains fishing, domestic practices, and local mobility simultaneously functions as a logistical corridor for mineral exports, a recipient of urban effluents, and an object of large-scale infrastructural intervention.

The proposed rock blasting of the Pedral do Lourenço is the most emblematic conflict across the empirical material. From the perspective of federal infrastructure planning, the rocky formation is a navigational obstacle whose removal would enable continuous fluvial transport for mineral and agricultural commodities. For river-dependent actors, researchers, and local communities, however, the Pedral is a living geomorphological structure integral to fish reproduction, sediment dynamics, and seasonal river behavior - whose alteration would produce basin-wide consequences far beyond the immediate site. This divergence reveals a conflict not merely over a specific intervention but between infrastructural rationalities oriented toward circulation efficiency and relational understandings of the

river grounded in ecological continuity and subsistence dependence (Fernando Michelotti interview; Ana Luísa Rocha da Silva interview; Pablo Neri interview). As Bernardo Tomchinsky emphasizes, the project is structurally open-ended: “you will always be dredging; sediment accumulates, and it becomes permanent maintenance” - a waterway that serves not local needs but the logistics of mining and grain transport expanding from the Matopiba agricultural frontier (Bernardo Tomchinsky interview).

Sand extraction constitutes a second, more diffuse source of conflict. Conducted along multiple stretches of the Tocantins and Itacaiúnas, sand removal alters riverbed morphology and destabilizes adjacent beaches and access points - forming deep cavities and unstable substrates that compromise bathing, fishing, and children’s play. These changes often occur without communication or visible monitoring, producing uncertainty about cumulative impacts while remaining weakly regulated within formal governance frameworks (Ana Luísa Rocha da Silva interview).

Sanitation presents a third and persistent conflict embedded in everyday life. Untreated or insufficiently treated sewage is discharged into both rivers at multiple points along the urban perimeter, producing a paradoxical condition in which the river remains central to domestic practices and social life while simultaneously functioning as a receptacle for urban waste. Residents describe the normalization of contaminated water as an unavoidable dimension of daily life; institutional actors acknowledge infrastructural deficits without adequate response. The conflict exceeds a technical framing - it reflects structural inequalities in access to infrastructure and in the distribution of environmental risk across urban space (Patrícia Capanema interview; Matheus, ICMBio interview).

Upstream garimpo introduces a more diffuse but significant dimension. Interviewees associate informal and illegal mining with increased turbidity, altered sediment loads, and declining fish availability downstream. While systematic monitoring data remain partial or contested - in part because Vale, the primary monitoring actor in the basin, does not share its data - these perceptions function as meaningful environmental indicators grounded in long-term observation. Their analytical value lies precisely in how they reveal how environmental change is experienced and interpreted within everyday territorial practices, even where causal chains cannot be formally isolated (Matheus, ICMBio interview; Pablo Neri interview).

Seasonal flooding, historically constitutive of settlement patterns in Marabá, has become increasingly conflictual under conditions of accelerated urban expansion and altered hydrological regimes. Residents describe floods not as exceptional disasters but as recurrent events whose timing and intensity have grown less predictable

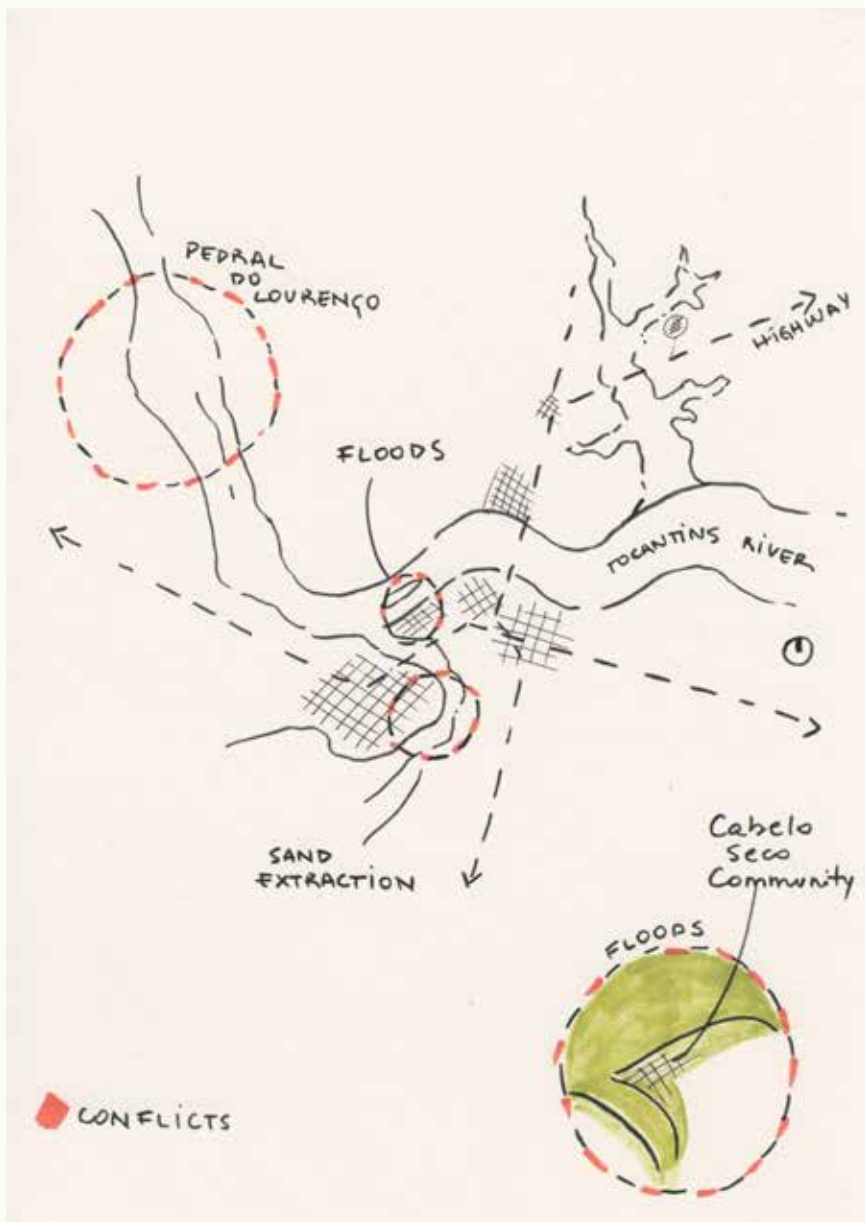


Figure 5.9 | Conflicts in the territory (left to right) - Open sewage discharge; Sand-extraction; Pedral do Lourenço | Source: author's archive; fato regional (ph 3)

- particularly in relation to upstream hydropower management
- complicating long-standing adaptive practices and intensifying disputes over responsibility, compensation, and risk management (Anonymous interview; Patrícia Capanema interview).

Taken together, these conflicts share a common underlying structure: the coexistence of multiple and often incompatible territorial projects within the same hydro-social system, governed through fragmented institutional frameworks that rarely address cumulative effects. Conflict emerges not from individual projects alone but from the structural misalignment between hydrological continuities and sectorial governance arrangements - a condition already analyzed at the regional scale in Chapter 4 and here made materially legible through specific sites, actors, and everyday experiences. The scalar configuration of these conflicts and their governance responses are summarized in Table 11.

TABLE 11 - Structural configuration of conflicts and scalar misalignments in Marabá's water territory

Conflict arena	Spatial scale of impact	Rationalities in tension	Territorial dimension affected	Form of structural misalignment	Mode of governance stabilization
Pedral do Lourenço rock blasting	Basin and regional and global scale	Logistical circulation vs. ecological continuity	Basin hydromorphology, fish reproduction cycles	Infrastructure project logic vs. basin-wide ecological interdependence	Federal licensing, technical studies, public hearings
Sand extraction	Site and urban riverbank scale	Resource commodification vs. everyday river use	Riverbed morphology, local access points	Local extraction vs. cumulative geomorphological effects	Partial municipal oversight; informal monitoring
Urban sanitation discharge	Urban scale	Service provision vs. water as lived environment	Water quality, domestic and social practices	Administrative boundaries vs. hydrological flow continuity	Municipal infrastructure planning; normalization of contamination
Upstream garimpo	Basin scale (upstream-downstream)	Informal extractivism vs. downstream ecological stability	Sediment flow, turbidity, fish availability	Weak enforcement vs. inter-basin ecological connectivity	Limited monitoring; reliance on local observation
Seasonal flooding	Urban and peri-urban floodplain scale	Risk containment vs. adaptive river dwelling	Settlement patterns, housing vulnerability	Fixed land-use planning vs. seasonal hydrological variability	Civil defense response; reactive adaptation
Hydropower variability (Tucuruí and Estreito system)	Basin and urban scale	Centralized energy regulation vs. experiential ecological knowledge	Seasonal river pulses, predictability	Basin-scale control vs. local temporal rhythms	Federal energy governance; limited local participation

Source: Author's elaboration based on interviews and fieldwork (2025–2026)

Asymmetries

The capacity to influence water-related transformations in Marabá is unevenly distributed, reflecting differentiated access to legal recognition, institutional channels, and economic power. Coexistence along the Tocantins and Itacaiúnas does not imply equivalence - the conditions under which different groups can shape decisions concerning water, land, and infrastructure remain structurally unequal, producing a hierarchy of influence that mirrors the differential exclusion operating at the regional scale (Fernando Michelotti interview; Patrícia Capanema interview; Matheus interview).

Riverine and Afro-descendant communities maintain continuous and embodied relations with the river through fishing, bathing, washing, and everyday mobility - yet these practices rarely translate into formal recognition within governance processes. Populations most directly dependent on the river for daily life possess limited capacity to influence decisions regarding sanitation, riverbank transformation, or infrastructural interventions. Their knowledge of seasonal dynamics and local risk remains largely informal and weakly incorporated into institutional planning (Ana Luísa Rocha da Silva interview; Patrícia Capanema interview).

Rural and peri-urban settlements connected to the basin through streams, floodplains, and groundwater systems occupy a similarly precarious position. Decisions concerning infrastructure, environmental licensing, and territorial development are frequently

taken without their participation, reinforcing political marginality despite material dependence on the same hydro-social system (Pablo Neri interview).

The Akrátikatêjê occupy a differentiated position: legal recognition provides institutional visibility and formal protection unavailable to most surrounding communities, yet proximity to transport corridors, extractive infrastructures, and urban expansion connects their territory materially to the same hydro-social pressures. Constitutional recognition shapes the channels through which conflicts can be formally addressed, but does not insulate the territory from upstream or downstream impacts linked to hydropower operations, mining logistics, or environmental degradation (Kátia Silene interview; Matheus interview).

Institutional actors - municipal authorities and environmental agencies - operate within fragmented mandates and limited coordination mechanisms. Their regulatory authority is real but constrained: capacity to intervene across the full territorial extent of hydrological processes is limited by institutional fragmentation and resource limitations that consistently prevent effective multi-scalar response (Patrícia Capanema interview; Matheus interview).

By contrast, large-scale extractive and logistical actors hold disproportionate influence over territorial transformation through economic scale, infrastructural investment, and strategic importance within regional and national development agendas. Their capacity to shape land use, mobility infrastructures, and riverine environments consistently exceeds that of local governments or communities - creating a governance landscape in which decision-making power is concentrated precisely where impacts are most widely distributed (Fernando Michelotti interview).

These differentiated capacities constitute the structural characteristic of Marabá's water territory: the same water bodies sustain subsistence practices, institutional regulation, and extractive circulation, but not under shared conditions of protection or participation. Asymmetry shapes who can influence decisions, who absorbs risk, and whose relations with water remain formally recognized or institutionally invisible - conditions that the following section traces through the scale of everyday life.





05.3 Everyday life

Everyday life in Marabá unfolds through continuous negotiation with hydrological variability and environmental uncertainty. Flooding, contamination, unstable riverbanks, and infrastructural pressures do not appear as exceptional disruptions - they form part of an ordinary territorial condition that structures routines, perceptions of safety, and practices of care. Risk is not experienced as an episodic crisis but as a cumulative and normalized dimension of daily life, absorbed into the rhythms through which households, communities, and individuals inhabit the river.

This section moves beyond the structural mapping of actors, practices, and conflicts outlined in § 5.2 to examine how water relations shape embodied experience, learning processes, gendered responsibilities, and forms of attachment at the scale of everyday existence. The analytical shift is deliberate: governance in Marabá is encountered not only through formal instruments and institutional arrangements but through exposure, adaptation, and the situated knowledge through which people read, anticipate, and respond to a river that sustains and threatens simultaneously.

Health

In river-dependent areas of Marabá, everyday bodily practices unfold near degraded or uncertain water conditions. Bathing, washing clothes and utensils, and children's play take place along riverbanks or at informal access points where water quality is uneven and sanitation infrastructure incomplete. Interview material describes a pragmatic coexistence between dependence on the river and awareness of contamination - exposure that is neither fully avoidable nor fully normalized (Ana Luísa Rocha da Silva interview; Patrícia Capanema interview).

Rather than relying on formal monitoring systems, households and neighborhoods develop situated strategies to manage exposure. Sensory evaluation of water color, smell, and visible waste, combined with collective knowledge about safer or more contaminated stretches, informs everyday decisions about where and when to use the river. These practices do not eliminate risk but redistribute it through adaptive routines that allow daily life to continue under conditions of uncertainty (Matheus interview). The testimony of Ana Luísa Rocha da Silva captures this condition with precision:

“The meeting of the Tocantins and Itacaiúnas rivers is my life. My mother, as a washerwoman, raised ten children washing clothes on the banks of the Tocantins River. I live on the riverfront, and when I wake up, the first beauty I see is the river: a lot of water, beach,

Original in Portuguese: “O encontro dos rios Tocantins e Itacaiúnas é a minha vida. Minha mãe, sendo lavadeira, criou dez filhos lavando roupa às margens do rio Tocantins. Moro na orla e, quando acordo, a primeira lindeza que vejo é o rio: muita água, praia, o verde. Só gratidão a Deus. (...) Temos lutado muito pelo nosso rio. Infelizmente, os esgotos caem todos dentro dos rios. Já nos manifestamos, mas até o momento não fomos ouvidas. Nossa água é muito poluída.”

greenery. Only gratitude to God. (...) We have fought a lot for our river. Unfortunately, all the sewage is discharged directly into the rivers. We have protested, but so far, we have not been heard. Our water is very polluted.”

Institutional prevention and public health monitoring are perceived as uneven and episodic. While official alerts or interventions may occur during acute flooding or visible contamination events, long-term exposure to compromised water quality remains normalized within everyday life. Responsibility for managing risk is partially displaced onto households and communities, reinforcing a form of self-regulation grounded in experience rather than formal protection - a displacement that mirrors, at the scale of the body, the governance without territory examined at the regional scale (Patrícia Capanema interview; Matheus interview).

Health, in this context, cannot be separated from territorial relations with water. Exposure to contaminated or unstable environments is unevenly distributed and tied to proximity to the river, access to sanitation infrastructure, and degree of institutional recognition. What emerges is not a dichotomy between safe and unsafe environments but a spectrum of lived exposure negotiated daily through embodied knowledge, precautionary habits, and collective awareness.

Knowledge Systems

Living with the river in Marabá is learned through embodied and intergenerational practice rather than through formal instruction (Figures 5.10–5.12). Skills such as swimming, reading currents, recognizing unstable riverbanks, and anticipating seasonal changes are transmitted through observation, repetition, and shared routines embedded in everyday life - cumulative and relational knowledge emerging from long-term exposure and continuous interaction rather than from abstract environmental information (Kátia Silene interview; Anonymous interview).

These learning processes begin early, through proximity to water. Children acquire familiarity with river dynamics by accompanying adults in daily activities, observing fluctuations in water level, sediment movement, and the behavior of currents across seasons. Such learning does not operate as an explicit pedagogical system but as an experiential immersion through which the river becomes readable as both environment and risk field. For Kátia Silene, this transmission is inseparable from territorial identity:

"Eu educo na escola e na comunidade: crianças, jovens, adultos. Vocês têm que amar o território, amar a cultura, amar ser indígena. Se não se ama, vai amar quem? Não aprende a amar o território. O território é nossa casa. Eu luto pela nascente. Sem água, sem floresta, quem somos nós? Peixe fora d'água." — Kátia Silene, Interview 01.

"I teach in the school and in the community: children, youth, adults. You must love the territory, love the culture, love being Indigenous. If you don't love it, who will you love? You don't learn to love the territory. The territory is our home. I fight for the springs. Without water, without forest, who are we? Fish out of water."

Environmental memory functions as an informal territorial archive through which past events remain active in present decision-making. Narratives of previous floods, riverbank collapses, changes in fish availability, and shifting sediment patterns are mobilized to interpret current conditions and anticipate potential disruptions. This memory circulates through everyday conversation and collective recollection, guiding decisions about housing adaptation, mobility routes, and the timing of water-related activities - functioning as a form of situated expertise that complements and sometimes substitutes for formal monitoring systems (Anonymous interview; Pablo Neri interview).

Yet interviews also reveal a growing perception of unpredictability. Alterations in flow regimes, sediment transport, and water quality are described as increasingly difficult to anticipate through established experiential knowledge - a disruption noted not only by community members but by institutional researchers:

“We have not yet been able to adequately map other uses of water, such as recreational use, tourism, fishing, and use by traditional communities. However, during field activities, we have perceived that these populations already notice the degradation of rivers, silting, and the occupation of riparian forests, mainly by agribusiness.”

This perceived erosion of seasonal regularity requires continuous recalibration of routines and expectations, generating a sense that the river can no longer be read with the same degree of confidence as in the past (Matheus interview; Kátia Silene interview).

The coexistence of accumulated experiential knowledge and growing uncertainty produces a transitional condition in which traditional forms of learning remain essential but are no longer fully sufficient to guarantee predictability. Learning with the river becomes an ongoing adaptive process, shaped simultaneously by continuity of practice and by the need to reinterpret environmental signals under changing hydrological and infrastructural conditions - a condition that connects directly to the uneven adaptation examined in the closing section of this chapter.

“Ainda não conseguimos mapear adequadamente outros usos da água, como o recreativo, o turismo, a pesca e o uso por comunidades tradicionais. No entanto, ao longo das atividades de campo, percebemos que essas populações já notam a degradação dos rios, o assoreamento e a ocupação das matas ciliares, principalmente pela agropecuária.” — Matheus, ICMBio, Interview 07.



Figure 5.10 - 5.12 | Learning with water: 5.10 - Scholar Indigenous materials; 5.11 - Children playing in the river; 5.12 - Children learning to navigate | author's archive

Gender

Water-related practices in Marabá are unevenly distributed across gendered roles and responsibilities, particularly within river-dependent and low-income households. The intergenerational dimension of this condition is captured by Ana Luísa Rocha da Silva, whose mother - a washerwoman - raised ten children washing clothes on the banks of the Tocantins: a trajectory that condenses in a single image the entanglement of women's labor, water dependence, and household reproduction across generations. Interviews indicate that women continue to assume primary responsibility for domestic water management - washing, storing water, supervising children during river-related activities, and reorganizing daily routines in response to flooding or contamination episodes (Ana Luísa Rocha da Silva interview; Patrícia Capanema interview).

These responsibilities extend beyond routine domestic tasks to the continuous management of environmental uncertainty. During flooding or sanitation failure, women coordinate household adaptation strategies - reorganizing living spaces, managing hygiene under constrained conditions, mediating children's exposure to contaminated or unstable river environments. Such activities position them at the intersection of care, risk management, and environmental monitoring. Women also function as situated observers of ecological change: Ana Luísa describes how the Itacaiúnas River has changed color since the intensification of garimpo - "before, it was water where

you could see the gravel at the bottom; today it is muddy, polluted with so many minerals” - a form of long-term environmental knowledge grounded in daily proximity to the river.

This proximity also generates political engagement. Ana Luísa Rocha da Silva, president of the Cabelo Seco women’s group, frames the community’s struggles explicitly:

“My name is Ana Luísa Rocha da Silva. I was born in Cabelo Seco, the daughter of a washerwoman. I am the president of the Cabelo Seco women’s group, where we fight for the visibility of our women, for empowerment, and for public policies. Our goal is to ensure that our young people have leisure opportunities, a dignified life, and that they stop being killed.”

“Sou Ana Luísa Rocha da Silva, nasci no Cabelo Seco, filha de lavadeira. Sou presidenta do grupo de mulheres do Cabelo Seco, onde lutamos pela visibilidade das nossas mulheres, pelo empoderamento e por políticas públicas. Nosso objetivo é garantir que nossos jovens tenham lazer, uma vida digna e parem de ser mortos.” — Ana Luísa Rocha da Silva, Interview 08.

The group has mobilized against sand extraction, the proposed blasting of the Pedral do Lourenção, and the absence of treated water access in parts of the neighborhood - forms of collective action that translate everyday water knowledge into political claims, yet remain weakly recognized within institutional governance processes.

Despite this central role, gendered exposure to water-related risk remains poorly captured by formal governance instruments. Sanitation indicators, flood-risk mapping, and urban planning tools register infrastructure and households rather than the differentiated distribution of care work and daily exposure within them. The labor through which water-related risks are mitigated at the household scale remains largely invisible to policy frameworks - unaccounted for in the same way that riverine livelihoods more broadly are rendered invisible by governance instruments oriented toward technically legible uses (Patrícia Capanema interview).

Gendered water practices thus reveal an additional layer of territorial inequality: women’s proximity to water as part of domestic and caregiving responsibilities increases exposure to contamination and time burdens, while simultaneously positioning them as key actors in sustaining everyday adaptation and, increasingly, in articulating political demands. Water governance operates not only through formal infrastructures and institutions but also through the uneven distribution of embodied labor required to maintain daily life within hydrological environments - a dimension that planning frameworks consistently fail to recognize or address.

Attachment and Rituality

Relations with water in Marabá are sustained not only through functional dependence but through forms of attachment that connect memory, sociality, and everyday continuity. For Indigenous and riverine actors, the river operates simultaneously as a space of subsistence, orientation, and collective reference - structuring rhythms of life that persist even under conditions of environmental and territorial transformation (Krenak, 2020; Kátia Silene interview).

For the Akrátikatêjê, this attachment is not metaphorical but constitutive of social reproduction. Water organizes the transmission of roles, capacities, and knowledge across generations:

“It is from water that our shamans, our midwives, our archers, our bow-and-arrow makers, our hunters come. Everything is related to water and nature.”

“É da água que vêm nossos pajés, nossas parteiras, nossos arqueiros, nossos fazedores de arco e flecha, nossos caçadores. Tudo está relacionado com a água e com a natureza.” — Kátia Silene, Interview 01

Ritual practices reinforce this centrality in embodied, cyclical terms - initiation processes require young men and women to remain immersed in water at dawn, situating the river within the reproduction of social identity and territorial belonging. The spatial logic of the village itself is organized around water: “A village without water is a village made without thinking.” Proximity to water is not incidental but a structural principle - the territory should form a protective belt ensuring every settlement remains connected to water circulation, a

“Uma aldeia sem água é uma aldeia feita sem pensar.” — Kátia Silene, Interview 01

logic increasingly displaced by road-oriented urbanization.

Attachment does not correspond to a static cultural identity but emerges through repeated presence, shared use of riverbanks, seasonal routines, and embodied attention to water behavior. Interview material highlights how such relations are maintained even where environmental degradation, infrastructural pressure, or displacement have altered direct access to river margins - indicating that attachment operates as a dynamic and adaptive process. For riverine communities in Cabelo Seco, this dynamic is expressed with equal force:

“There at the Lourenção is where the fish sleep, where they reproduce. The tracajás lie on the rocks basking in the sun. What I heard was heartbreaking. I returned deeply saddened inside that bus.”

“Ali no Lourenção é onde os peixes dormem, onde eles se reproduzem. Os tracajás ficam em cima das pedras pegando sol. Irmã, é lamentável o que eu ouvi. Voltei muito entristecida dentro daquele ônibus.” — Ana Luísa Rocha da Silva, Interview 08

The prospect of rock blasting is experienced not as a technical intervention but as a rupture in a living relational system - one in which fish, rocks, seasonal rhythms, and human practices are mutually constitutive.

Rather than defining rituality as a bounded traditional practice, the Marabá case suggests it is embedded within everyday continuities. Recurrent gestures, collective presence along riverbanks, and intergenerational transmission of attention to water dynamics constitute forms of territorial care that sustain relational ties under conditions of uncertainty and change. These practices do not appear within formal governance frameworks, yet they contribute to maintaining social cohesion and territorial orientation - operating, as Kátia Silene describes, through a knowledge of signs:

“We already had warnings through the fish, through the river, through the birds. We know that this year the Flecheiro river will dry early.”

“Nós já tínhamos avisos através dos peixes, através do rio, através dos pássaros. A gente sabe que esse ano o rio Flecheiro vai secar cedo.” — Kátia Silene, Interview 01

The river is not only inhabited but read - and the capacity to read it is itself a form of governance.

Such forms of attachment shape how environmental degradation and infrastructural interventions are perceived. Alterations to water quality, fish availability, or river morphology are experienced not only as technical or economic losses but as disruptions to relational continuities linking people, place, and memory - a dimension of loss that governance instruments oriented toward infrastructure provision or risk management consistently fail to address, treating water as a resource or hazard rather than as a relational territorial medium (Krenak, 2020).

Uneven Adaptation

Flooding, contamination, and infrastructural pressures do not affect all actors equally across Marabá's water territories. Exposure is mediated by land tenure security, degree of institutional recognition, access to infrastructure, and proximity to public services - factors that shape not only the material distribution of risk but also the capacity to anticipate, negotiate, or resist its effects.

In many riverine and peri-urban contexts, adaptation is experienced less as a temporary response than as a normalized condition of life. Floods are expected and incorporated into domestic planning; contamination is managed pragmatically through selective use of water sources and sensory evaluation; large-scale infrastructural and extractive interventions are perceived as external forces that reshape local conditions without being directly negotiable. As Pablo Neri describes the condition of MST-linked settlements: springs and riverbanks are degraded by surrounding agribusiness expansion, flooding intensifies, and communities respond through collective anticipation and mutual assistance rather than through institutional support - a pattern in which adaptation compensates for the absence of preventive governance (Pablo Neri interview; Matheus interview).

This normalization produces differentiated capacities for response. Households with more stable tenure, access to services, or institutional recognition may mobilize support, request intervention, or relocate temporarily. Others remain structurally dependent on localized

coping strategies and informal networks. The difference is not only material but political: those able to claim institutional visibility can translate exposure into demands; those outside recognition regimes absorb risk silently (Marcos interview; Pablo Neri interview).

Indigenous territories occupy a differentiated position within this configuration. Constitutional recognition and differentiated legal status enable selective forms of protection unavailable to surrounding communities. Yet as Kátia Silene emphasizes, territorial security does not insulate the Akrátikatêjê from upstream hydropower operations, extractive corridors, or broader hydrological transformations affecting water quality and seasonal predictability - basin-scale processes that exceed local decision-making capacity regardless of formal recognition (Kátia Silene interview; Matheus interview). The contrast between the Akrátikatêjê's relative institutional visibility and the structural exposure of neighboring riverine and peri-urban communities without territorial status materializes, at the local scale, the hierarchy of differential exclusion traced in Chapter 4.

Uneven adaptation thus reflects not only environmental variability but the differentiated distribution of recognition, infrastructure, and political visibility across Marabá's water territories. Adaptation becomes the mechanism through which daily life is sustained under conditions of structural uncertainty - revealing, in the process, the limits of governance frameworks that address risk primarily through reactive or localized interventions rather than through the relational and cumulative understanding of water territories that this thesis has sought to develop.

Chapter Close

Across the water territories of Marabá, everyday life unfolds under conditions in which governance is encountered less through formal instruments than through exposure, adaptation, and negotiated coexistence with hydrological uncertainty. Flooding, contamination, infrastructural pressure, and extractive circulation do not interrupt daily routines - they are incorporated into them, shaping how bodies move, how care is organized, how knowledge is transmitted, and how risk is interpreted and managed.

What the empirical material reveals, however, is not only a landscape of vulnerability but one of active response. The women of Cabelo Seco who traveled to Tauary to protest the Pedral do Lourenço alongside federal prosecutors; the MST that positioned itself against the blasting despite having no settlements directly affected; Kátia Silene who builds networks with the Juruna, Munduruku, Krenak, and Pataxó - these are not isolated acts of resistance but expressions of a territorial solidarity that crosses ethnic, institutional, and geographic boundaries. Coexistence along the river generates not only friction but forms of collective recognition that exceed what governance frameworks are designed to see.

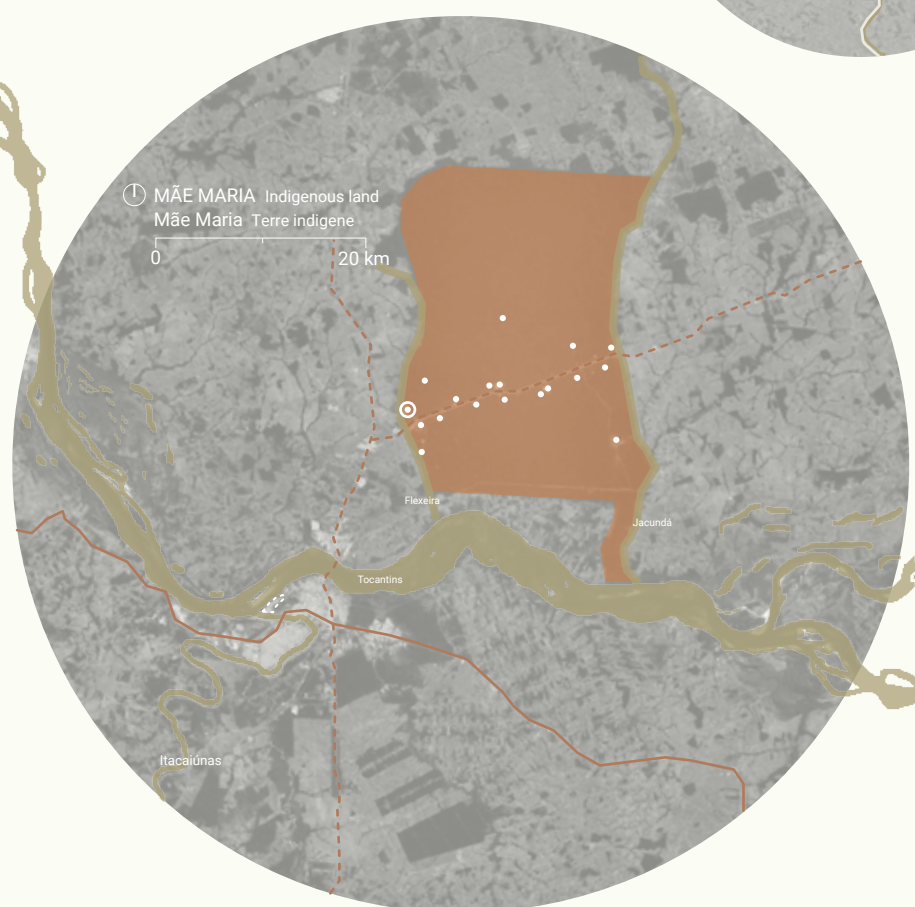
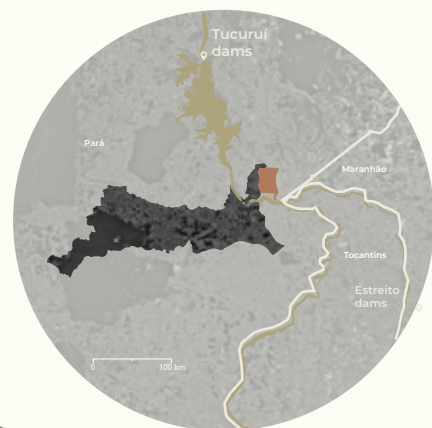
Yet this solidarity operates within a condition that Pablo Neri names with disarming clarity: “We operate within a very difficult contradiction: rebuilding territories where environmental degradation is already present.” The MST does not occupy pristine land - it rebuilds

on what extractivism has already damaged. Riverine communities do not defend an untouched river - they defend a river that already receives their sewage, already bears the scars of sand extraction, already flows under the shadow of upstream dams. Resistance and degradation are not opposites here; they are simultaneous conditions of the same territory.

Under these conditions, vulnerability is produced not only by the absence of regulation but by the uneven distribution of protection, recognition, and decision-making power within a shared hydro-social space. The loss of the *Primeiro de Março* settlement's collective access to the Tocantins riverbank - progressively occupied by irregular interests and eventually privatized through judicial process - illustrates how exclusion operates not through violence alone but through the slow accumulation of legal and administrative mechanisms that render collective territorial relations invisible. Different actors inhabit the same river system while encountering profoundly unequal capacities to influence its transformation.

At the same time, everyday practices of anticipation, adjustment, and collective care - the women who coordinate household hygiene during floods, the children who learn to read currents, the Indigenous leader who monitors the *Flecheiro* for early signs of drought - indicate that forms of regulation are already enacted through situated relations with water, well before they are formalized through governance instruments. The river is not only inhabited but read, defended, and mourned. It is within this lived terrain - where governance is experienced through exposure as much as through regulation, and where resistance and degradation coexist within the same territorial condition - that questions of knowledge, responsibility, and collective capacity acquire their concrete meaning.

The following chapter builds on these empirical insights through the case of the *Akrátikatêjê*, examining water not as a managed resource but as a territorial condition through which the limits of dominant governance frameworks and the presence of alternative territorial logics become simultaneously visible.



- Waterbodies (Tocantins, Itacaiúnas, Flexeira, Jacundá)
- Indigenous groups
- Akrätikatêjê village
- MÃe Maria - Indigenous Land
- BR-230 Trans-Amazonian Highway
- Other main highways

Figure 6.0 | Indigenous Land Mãe Maria | Source: FUNAI | author's elaboration

- 1.Group: Parkatêjê
Ethnic group: Parkatêjê
Leader: Akrôjarêre
- 2.Group: Rôhokatêjê
Ethnic group: Parkatêjê
Leader: Akrôjarêre
- 3.Group: Amtáti
Ethnic group: Kyikatêjê
Leader: Pepkrakte Rônôre
- 4.Group: Akrátikatêjê
Ethnic group: Akrátikatêjê
Leader: Tónkyre Gavião (Kátia)
- 5.Group: Akrátikaprêkti
Ethnic group: Kyikatêjê
Leader: Jôprara Kwykre
- 6.Group: Krijamretijê
Ethnic group: Parkatêjê
Leader: Bebká
- 7.Group: Akráti
Ethnic group: Akrátikatêjê
Leader: Parkatakre
- 8.Group: Kôjakati
Ethnic group: Kyikatêjê
Leader: Ropré Kwykykre
- 9.Group: Akrôtikatêjê
Ethnic group: Kyikatêjê
Leader: Awpjêti Burjack
- 10.Group: Krâpêiti-jê
Ethnic group: Kyikatêjê
Leader: Ricardo Totoré
- 11.Group: Krijôhêrekatêjê
Ethnic group: Parkatêjê
Leader: Jôprykatêjê Parkatêjê
- 12.Group: Kripêi
Ethnic group: Kyikatêjê
Leader: Kykyiré
- 13.Group: Hakti Jôkrin
Ethnic group: Kyikatêjê
Leader: Kuwêxêre Kaipêiti
- 14.Group: Krintuwakatêjê
Ethnic group: Parkatêjê
Leader: Harakre Jathliti
- 15.Group: Hôpryre
Ethnic group: Akrátikatêjê
Leader: Mpotomanti Costa
- 16.Group: Priti Pârjôkrikatêjê
Ethnic group: Parkatêjê
Leader: Tokrykré
- 17.Group: Mejôkrikatêjê
Ethnic group: Parkatêjê
Leader: Pâkrejimôkre
- 18.Group: Pramrêxa
Ethnic group: Parkatêjê
Leader: Akryky Âmu Akarô

06 AKRÁTİKATÊJÊ TERRITORY

The Akrátikatêjê community represents one of the most significant territorial actors encountered during the fieldwork conducted in southeastern Pará. Extended periods of residence within the village, participation in everyday activities, and continuous exchanges with community members provided access to a dense body of empirical material - interviews, audiovisual documentation, and informal conversations that unfolded beyond recorded moments. These interactions enabled a situated understanding of how this Indigenous group inhabits, governs, and negotiates its territory within a region profoundly shaped by infrastructural expansion, extractive economies, and uneven urban development. Much of the most significant knowledge shared during fieldwork emerged outside formal interview settings, in conversations during daily activities, communal gatherings, and moments of trust developed over time - exchanges that, although not always recorded, inform the analytical perspective adopted here and are acknowledged as fundamental components of the research process (Author's fieldnotes; Kátia Silene interview).

Located within the Terra Indígena Mãe Maria in proximity to Marabá (Figure 6.0), the Akrátikatêjê occupy a territorially demarcated space that is simultaneously protected and exposed. Formally recognized by the Brazilian state and secured through legal demarcation, this territory is intersected by railways, transmission lines, and highways, and remains embedded within broader regional

dynamics of mineral extraction, hydroelectric development, and agricultural expansion - positioning the community within a complex field of negotiation where territorial rights coexist with continuous pressures on land, resources, and modes of living (Silva & Moreira, 2020; Ribeiro Jr., 2020).

Despite proximity to urban centers, the Akrátikatêjê remain structurally excluded from dominant urban imaginaries and planning frameworks - their settlement rarely acknowledged as part of the metropolitan or peri-urban fabric, their spatial practices falling outside conventional definitions of urban citizenship. Yet they maintain access to land, compensation mechanisms, and institutional recognition unavailable to many neighboring communities. The contrast with nearby Afro-descendant settlements such as Cabelo Seco reveals asymmetries in territorial security, infrastructure provision, and political visibility that are structurally produced rather than incidental: territorial recognition and land demarcation operate as decisive factors shaping differentiated conditions of marginality within the same regional context.

The present configuration of the Akrátikatêjê territory cannot be understood without reference to displacement and reterritorialization. The community self-identifies as a “people of the mountain”, recalling ancestral occupation of areas later submerged by the Tucuruí Hydroelectric Dam in the 1970s and 1980s. Forced removal and subsequent relocation to the TI Mãe Maria marked a profound transformation in spatial organization, subsistence practices, and political strategies - described in oral histories and archival sources as both a violent rupture and the beginning of a prolonged struggle for territorial recognition and compensation (Sompré, 2025; Kátia Silene interview).

Today, the Akrátikatêjê territory is shaped by overlapping temporalities: ancestral spatial memories coexist with infrastructures of the developmental state; fishing, small-scale agriculture, and collective rituals intersect with formal education, institutional partnerships, and political advocacy at regional and national scales. Leadership structures - particularly under cacica Kátia Silene - play a central role in mediating these intersections, articulating demands for territorial protection while fostering initiatives in education, cultural preservation, and economic sustainability (Sompré, 2025).

The following sections reconstruct the historical and spatial trajectories of the Akrátikatêjê from pre-displacement territorial occupation to contemporary governance and negotiation - tracing how land demarcation, infrastructural intrusion, and institutional engagement have reconfigured relationships between community, territory, and surrounding urban systems. Through this lens, the Akrátikatêjê emerge not as peripheral actors but as central agents in

the ongoing production and contestation of water- and land-based territorialities in the southeastern Amazon.

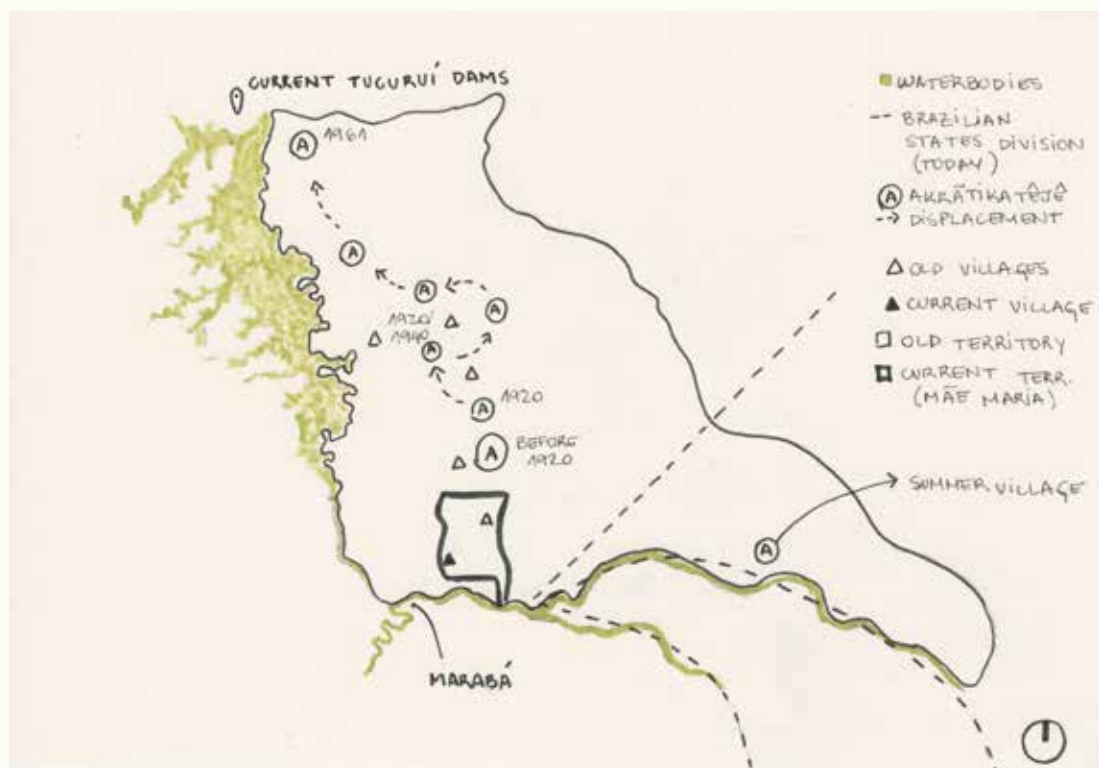


Figure 6.1 | Historical map of displacement | Akkātikatêjê territory (left to right) - fishing area; old circular structures; new houses | Source: author's archive; interview

06.1 Territorial Rhythms and Spatial Practices

The spatial organization of the Akrátikatêjê territory cannot be understood through cartographic boundaries or formal land demarcations alone. It is structured through temporal rhythms that regulate the use of space across the day, seasons, and generational cycles - operating as concrete spatial frameworks rather than symbolic cultural elements, shaping daily mobility, collective presence, and the distribution of activities across the settlement and its surrounding environments (Silva & Moreira, 2020; Kátia Silene interview).

Daily life in the village unfolds according to cyclical patterns closely connected to climatic conditions and collective routines. During daylight hours, the river and nearby water bodies function not only as ecological infrastructures but as spaces of leisure, thermal adaptation, and collective gathering - community members occupying these areas during the hottest hours for bathing, resting, and informal encounters. Water environments operate here as everyday social infrastructures that organize presence and movement across the territory, extending well beyond subsistence functions (Author's fieldnotes; Silva & Moreira, 2020).

As the afternoon progresses, spatial uses diversify. Women occupy shaded domestic thresholds and shared exterior areas, producing handcrafted accessories and engaging in small-scale productive activities that combine cultural continuity with modest economic integration - practices carried out collectively, reinforcing social

ties and knowledge transmission across generations. Younger men periodically move beyond the residential core by motorcycle to access forest areas for hunting, maintaining active connections with forest environments that continue to structure cultural and subsistence practices even within a context of increasing market dependency (Guimarães, 2017; Kátia Silene interview).

With the transition to evening, social activity shifts toward the semi-open verandas of individual houses - transitional domestic spaces that become the primary sites of collective life after sunset. Neither fully interior nor exterior, the veranda allows for forms of co-presence that sustain community life while preserving household autonomy. Families and neighbors gather to cook, eat, converse, and exchange information; even where televisions and electronic devices are present, they remain secondary to face-to-face interaction. The repeated occupation of these semi-open thresholds produces a daily spatial rhythm that organizes the social geography of the settlement according to time of day, temperature, and collective routines - reflecting a relational understanding of territory in which domestic, collective, and environmental spaces are continuously interconnected (Kátia Silene interview; Author's fieldnotes; Silva & Moreira, 2020).

These temporal-spatial practices coexist with contemporary transformations that complicate any simplified reading of Indigenous territorial sustainability. Continuous electricity - provided through compensation arrangements linked to large-scale energy infrastructures - has enabled widespread air conditioning and electronic device use. Increasing reliance on purchased food from nearby urban markets has altered subsistence patterns, and digital communication technologies are integrated into daily routines particularly among younger generations. Rather than representing a linear shift away from traditional practices, these elements reflect socio-material hybridization: the community's relationship with territory is shaped simultaneously by deep environmental knowledge and by external economic and infrastructural dependencies (Guimarães, 2017; Silva & Moreira, 2020; Kátia Silene interview).

The Akrátikatêjê territory is thus not a static or idealized model of ecological sustainability but a site of intensified bio-interaction - where environmental familiarity, infrastructural integration, and contemporary consumption practices coexist in tension. The cyclical organization of daily activities provides continuity with earlier forms of territorial use even as displacement, infrastructural development, and relocation have reconfigured the physical landscape. It is this layered condition - adaptive, negotiated, and internally heterogeneous - that the following sections trace through the history of displacement and the contemporary governance arrangements it produced.





06.2 Spatial Configuration

The contemporary spatial organization of the Akrátikatêjê settlement must be situated within the broader territorial structure of the Terra Indígena Mãe Maria - a demarcated territory legally recognized by the Brazilian state, located in southeastern Pará within the regional urban system structured around Marabá, Bom Jesus do Tocantins, and Tucuruí. The TI Mãe Maria today hosts multiple Gavião groups, including Parkatêjê, Kyikatêjê, and Akrátikatêjê, distributed across a constellation of villages connected by internal roads and paths (Figure 6.0; Silva & Moreira, 2020).

The territory is intersected by significant regional infrastructures - the BR-222 highway, high-voltage transmission lines, and Vale's Carajás railway corridor - that penetrate or border the Indigenous land, situating it within a complex landscape of circulation, extraction, and environmental transformation. This infrastructural presence was not anticipated when the community arrived. As Kátia Silene recalls: *”When we arrived here, there was no resource from Vale nor from Eletronorte. Then we ran into the transmission line and, in 1986, a railway. My father said: ‘this is wrong, we need to do something.’”⁶ The discovery of these infrastructures within what was supposed to be a protected territorial refuge initiated a prolonged political struggle for compensation and recognition that continues to shape the community's governance arrangements today.

This infrastructural penetration coexists with the demarcated

status that provides a level of territorial recognition and legal stability unavailable to many neighboring communities. The contrast with Cabelo Seco - located within Marabá's urban fabric and characterized by precarious land tenure and limited institutional support - illustrates how demarcation produces markedly different conditions of spatial security and resource access, even as both communities remain historically marginalized within regional development processes.

At the internal scale, the Akrátikatêjê village reflects a hybrid morphology shaped by both planned relocation and autonomous occupation. Following forced displacement during the Tucuruí Dam construction, the group was resettled within TI Mãe Maria alongside other Gavião groups, initially occupying shared areas before establishing a more autonomous village structure (Figure 6.2; Guimarães, 2017; Kátia Silene interview). The result is a settlement pattern combining externally imposed spatial arrangements - standardized housing and infrastructural layouts - with internally defined uses of space.

The built environment extends horizontally rather than forming a compact urbanized layout, maintaining visual and functional continuity with surrounding forested and cultivated areas. Single-family houses are arranged with relative spacing, preserving open areas for circulation, gathering, and productive activities. Domestic verandas constitute a distributed network of semi-public spaces - thresholds that support daily social interaction while preserving household autonomy, as described in §06.1. Collective infrastructures - school, meeting spaces, community event areas - are integrated within this dispersed structure rather than concentrated in a single node, enabling flexible patterns of use across time and activity.

The acquisition of additional land as compensation for the loss of the original territory - obtained after decades of legal struggle against Eletronorte - has further expanded the spatial horizon of the community. These areas, contiguous to TI Mãe Maria, were secured to enable reproduction of social and cultural practices disrupted by displacement and to support agricultural and extractive activities necessary for community autonomy (Guimarães, 2017). Their incorporation represents both partial restitution and a reconfiguration of traditional spatial relations.

The Akrátikatêjê territory today must therefore be read as the outcome of layered territorial processes: historical occupation, forced displacement, negotiated relocation, infrastructural encroachment, and partial restitution. It operates simultaneously as a demarcated Indigenous land, a site of infrastructural intersection, and a lived environment structured through daily spatial practices and collective governance - a multi-scalar spatial condition that the following sections examine through the history of displacement and its contemporary governance consequences.

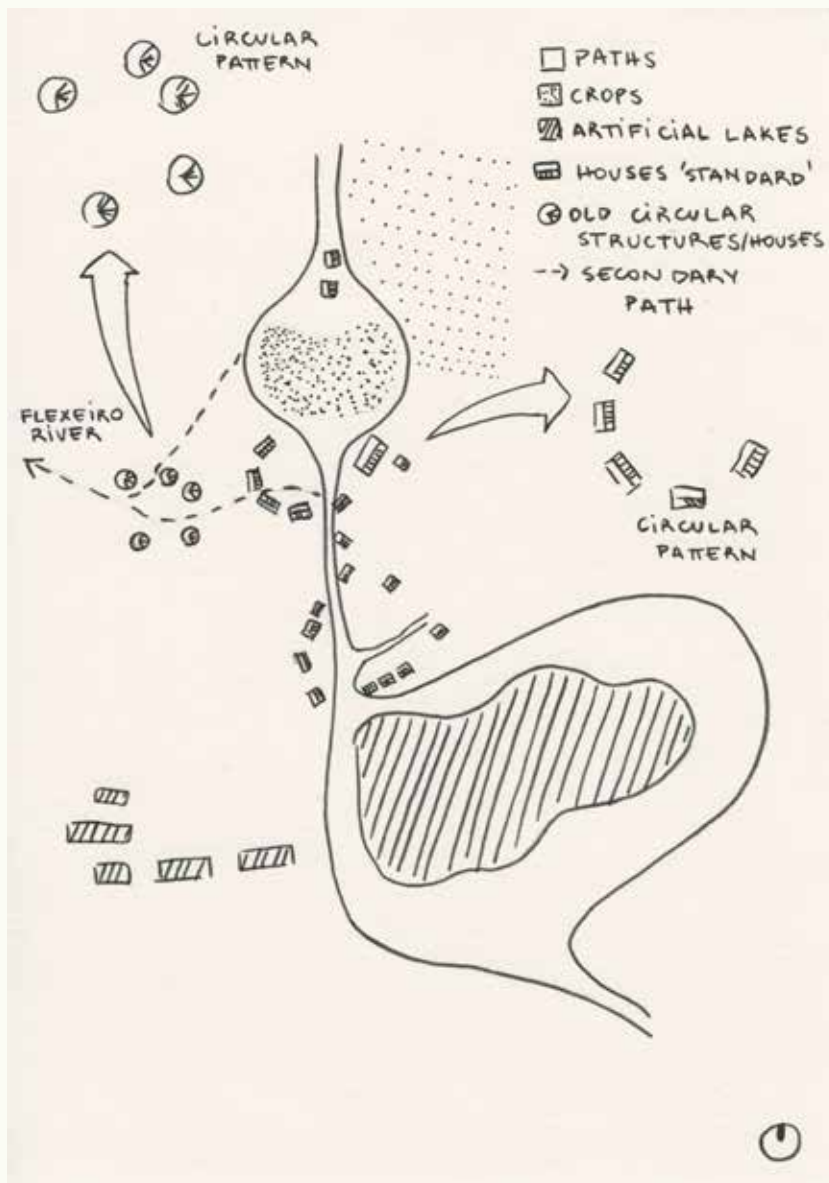


Figure 6.2 | Akrātikatê territory (left to right) - Leader Akrātikatê showing the land; shared spaces; new houses - standard | Source: author's archive





06.3 Displacement

The present spatial configuration of the Akrátikatêjê territory is inseparable from the processes of forced displacement and infrastructural expansion that redefined Indigenous geographies across the eastern Amazon during the second half of the twentieth century. The construction of the Tucuruí Hydroelectric Dam, initiated during the Brazilian military regime, constituted a decisive rupture in the historical territorial continuity of the Akrátikatêjê - producing a reconfiguration of settlement patterns, governance structures, and relations with state and corporate actors that continues to shape the community's territorial condition today (Guimarães, 2017; Ribeiro Jr., 2020).

Prior to the dam, Akrátikatêjê groups inhabited forested and riverine territories upstream of the Tocantins basin, where mobility across extensive areas supported hunting, cultivation, gathering, and ritual practices. Oral histories describe these territories as spaces of abundance and autonomy where the community maintained high degrees of control over its subsistence systems and social organization. Rather than fixed settlement patterns, territorial occupation followed flexible spatial logics structured through kinship networks, seasonal mobility, and ecological knowledge - a dynamic relationship with rivers, forests, and cultivated areas that the dam would permanently sever (Guimarães, 2017; Kátia Silene interview).

This territorial configuration was abruptly interrupted by state-

backed infrastructural projects associated with the Tucuruí complex. Beginning in the late 1960s and intensifying through the 1970s and 1980s, construction introduced progressive territorial encroachment - deforestation, militarized presence, and administrative pressure to abandon their lands. The flooding of extensive forest areas submerged territories traditionally occupied by the Akrátikatêjê, eliminating not only settlement areas but hunting grounds, cultivated zones, and sites of cultural and historical significance (Guimarães, 2017). The displacement that followed was not negotiated but coercive: the community was expelled repeatedly - “We were expelled about four times from Tucuruí: we came back, they expelled us, we came back” - with relocation measures imposed through limited consultation and insufficient guarantees. Compensation processes treated the territory as a transferable asset rather than as a collective Indigenous land, revealing a fundamental disjunction between state legal frameworks and Indigenous territorial conceptions (Ribeiro Jr., 2020).

The human cost was devastating. As Kátia Silene recounts: “We lost more than 70 people with the dam, with malaria. (...) Dynamite broke our houses, knocked down trees. Where did our fish go? Where did our river dry up? (...) A whole life went down under the water.” The loss extended beyond the material - the dam affected the fertility of community women, disrupted food systems, and introduced disease. “One thing is to leave the riverbank and come to a place without beach, with different fish, even the water temperature is different. Indigenous people don’t live without water.”

Following displacement, the Akrátikatêjê were relocated to TI Mãe Maria, already occupied by other Gavião groups - Parkatêjê and Kyikatêjê. This produced a condition of territorial superimposition in which distinct Indigenous groups with related but autonomous social structures were required to coexist within a shared demarcated territory. Rather than imposing a unified hierarchy, the three peoples negotiated a shared governance arrangement: “Let’s leave Chief Corro Crenum as the general head, because he arrived first, but we do not lose autonomy; either he makes the decision, or we decide together.” The initial period was marked by uncertainty regarding land availability and subsistence possibilities; promised infrastructure and productive resources were either delayed or insufficient, forcing rapid adaptation to new environmental and social conditions (Guimarães, 2017).

In response, Akrátikatêjê leadership - particularly under Chief Payaré, Kátia Silene’s father - initiated a prolonged legal and political struggle to secure territorial compensation for the lands lost to the Tucuruí project. The community engaged with legal institutions, non-governmental organizations, and advocacy networks to challenge the legality of the displacement and demand restitution, asserting that the original territory constituted Indigenous land protected by

“Nós fomos expulsos umas quatro vezes de Tucuruí: voltava, expulsava, voltava.” — Kátia Silene, Interview 01

“Perdemos mais de 70 pessoas com a barragem, com malária. (...) Dinamite quebrava nossas casas, derrubava árvore. Onde foram parar nossos peixes? Onde secou nosso rio? Isso é uma tristeza. (...) Até hoje tem madeira debaixo da água. Meu território era muito grande. Foi embora uma vida inteira para debaixo da água.” — Kátia Silene, Interview 01

“Uma coisa é sair da beira do rio e vir pra um lugar sem praia, com peixe diferente, até temperatura da água diferente. O indígena não vive sem água.” — Kátia Silene, Interview 01

“Vamos deixar o cacique Corro Crenum como chefe geral, porque chegou primeiro, mas a gente não perde autonomia; ou ele toma decisão, ou a gente decide em conjunto.” — Kátia Silene, Interview 01

Brazilian legislation that could not be legitimately acquired or flooded without recognition and compensation (Guimarães, 2017). The struggle culminated in a judicial decision requiring the acquisition of approximately 3,600 hectares of land contiguous to TI Mãe Maria - achieved only after decades of legal pressure and political mobilization.

This land represents partial restitution rather than full restoration. While it enables expanded agricultural and forest use and supports the consolidation of an autonomous village structure, it does not replicate the ecological diversity or spatial continuity of the pre-dam territory - a Brazil nut tree that gave twenty sacks now gives two or three, and takes more than thirty years to grow. Nevertheless, its incorporation into the Akrátikatêjê territorial framework has allowed for the re-establishment of certain subsistence and cultural practices disrupted by displacement (Guimarães, 2017).

The Akrátikatêjê case exemplifies territorial governance shaped through conflict, negotiation, and partial restitution - where hydroelectric development, framed within national narratives of modernization, operated as a mechanism of territorial dispossession, while Indigenous communities demonstrated the capacity to mobilize legal and political instruments to renegotiate territorial conditions even within profoundly asymmetrical power relations. The following section examines how these historical trajectories have shaped present-day governance arrangements, infrastructural entanglements, and negotiations with external actors.

Timeline

1941 – 1944	First institutional records of populations identified as "Gavião / Akrätikatêjê" appear in the archives of the Serviço de Proteção ao Índio (SPI). Ethno-historical sources describe dispersed settlements characterized by seasonal mobility linked to forest and river resource management.
1953	Official consolidation of the SPI (Serviço de Proteção ao Índio) – Intensification of contact policies ("políticas de contato") in southeastern Pará.
1960	Beginning of regional infrastructure projects – Roads and penetration routes advance into Gavião territory, altering patterns of mobility and increasing territorial pressures.
1966	SPI expedition to Ambaua, an area with a strong Gavião/Akrätikatêjê presence. This marks a significant moment of direct contact with the state indigenous administration.
1967 – 1968	Increase in the forced displacement of groups toward consolidated contact zones along major waterways, as part of a preventive settlement strategy implemented by the SPI and later by FUNAI.
1974	Formal beginning of construction works for the Hydropower dams Tucuruí on the Tocantins River. This project formed part of national development plans under the Programa de Integração Nacional.
1975 – 1977	Intensification of direct territorial pressures on the Akrätikatêjê due to dam construction: Reduction of hunting and gathering areas; Disruption of seasonal mobility routes; Increased contact with workers and settlers.
1980	The Akrätikatêjê are progressively concentrated and relocated into areas that would become the officially recognized Terra Indígena Mãe Maria. Initial local villages (aldeias) begin forming under a new territorially constrained framework.
1984	Inauguration of the Hydropower Tucuruí. Consolidated impacts include: Alterations in fishing regimes; Hydrological changes; Increased non-indigenous migration flows; Greater pressure on surrounding forest lands.
1985 – 1989	Internal reorganization within Mãe Maria territory. Emergence of more stable community nuclei and formally recognized leadership structures (caciques).
1990	Progressive administrative recognition and formal demarcation procedures of the Terra Indígena Mãe Maria by FUNAI and the Brazilian State.
1992	Creation of the Sistema Nacional de Unidades de Conservação (SNUC), redefining institutional frameworks of territorial governance, including indirect implications for Indigenous Lands.
2000 – 2004	Increase in extractive and logistical pressures surrounding Mãe Maria: Expansion of railway infrastructure; Growth of mining logistics networks; Transformations in regional colonization patterns
2006 – 2008	First documented emergence of neo-settlements (nealdeamentos), identified in ethnographic reports and anthropological studies. These respond to demographic growth and internal governance tensions.
2010 – 2014	Acceleration of processes of village segmentation and reconfiguration: Formation of new aldeias through autonomous decisions; Consolidation of community organizations; Strengthening of governance structures related to education, health, and territorial management.
2019 – today	Consolidation of the territory as a space of negotiated and multi-scalar governance, marked by tensions between: Traditional Indigenous authorities; State institutions; Extractive and logistical enterprises; Communities formed through neo-settlement processes. This period reflects ongoing redefinitions of territorial practices and relations with external actors.

Figure 6.3 | Timeline | Source: author's archive based on the Katia Silene interview and Junior (2020).





06.4 Territorial Governance and infrastructural entanglements

Contemporary Akrátikatêjê territorial governance emerges from a dense web of relations linking Indigenous autonomy, state regulation, and corporate infrastructural presence. Rather than operating as an isolated Indigenous enclave, the territory functions as a negotiated space in which forms of local self-determination coexist with long-term dependencies on external actors and compensation frameworks established in the aftermath of displacement - a condition that has produced a governance structure that is simultaneously constrained and agentic, shaped by historical claims to autonomy and by the material realities of infrastructural integration.

The compensation agreements following the Tucuruí Dam significantly altered the material and infrastructural basis of everyday life. The provision of continuous, cost-free electricity through agreements with Eletronorte - conceived as reparation for territorial loss - has reconfigured patterns of consumption, domestic comfort, and temporal organization. Air conditioning, refrigeration, and electronic devices operate extensively across households without the constraints typically imposed by energy costs, introducing new forms of thermal and domestic comfort while intensifying dependence on external energy infrastructures (Guimarães, 2017; Kátia Silene interview). As Kátia Silene describes the moment electricity arrived: “People spent about four days without sleeping. When money arrived, the first television arrived - everyone watched on the field. The first

“Quando chegou a luz, o pessoal ficou uns quatro dias sem dormir. Quando chegou o dinheiro, chegou a primeira televisão — todo mundo assistia no campo. Chegou a primeira geladeira, água gelada. Foi um impacto grande..”
— Kátia Silene, Interview 01

refrigerator arrived, cold water. It was a big impact.” What was framed as reparation became, simultaneously, the entry point of new dependencies - “that’s when capitalism enters society.”

“Aí é quando entra o capitalismo na sociedade.” — Kátia Silene, Interview 01

These arrangements exemplify a broader transformation in the material metabolism of the territory. Pre-displacement subsistence systems relied primarily on forest resources and locally cultivated food; contemporary consumption patterns increasingly integrate products from nearby urban markets, with processed foods and industrial commodities circulating alongside traditional resources. This shift is not a simple abandonment of Indigenous practices but a process of socio-material hybridization in which subsistence activities, wage income, compensation payments, and market consumption coexist in tension (Ribeiro Jr., 2020).

Territorial governance operates across multiple scalar levels simultaneously. Internally, decision-making remains grounded in collective leadership and the authority of the cacique, supported by extended kinship networks and community assemblies that regulate land use, housing distribution, and relations with external institutions. At the same time, the presence of external infrastructures - the BR-222 highway, high-voltage energy transmission lines, and Vale’s Carajás Railway - imposes constraints requiring ongoing negotiation with state agencies and private corporations (Silva & Moreira, 2020). The railway constitutes both a source of compensation and a vector of environmental and social disturbance, generating noise, pollution, and limitations on mobility - exemplifying what Kátia Silene’s father named immediately upon encountering it: “this is wrong, we need to do something.”

“Está errado, precisamos fazer alguma coisa.” — Kátia Silene, Interview 01

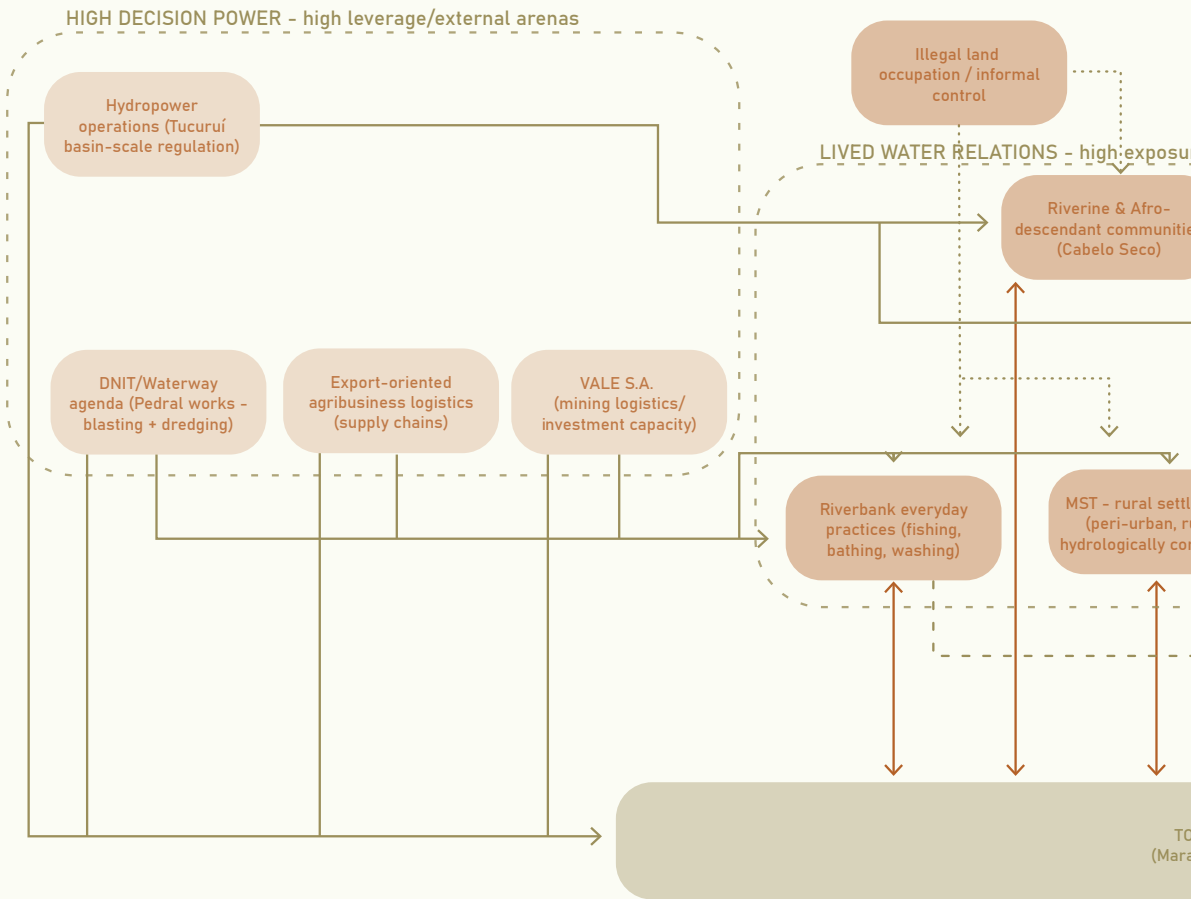
Negotiations with external actors therefore form a central and continuous component of territorial governance. Community leadership engages with energy companies, mining corporations, and state institutions to secure compensation payments, maintain infrastructural services, and address environmental impacts. These negotiations are neither purely oppositional nor fully cooperative - they constitute a pragmatic field of interaction in which the community seeks to maximize material benefits while preserving territorial control and cultural continuity. Rights are understood as outcomes of sustained struggle rather than guaranteed entitlements, reinforcing a governance ethos grounded in vigilance rather than trust (Kátia Silene interview; Silva & Moreira, 2020).

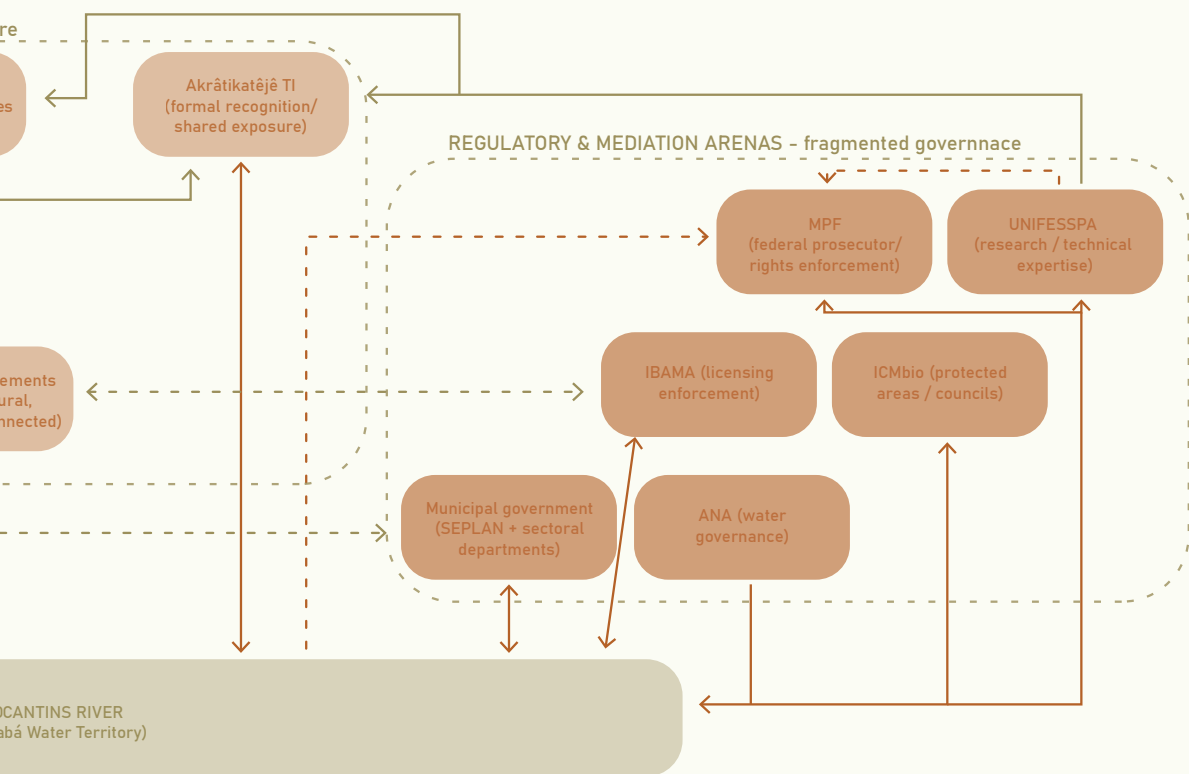
Internal governance simultaneously faces challenges associated with generational change and the uneven distribution of compensation resources. Access to monetary flows and infrastructural benefits produces new forms of differentiation within the community, complicating traditional systems of reciprocity. Younger generations - more connected to urban markets and digital technologies - adopt

consumption practices that diverge from subsistence-oriented models, introducing additional layers of negotiation over the use and meaning of territory (Ribeiro Jr., 2020). This generational tension is part of what Kátia Silene describes when she says the community's young people "study a lot, are intelligent, but get lost" - a condition she frames as a governance challenge requiring continuous cultural and educational work.

These layered relations are visualized in Figure 6.4 as a territorial governance assemblage structured by overlapping jurisdictions, infrastructures, and forms of autonomy - illustrating how the territory operates not as a bounded Indigenous space but as a negotiated field of jurisdictional and material interdependencies connecting Indigenous territorial autonomy, state recognition, infrastructural compensation regimes, and external economic actors.

The Akrátikatêjê case reveals the complexity of Indigenous territorialities within contemporary Amazonian development frontiers. Rather than existing outside urbanization and infrastructural expansion, the community occupies a negotiated position within them - simultaneously affected by and actively reshaping regional territorial dynamics. Their experience demonstrates how water infrastructures, compensation regimes, and demarcated land rights interact to produce differentiated forms of territorial inclusion and exclusion: maintaining a degree of stability and political recognition that contrasts sharply with neighboring communities lacking formal land rights, while remaining deeply entangled in development logics that constrain that very autonomy. This condition - neither fully autonomous nor simply marginalized - positions the Akrátikatêjê territory as a critical site for understanding how water-based development and Indigenous land governance intersect in the southeastern Amazon.

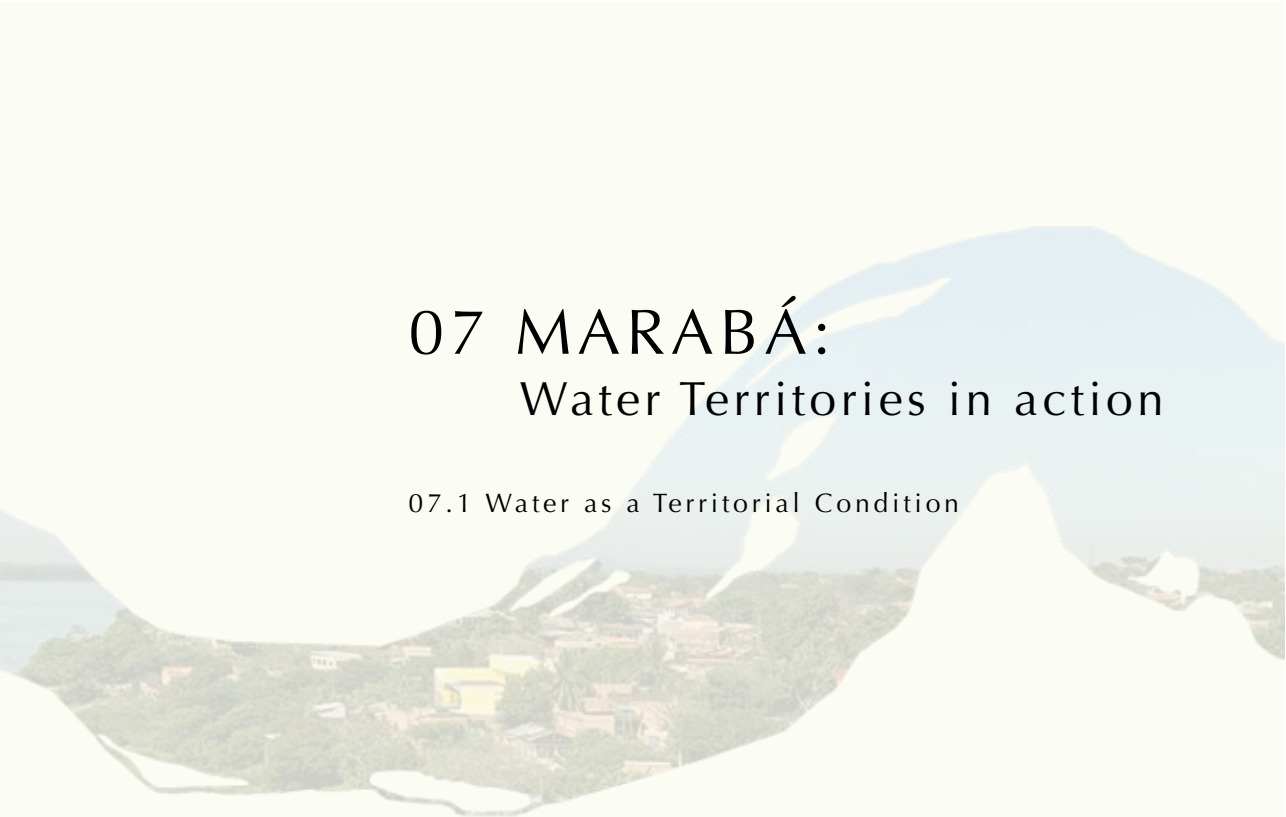




- Directional influence/ transformative power
- ↔ Shared hydrological interdependence
- -> Limited inclusion or contested access
- -> Mediation / counter-power
- ...> Informal actors

Figure 6.4 | Territorial governance assemblage in the Akkratikatjê territory | Author's elaboration based on fieldwork and interviews





07 MARABÁ: Water Territories in action

07.1 Water as a Territorial Condition

Across the empirical cases examined in Chapters 5 and 6, water emerges not as a discrete natural resource but as a primary territorial condition through which space becomes inhabitable, socially organized, and politically contested. This understanding - grounded in what the empirical material reveals rather than assumed as a theoretical premise - challenges resource-based governance frameworks that isolate water from broader territorial dynamics and treat it as an object of regulation detached from lived experience (Swyngedouw, 2015; Boelens et al., 2016).

Territory, in this sense, cannot be reduced to an administratively bounded surface. It emerges through practices, movements, and temporalities deeply entangled with hydrological systems - rivers, floodplains, igarapés, and springs acting as spatial organizers that shape settlement patterns, mobility strategies, and subsistence practices. Water circulation produces continuity between ecological processes and social reproduction, generating what Lefebvre (1974/1991) calls lived space and what Magnaghi (2005) theorizes as local territory - a formation produced through the long-term sedimentation of communities, ecologies, and practices, rather than through planning or administrative designation (Ingold, 2000; Palazzo, 2006).

Among the Akrātikatêjê, this configuration is historically concrete and analytically precise. Territorial occupation followed watercourses, privileging fertile river margins and areas of ecological abundance;

seasonal mobility was guided by the perceived vitality of water and forest systems. Crucially, this was not simply a pattern of use but a practice of care: “Wherever we ate the seed, we planted it and waited, so that when we returned it would already be growing, so it would never run out. It was always like that: eating and planting, so it wouldn’t be lacking and to keep the forest standing.” Territory was continuously reactivated through movement and care rather than stabilized through fixed boundaries - a form of governance embedded in ecological reciprocity, not in institutional arrangements (Kátia Silene interview; Krenak, 2020; Kopenawa & Albert, 2015).

Water functioned simultaneously as ecological infrastructure, social commons, and symbolic anchor - collective decision-making taking place in shared spaces oriented around water access (Ostrom, 1990; Linebaugh, 2014). The Tucuruí Dam ruptured this configuration in ways that reveal the full stakes of treating water as a territorial condition rather than a manageable resource. Forced displacement away from river margins generated a territorial condition in which access to flowing water was no longer guaranteed - altering not only subsistence strategies but bodily practices, ritual cycles, and systems of knowledge transmission. The compensatory infrastructures introduced in response - artificial fishponds - are analytically revealing precisely because of what they represent: water redefined as a managed and enclosed element, separated from broader ecological and social relations. The shift from shared territorial condition to controlled asset illustrates how infrastructural displacement transforms the meaning of water itself, not only its availability (Scudder, 2005; Zhouri & Oliveira, 2016).

This transformation of commons into controlled assets is not unique to the Akrátikatêjê case - it operates through multiple mechanisms across the same regional territory. The Primeiro de Março MST settlement lost its collective access to the Tocantins riverbank not through physical displacement but through a judicial process: irregular urban occupation by economic and political interests triggered a legalization attempt by INCRA, leading to the privatization of what had been a Permanent Preservation Area and a space of common use. “To this day, the settlement has lost collective access to the riverbank, which ended up being privatized” (Pablo Neri interview). This case materializes with particular clarity the process of dispossession from relational forms of territorial organization - not through violence or eviction but through the slow accumulation of legal and administrative mechanisms that render collective territorial relations invisible and transferable. At the regional scale, these dynamics are reproduced through projects aimed at transforming rivers into logistical corridors.

The Pedral do Lourenço - examined in Chapter 5 - exemplifies a broader territorial strategy connecting mining, agribusiness, and

energy production through hydrological infrastructures, reframing rivers as vectors of circulation and accumulation while subordinating ecological functions and local uses to extractive logics (Leonardo Brasil interview; Fernando Michelotti interview). Such transformations generate the condition that political ecology identifies as asymmetric territorialization - benefits externalized, environmental and social costs localized (Harvey, 2003; Swyngedouw, 2015). Urban contexts reproduce these contradictions in a different register.

Despite being located at the confluence of major rivers, Marabá faces chronic deficiencies in water supply and sanitation - a city that increasingly treats rivers as scenic backdrops rather than as integral components of urban life, where peripheral neighborhoods depend on precarious wells while untreated sewage compromises water quality for downstream populations (Patrícia Capanema interview; Ana Luísa Rocha da Silva interview; Cardoso, 2010). This paradox of abundance without access reflects not physical scarcity but a governance gap in which the absence of basin-level governance structures prevents the integration of ecological knowledge, local practices, and infrastructural planning (Matheus interview; ANA, 2018). Across Indigenous, riverine, and urban contexts, what the empirical material reveals is a process of dispossession from relational forms of territorial organization - water ceasing to operate as a common territorial condition and being progressively reframed as an object of extraction, circulation, or sectoral management. This divergence between water as lived territorial condition and water as administratively governed object is analytically summarized in Table 12.

TABLE 12 - Divergent territorial logics of water in Marabá

Analytical dimension	Water as lived territorial condition	Water as administratively governed object
Ontological framing	Relational and constitutive element of territory	Discrete and governable resource
Mode of knowledge production	Situated, embodied, intergenerational	Technical, expert-driven, standardized
Decision-making structure	Embedded in everyday practice and collective negotiation	Formalized through institutions, procedures, and sectoral mandates
Allocation of responsibility	Distributed, relational, and community-based	Centralized, fragmented across agencies
Temporal regime	Cyclical, seasonal, cumulative	Project-based, episodic, administrative
Spatial logic	Basin continuity and hydrological interdependence	Administrative boundaries and sectoral segmentation
Risk interpretation	Lived, experiential, memory-based	Metric-based, threshold-defined

Source: Author's elaboration based on fieldwork (2025–2026)





07.2 Water Territories as Relational Framework

What the empirical material from Marabá and the Akrátikatêjê territory demonstrates is that water territories cannot function as an analytical framework if they are understood merely as spatial units or environmental categories. They become analytically productive precisely when they are read as relational fields - configurations that hold together practices, actors, and scales that institutional governance systematically separates. The question this section addresses is not what water territories are, but what they make visible that other frameworks cannot (Boelens et al., 2016; Murillo-Licea, 2019; Haesbaert, 2020).

The Tocantins River as a continuous territorial matrix - connecting upstream hydropower operations, regional extractive logistics, urban flood dynamics, and localized subsistence practices - is the most direct illustration of this capacity. Decisions taken at distant institutional nodes materialize downstream as altered flood regimes, sediment redistribution, changes in water quality, and constraints on everyday practices. These effects are cumulative and uneven, and they cannot be traced back to a single actor or jurisdiction. As a result, governance failures in Marabá do not stem from the absence of regulation but from the structural misalignment between hydrological continuities and fragmented governance frameworks - a condition made spatially legible in Figure 7.0, which represents the Tocantins as a continuous territorial structure overlaid by discontinuous administrative and sectoral governance regimes (Cardoso, 2010).

This relational condition becomes particularly visible when conflicts are examined across scales. Large infrastructural projects - hydropower dams, navigation works, extractive transport corridors - are justified through narratives of efficiency and development, yet their impacts unfold through the same water systems that sustain riverine livelihoods, urban water supply, and ecological reproduction. Sectoral licensing processes isolate specific interventions while ignoring cumulative territorial effects - exactly the condition that Bernardo Tomchinsky described as “permanent maintenance” and Fernando Michelotti as a unified extractive strategy assessed through fragmented regulatory processes (Leonardo Brasil interview; Fernando Michelotti interview; Zhouri & Laschefski, 2010).

Water-related processes thus connect actors who do not necessarily recognize themselves as part of a shared governance field. Indigenous communities displaced from riverbanks, urban populations exposed to flooding and sanitation deficits, riverine fishers affected by sedimentation changes, and institutional bodies responsible for environmental licensing operate within the same hydro-social system without a common framework for coordination - producing governance gaps experienced locally as loss of control, delayed responses, and persistent conflict (Boelens et al., 2016; Cardoso, 2010).

The Tocantins waterfront in Marabá offers a particularly precise illustration of what the water territories framework makes visible. Within the same stretch of river, Fernando Michelotti describes three simultaneous conditions: a tourist waterfront where the river has been converted into a scenic backdrop and economic asset, displacing the fishing communities that previously oriented their households toward the water; a privatized stretch of marina infrastructure and closed warehouses where “you walk there and you don’t even realize you are right alongside the river”; and, on the opposite bank in São Félix, long-established riverine communities practicing *vazante* agriculture - planting in the fertile sediment left by receding floodwaters, a system entirely dependent on the predictability of seasonal river cycles that upstream hydropower management has made unreliable. “If Tucuruí closes or Estreito opens out of season, they lose the entire harvest. They lost control over the river cycle” (Fernando Michelotti interview).

Three governance regimes - urban planning, concessionary infrastructure, and hydropower management - each operating through its own sectoral logic, produce these three conditions simultaneously within the same spatial field. No single instrument addresses them as parts of a common hydro-social system. This is precisely what the water territories framework makes legible: not three separate problems but one relational condition produced through governance fragmentation. Within this condition, forms of self-governance

emerge not as autonomous alternatives to institutional regulation but as situated responses to fragmented and misaligned regulatory frameworks. Informal rules concerning water use, tacit agreements over spatial boundaries, shared norms regulating fishing and bathing practices, and collective responsibilities during environmental stress function as adaptive arrangements that sustain daily life under conditions of uncertainty - constitutive elements of governance that remain invisible to formal policy instruments (Kátia Silene interview; Ana Luísa Rocha da Silva interview; Ostrom, 1990).

Reading governance through water territories shifts analytical attention from the question of which institution is responsible for a given segment of the river toward how governance is enacted through the interaction between hydrological dynamics, infrastructural interventions, and everyday practices. Flood quotas, environmental zoning, and licensing thresholds are designed to render water legible and governable, yet they frequently fail to reflect lived exposure and cumulative risk - and, as reported by municipal and environmental officers, tend to criminalize long-standing forms of river-based habitation without providing viable alternatives, placing entire communities in conditions of structural illegality (Patrícia Capanema interview; Matheus interview; Acsehrad, 2004; Zhouri & Laschefski, 2010).

Understanding water territories as a relational framework does not imply rejecting institutional governance or technical knowledge. It foregrounds the need to reposition governance within the hydrological and social continuities through which territory is effectively inhabited and negotiated - recognizing that in Marabá, governance is already being enacted through adaptation, coexistence, and informal negotiation along the river, and that making these practices visible is a necessary step toward addressing the structural misalignment between policy frameworks and lived water territories (Haraway, 1988; Santos, 2014; Maia et al., 2024).

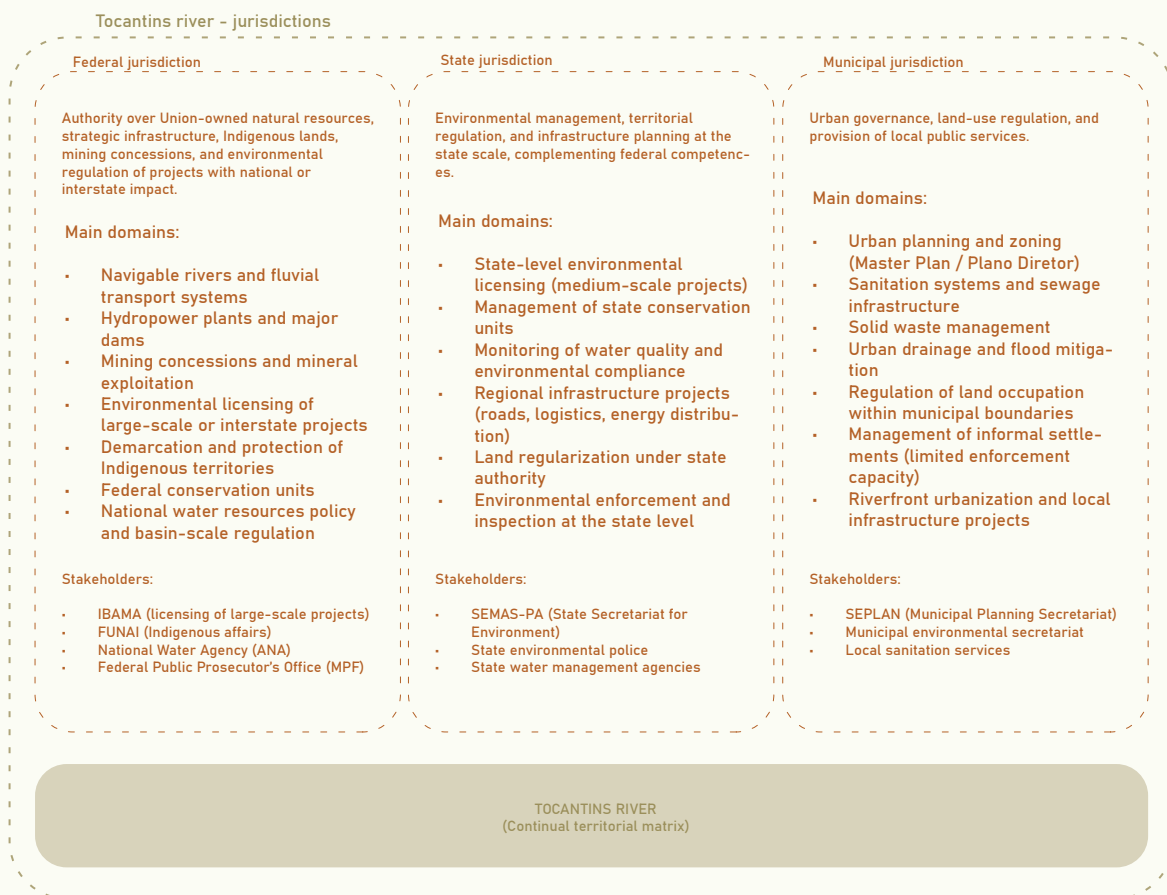
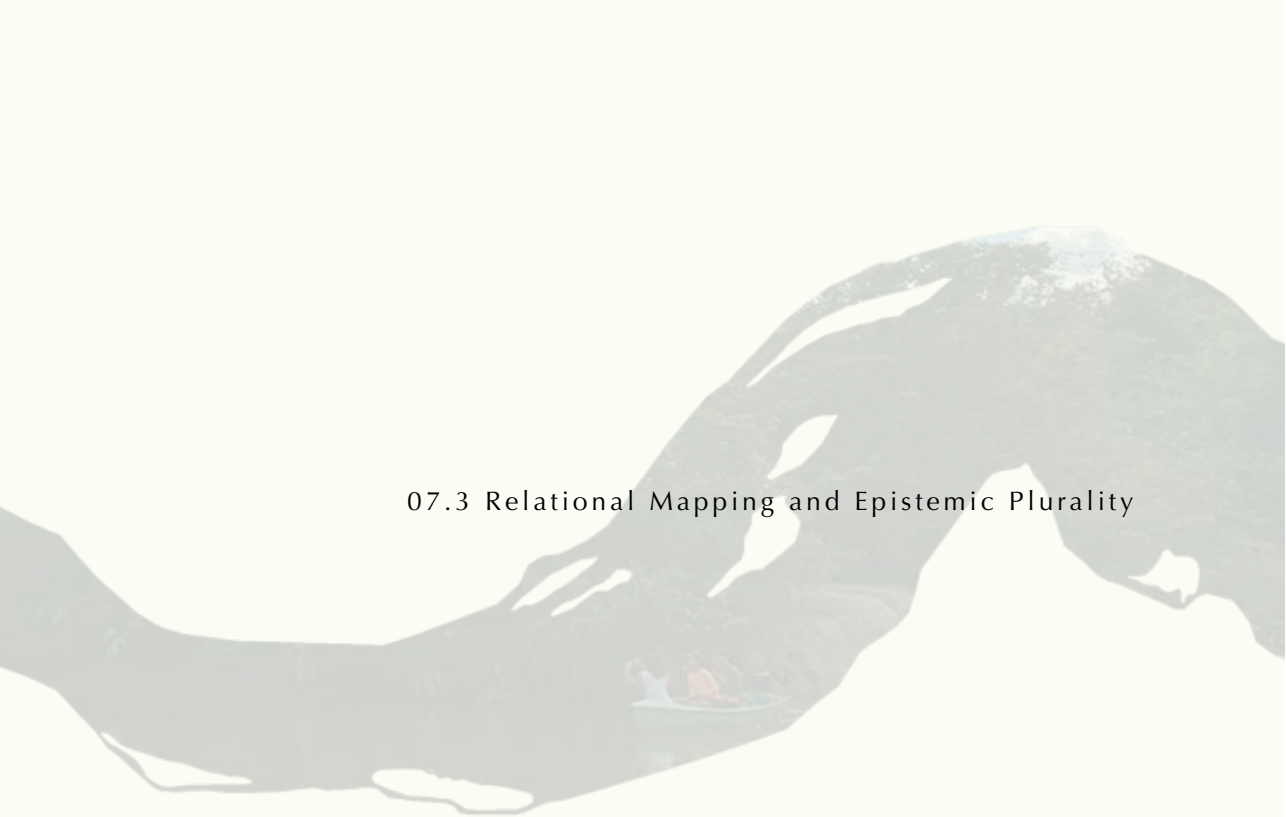


Figure 7.0 | Discontinuous administrative and sectoral governance regimes | Source: IBGE, Brazilian government, Interviews | author's elaboration





07.3 Relational Mapping and Epistemic Plurality

Reading water territories requires analytical tools capable of engaging simultaneity, uncertainty, and scale overlap without reducing them to isolated variables or linear causal relations. Along the Tocantins and Itacaiúnas rivers, ecological dynamics, infrastructural interventions, and everyday practices unfold within the same spatial field, producing territorial effects that no single disciplinary approach can adequately capture. Rather than isolating objects - infrastructure, settlements, environmental risks - the analysis developed here focuses on the relations through which territory is continuously produced, tracing how decisions taken at one scale materialize as constraints, vulnerabilities, or adaptations at another (Palazzo, 2006; Boelens et al., 2016; Haraway, 1988).

Within water territories, collective care operates as a spatial practice rather than a moral or symbolic value. Care is enacted through shared monitoring of river behavior, mutual assistance during floods, informal warning systems, and the redistribution of tasks related to water access and sanitation - organized through proximity to the river, overlapping daily routines, and repeated spatial encounters rather than institutional schedules (Kátia Silene interview; Patrícia Capanema interview).

Relational Mapping as Analytical Device

Relational mapping was used to identify and visualize connections among communities, institutions, infrastructures, extractive actors, and hydrological dynamics across the Marabá region. Rather than stabilizing responsibility or establishing linear chains of causality, these mappings foregrounded relations within an emergent hydro-social field structured by asymmetrical access to decision-making and uneven exposure to risk. Mapping was approached not as a representational tool for fixing territorial boundaries but as a critical device for tracing interactions, dependencies, and zones of opacity within water territories (Corner, 1999; Acselrad, 2008; Pavlovskaya, 2017). What relational mapping made visible was the distance between decision-making arenas and lived territorial effects.

Projects related to hydropower, waterways, and mining are conceived within a unified extractive strategy yet assessed through fragmented regulatory processes that obscure their cumulative territorial impacts - a structural condition confirmed by Fernando Michelotti and Matheus (ICMBio) from within their respective institutional positions (Fernando Michelotti interview; Matheus, ICMBio interview).

Decisions taken at distant institutional nodes - federal ministries, corporate headquarters, upstream hydropower facilities - materialize locally through altered flood regimes, water-quality degradation, and constraints on everyday practices, while riverine and Indigenous

communities encounter these consequences without access to the arenas in which they are formulated. Responsibility is diffused; impacts remain concentrated. Relational mapping also revealed zones of opacity in data production and circulation. Environmental monitoring, hydrological data, and impact assessments are frequently controlled by specific institutional or corporate actors - Vale being the primary example identified in the fieldwork - and are not shared across governance scales.

Communities and municipal authorities rely on partial information when negotiating water access, responding to contamination, or anticipating interventions. Mapping these informational asymmetries exposed how knowledge itself functions as a strategic resource within territorial conflicts, shaping who can anticipate change, mobilize evidence, or activate institutional responses. GIS-based mapping was combined with qualitative spatial practices to visualize the mismatch between hydrological continuities and fragmented governance frameworks. Flood maps, infrastructural layouts, and administrative boundaries were overlaid to expose how institutional jurisdictions fail to correspond to lived exposure and everyday water use - making visible the cumulative effects of hydropower operations, navigation projects, and urban expansion whose impacts are routinely assessed in isolation (Cardoso, 2010).

Visual tools proved particularly effective in revealing simultaneity: seasonal flood dynamics intersecting with informal settlements, extractive corridors, and mobility infrastructures generate conditions of vulnerability that remain invisible in static zoning or regulatory maps. Narrative cartographies integrated memory, temporal change, and experiential knowledge into spatial analysis. Accounts of past floods, river course variations, and transformations in riverbank access were mapped without translation into standardized indicators - preserving the partial and situated character of knowledge while rendering it legible within a territorial framework (Haraway, 1988; Acselrad, 2008).

Photographic documentation and field sketches captured proximity, material conditions, and everyday practices that escape abstraction: informal river access points, improvised flood defenses, adaptive dwelling practices - visual materials that do not illustrate the analysis but actively participate in it. The non-human agency of the river itself - seasonal floods, shifting riverbeds, water quality changes - structures temporal rhythms, spatial arrangements, and exposure to risk in ways that compel continuous adaptation and challenge planning models based on stability and predictability (Ingold, 2000; Bernardo Tomchinsky interview; Matheus, ICMBio interview).

Epistemic Plurality and Structural Friction

The combination of methods enabled a reading of water territories that does not privilege a single epistemic position. Institutional documents, planning instruments, and technical reports provided information on hydrology, infrastructure, and regulatory frameworks, yet proved insufficient to explain how water is inhabited, negotiated, and collectively cared for in everyday contexts. Interviews and field observation revealed adaptive practices, informal rules, and collective arrangements that function as operative forms of governance but remain largely absent from policy instruments (Kátia Silene interview; Ana Luísa Rocha da Silva interview; Patrícia Capanema interview; Matheus, ICMBio interview).

The epistemic tensions that emerged are structural, not methodological. Technical and institutional knowledge frames water through standardized indicators, sectoral competences, and project-based temporalities; local actors interpret water through lived exposure, intergenerational memory, and collective responsibility. These forms of knowledge interact without converging - producing frictions that are constitutive features of water territories rather than complications to be resolved. Rather than integrating them into a unified framework, the analysis maintains their coexistence, allowing governance to be read as a relational and contested process shaped by unequal visibility and authority across epistemic domains (Haraway, 1988; Santos, 2014; Bispo dos Santos, 2023).

This epistemic plurality is precisely what makes water territories analytically irreducible to administrative categories: multiple ways of knowing and inhabiting water coexist and shape the conditions under which territorial decisions are made - decisions that affect different actors very differently depending on their position within the hydro-social field. Recognizing this plurality is not a methodological position alone; it is an analytical commitment with direct consequences for how governance is read and how its failures are interpreted.

Governance Under Uncertainty: Analytical Implications

The analytical framework developed here does not offer a methodological blueprint to be replicated. Its value lies in demonstrating that governance in water territories cannot be read through instruments designed for stable, bounded, and sectorally organized spaces. In Marabá, hydrological variability, infrastructural interference, and extractive pressures continuously alter the conditions under which everyday life unfolds - governance must be understood as a process of ongoing adjustment rather than evaluated solely in terms of compliance or institutional performance.

By combining spatial analysis with ethnographic and visual methods, the research captured how actors anticipate floods, adapt mobility practices, negotiate riverbank access, and reinterpret institutional rules in response to environmental variability. These practices reveal governance as provisional and responsive - shaped by negotiation with both human and non-human agents rather than by the implementation of fixed regulatory frameworks. Governance emerges through relations that are spatially overlapping, temporally asynchronous, and epistemically plural (Santos, 2014; Haesbaert, 2020).

Foregrounding relations rather than objects, and processes rather than fixed categories, supports a critical reading of governance instruments as interventions situated within already existing territorial dynamics. This allows for understanding why certain instruments fail

- not because they are absent or poorly designed, but because they are structurally misaligned with the relational conditions of water-based territories. In this sense, the interdisciplinary tools developed here do not merely support the analysis of water territories: they actively reshape how governance itself becomes legible.

From Analysis to Orientation: What Water Territories Teach

The empirical and analytical work developed across this thesis does not culminate in prescriptive models or transferable solutions. What it produces instead is a set of analytically grounded orientations - not imported from theory but emergent from what the cases themselves reveal about governance, territory, and water. Three orientations stand out with particular clarity.

The first concerns care as governance practice. The Akrátikatêjê practice of eating and planting - reseeding wherever resources were consumed, maintaining ecological continuity through movement rather than through enclosure - is not a symbolic cultural gesture but an operative governance logic: one that sustains territorial capacity over time precisely because it is grounded in reciprocity rather than control. What this reveals for urban and territorial governance is not a model to replicate but a principle to reckon with: governance that operates through care, attention, and long-term ecological responsibility produces different territorial outcomes than governance oriented toward extraction, efficiency, and containment. Recognizing this does not require romanticizing Indigenous practice - it requires taking seriously what the empirical material demonstrates about the conditions under which territories remain liveable over time (Krenak, 2020; Ostrom, 1990).

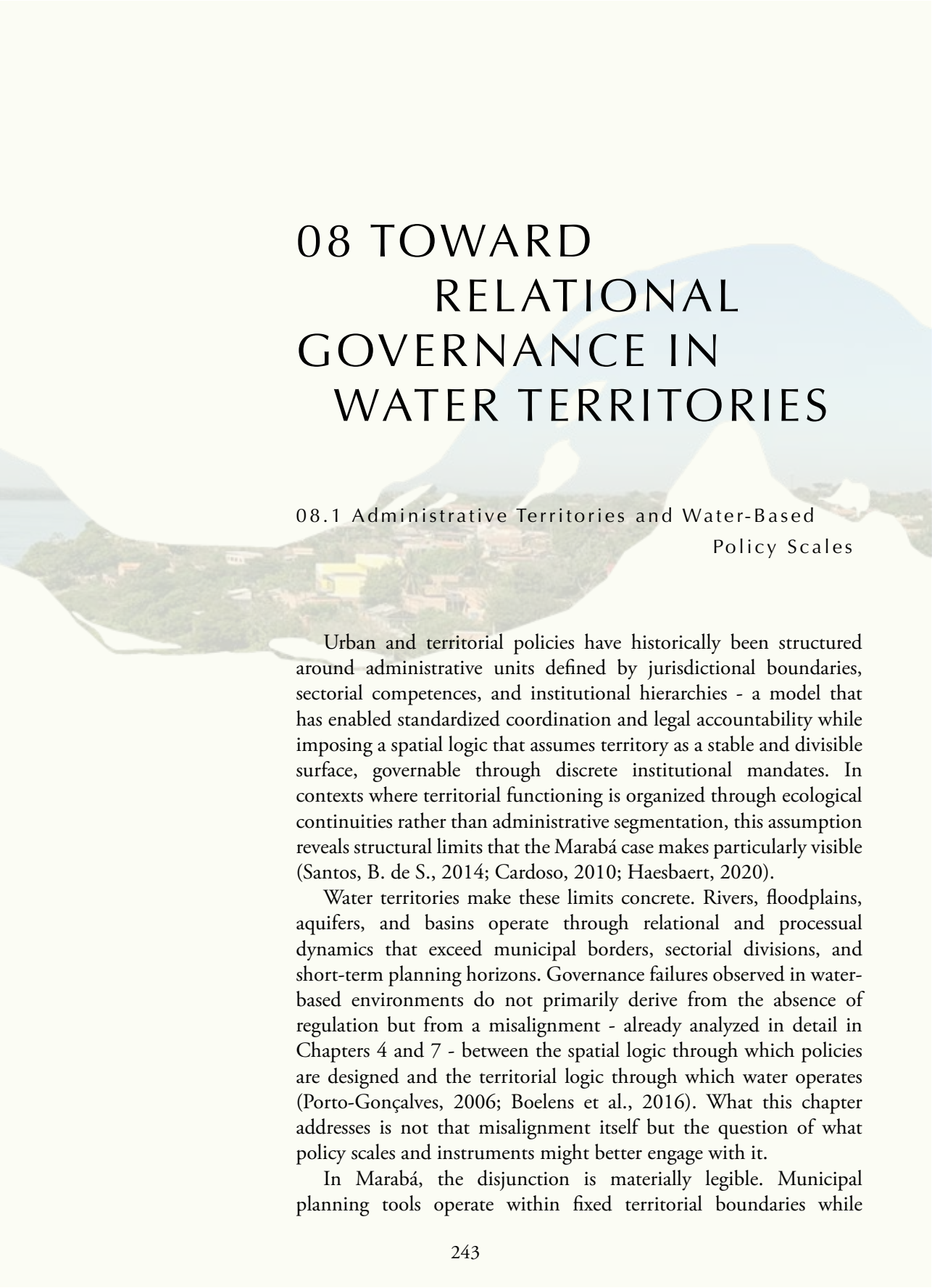
The second concerns the commons as a territorial condition. The loss of the Primeiro de Março settlement's collective access to

the Tocantins riverbank - privatized through a judicial process that converted a common use area into a legally transferable asset - is not an exceptional case but a structural pattern. Across the empirical material, collective access to water is progressively eroded not through dramatic acts of dispossession but through the slow accumulation of administrative, legal, and infrastructural decisions that individualize and commodify what were previously shared territorial relations. What governance frameworks consistently fail to recognize is that these commons are not just environmental resources but the material basis of territorial belonging, social reproduction, and situated knowledge - and that their loss produces forms of dispossession that no compensation mechanism can restore (Linebaugh, 2014; Harvey, 2003).

The third concerns solidarity as a signal of emergent governance. The MST's political decision to oppose the Pedral do Lourenço blasting - despite having no settlements directly in that territory - and the coalitions formed between Akráitakatê leadership, riverine communities, and urban social movements against extractive projects, reveal a form of territorial governance that is already operating beyond administrative boundaries. These acts of solidarity are not merely political gestures; they are practical recognitions that the hydro-social system connects actors whose fates are materially linked even when they do not occupy the same legal or administrative categories. Governance frameworks that address these actors in isolation - through separate licensing procedures, sectoral instruments, and administrative jurisdictions - systematically misread the relational field in which territorial decisions actually occur.

Together, these three orientations suggest a reorientation of governance analysis and practice: from containment toward care, from individualized assets toward relational commons, from administrative isolation toward recognition of the territorial solidarities that already exist. This is not a prescription for a new governance model. It is a reading of what is already present in the territory - already practiced, already negotiated, already defended - but rendered invisible by governance frameworks that were not designed to see it.





08 TOWARD RELATIONAL GOVERNANCE IN WATER TERRITORIES

08.1 Administrative Territories and Water-Based Policy Scales

Urban and territorial policies have historically been structured around administrative units defined by jurisdictional boundaries, sectorial competences, and institutional hierarchies - a model that has enabled standardized coordination and legal accountability while imposing a spatial logic that assumes territory as a stable and divisible surface, governable through discrete institutional mandates. In contexts where territorial functioning is organized through ecological continuities rather than administrative segmentation, this assumption reveals structural limits that the Marabá case makes particularly visible (Santos, B. de S., 2014; Cardoso, 2010; Haesbaert, 2020).

Water territories make these limits concrete. Rivers, floodplains, aquifers, and basins operate through relational and processual dynamics that exceed municipal borders, sectorial divisions, and short-term planning horizons. Governance failures observed in water-based environments do not primarily derive from the absence of regulation but from a misalignment - already analyzed in detail in Chapters 4 and 7 - between the spatial logic through which policies are designed and the territorial logic through which water operates (Porto-Gonçalves, 2006; Boelens et al., 2016). What this chapter addresses is not that misalignment itself but the question of what policy scales and instruments might better engage with it.

In Marabá, the disjunction is materially legible. Municipal planning tools operate within fixed territorial boundaries while

hydropower operations, mining logistics, sediment dynamics, and seasonal river pulses unfold across broader hydrological continuities. Environmental licensing procedures assess projects individually, fragmenting interventions that act upon the same river system and obscuring their cumulative territorial effects - navigation works, hydropower infrastructures, and urban sanitation systems governed through separate regulatory processes despite producing overlapping impacts along the Tocantins and Itacaiúnas (Patrícia Capanema interview; Bernardo Tomchinsky interview; Matheus interview; Cardoso, 2010).

This condition produces governance gaps experienced locally as delayed responses, erosion of collective capacity to manage water dynamics, and persistent conflict - as documented across the empirical chapters. The structural difference between these two frameworks - developed in full in Table 13 - organizes the policy analysis that follows.

Shifting toward water-based policy scales is not a new institutional aspiration. In Europe, instruments such as the *Contratti di Fiume* - river contracts developed over more than twenty years in Italy, France, and Belgium - were introduced precisely to address the fragmentation of jurisdictions along shared river systems, bringing together municipalities, regional authorities, civil society organizations, and water users around a shared territorial reference (Bastiani, 2011; Pavan, 2020). These experiences demonstrate that basin-scale, multi-actor governance is institutionally possible and has produced meaningful results in contexts where actors are willing to negotiate at a shared scale and recognize one another as legitimate interlocutors.

The Amazonian context, however, presents structural conditions that make direct transposition of these models insufficient. Three conditions identified in the empirical material are particularly decisive. First, the actors operating within Marabá's water territory do not share a common governance arena - Vale operates at global commodity scale, federal agencies at national scale, and riverine communities at the scale of the riverbank, without a shared institutional space capable of holding these asymmetries. Second, mutual recognition as legitimate interlocutors is absent: as Patrícia Capanema observed, Marabá has no river basin committee, no drainage committee, no mobility commission - fragmentation is not only institutional but political. Third, the asymmetry of information is structural: Vale, the primary environmental monitoring actor in the basin, does not share its data with public agencies or communities, making informed multi-actor negotiation practically impossible without prior conditions of transparency and accountability.

These conditions do not invalidate the aspiration toward basin-scale governance - they specify what would need to change before

instruments like the Contratti di Fiume could function in this context. The misalignment between hydrological continuities and administrative frameworks is not simply a scalar problem to be resolved by rescaling governance. It is a political problem: it requires prior transformation of the conditions under which actors recognize one another, share information, and accept the legitimacy of different forms of territorial knowledge. Water-based policy scales thus operate not as a ready-made solution but as an analytical horizon - clarifying what governance would need to look like if it were genuinely grounded in the relational organization of water territories (Castro, 2006; Acsehrad, 2004; Boelens et al., 2016; Murillo-Licea, 2019).





08.2 Water-Based Policy Reorientation

Reframing water as a territorial organizer rather than an environmental constraint requires a substantive shift in how urban and territorial policies are conceived and implemented in Amazonian contexts. In cities such as Marabá, water does not operate as a sectorial variable to be managed through isolated technical measures - it structures everyday practices, mobility, health conditions, exposure to risk, livelihoods, and forms of collective organization. Treating water as a driver of policy reorientation means recognizing that governance challenges do not primarily arise from regulatory absence but from the structural misalignment between administrative policy frameworks and the relational organization of water territories - a condition that the three orientations identified in Chapter 7 make analytically precise (Cardoso, 2010; Porto-Gonçalves, 2006; Boelens et al., 2016).

Those three orientations - care as governance practice, the commons as a territorial condition, solidarity as emergent governance - are not abstract principles. They are grounded in what the empirical material reveals about how governance already operates in Marabá's water territories: through the Akrátikatêjê practice of ecological reciprocity, through the loss of collective riverbank access at Primeiro de Março, through the MST's coalition against the Pedral. A water-based policy reorientation does not invent new governance logics - it makes visible and operationally legible the ones already present in the territory, and asks what institutional conditions would be required to recognize

rather than suppress them.

Positioning water as a territorial organizer entails reversing the dominant policy logic. Instead of adapting water to pre-existing urban and administrative frameworks, policies must be re-situated within water territories, acknowledging rivers as organizing matrices that connect scales, actors, and temporalities. In Marabá, the Tocantins River links Indigenous territories, quilombola and riverine communities, informal urban settlements, municipal infrastructure, hydropower operations, and extractive logistics within a single hydro-social system. Policy interventions that address only one of these dimensions tend to redistribute vulnerability across the territory rather than reduce it, reinforcing uneven exposure to risk and dispossession (Zhouiri & Laschefski, 2010; Porto-Gonçalves, 2006).

This reorientation has direct implications for how urban space and public action are conceived. Riverbanks cannot be understood as marginal or residual spaces but as central arenas where social life, risk, and governance intersect. Seasonal flooding cannot be reduced to a technical problem to be mitigated through containment infrastructures alone - flood dynamics are also social and territorial processes that shape housing strategies, mobility patterns, health conditions, and forms of collective care, particularly among populations with long-standing river-based practices (Rocha et al., 2021; Cardoso, 2010; Wantzen et al., 2016). Housing, sanitation, mobility, environmental protection, and risk management must be read together through the lens of water territories - their current separation has contributed to recurrent displacement and to the marginalization of populations whose ecological competence and adaptive capacity constitute, as the empirical chapters have shown, operative forms of governance.

Brazil already possesses institutional instruments that could support such a reorientation. The *outorga de direito de uso da água*, river basin committees, and watershed-based planning frameworks were designed to regulate water use beyond municipal boundaries and to promote collective governance arrangements (ANA, 2018; Castro, 2006). However, their implementation remains technocratic and weakly connected to urban and peri-urban realities - particularly in Amazonian cities where informal, subsistence-based, and relational water uses dominate everyday life. Rather than functioning as platforms for territorial coordination, basin-scale instruments frequently prioritize large-scale users with technical, economic, and institutional capacity, such as hydropower operators, mining companies, and agribusiness actors - reinforcing the asymmetries they were formally designed to mediate (Cardoso, 2010; Boelens et al., 2016; Zhouiri et al., 2018).

This gap indicates that water-driven policy reorientation cannot be limited to rescaling governance to the basin level. As the preceding

section argued, the structural conditions for multi-actor basin governance - mutual recognition, shared information, willingness to negotiate at a common scale - do not currently exist in Marabá. A qualitative shift is required: how policies interpret territory, knowledge, and participation. Water territories demand governance approaches capable of engaging coexistence, negotiation, and adaptation as ongoing conditions rather than as deviations to be corrected - moving away from control-oriented paradigms that prioritize predictability, efficiency, and spatial normalization, and toward approaches that acknowledge uncertainty, plurality, and temporal variability as constitutive features of river-based environments (Porto-Gonçalves, 2006; Escobar, 2008).

The contrast between conventional urban and territorial policy approaches and a water-based policy orientation is summarized in Table 13. This comparison does not advance an idealized governance model, nor does it suggest that water-based policy orientations can eliminate conflict or dissolve power asymmetries embedded in extractive and infrastructural regimes. It clarifies the analytical shift required to align policies with the territorial realities observed in Marabá - making visible the relational conditions under which governance is already enacted along rivers and exposing the structural limits of sectorial and control-oriented frameworks.

TABLE 13 - Policy transformation under a water-driven orientation

Policy dimension	Sectoral governance model	Water-driven territorial integration
Scale of intervention	Municipality or sector	Hydro-social continuity across jurisdictions
Institutional coordination	Fragmented competences	Cross-sectoral articulation around river systems
Planning objective	Control, mitigation, compliance	Long-term relational resilience
Treatment of flooding	Hazard containment	Living with seasonal variability
Infrastructure logic	Efficiency and circulation	Territorial care and risk redistribution awareness
Participation model	Formal consultation	Continuous territorial engagement
Knowledge integration	Technical expertise predominates	Situated and technical knowledge in dialogue
Policy outcome tendency	Risk displacement	Shared responsibility and cumulative awareness
<i>Source: Author's elaboration based on empirical findings and governance literature cited in text.</i>		





08.3 Instruments for Collaborative and Relational Governance

Reorienting urban and territorial governance around water territories requires not only a shift in policy scales but also the recognition that governance is produced through the interaction of heterogeneous knowledge systems, territorial rationalities, and power relations. In contexts such as Marabá, governance challenges do not arise solely from regulatory gaps or institutional weakness - they emerge from the coexistence of divergent ways of knowing and inhabiting water territories that rarely encounter one another on equal terms. Instruments for collaborative and relational governance therefore operate less as technical solutions and more as relational devices through which coexistence, conflict, and negotiation become visible and politically legible (Santos, 2014; Castro, 2006).

Within water territories, knowledge is generated through fundamentally different modes of engagement with the environment. Indigenous, quilombola, and riverine communities produce situated knowledge through continuous observation of river dynamics, seasonal cycles, and everyday practices of dwelling and subsistence. Institutional actors rely on technical data, legal categories, and standardized indicators designed to support regulation and control. Private actors mobilize economic and logistical rationalities oriented toward efficiency, extraction, and circulation. Collaborative governance cannot assume the integration of these knowledges into a unified framework - it depends instead on the capacity to sustain

translation without erasure, allowing epistemic positions to remain distinct while becoming mutually intelligible (Porto-Gonçalves, 2006; Acselrad, 2004; Boelens et al., 2016).

Participatory mapping represents one of the most effective instruments for enabling such translation. Unlike conventional cartographic representations, participatory maps do not seek to stabilize territory through fixed boundaries or definitive classifications. They allow actors to spatialize practices, memories, risks, and conflicts that remain absent from official representations - revealing overlapping uses of riverbanks, informal access points, seasonal mobility routes, and areas of recurrent conflict. These maps function as negotiation surfaces rather than authoritative depictions, exposing spatial contradictions and power asymmetries without resolving them in advance (Harley, 1989; Acselrad, 2008). In the Marabá context, participatory mapping could make visible what the empirical chapters have documented - the simultaneous but incompatible uses of the same riverbank stretch, the seasonal mobility patterns of vazante farmers, the informal monitoring networks through which communities track water quality - rendering these practices legible to institutional actors without translating them into standardized indicators.

Field-based encounters constitute another critical instrument for inter-knowledge dialogue. Governance processes often unfold within institutional settings detached from the environments they seek to regulate - a condition that in Marabá contributes to the misinterpretation of flood dynamics, access needs, and environmental risk. Field-based encounters re-situate governance within water territories themselves, confronting institutional and technical actors with lived spatial conditions. While these encounters do not eliminate asymmetries of power or decision-making authority, they destabilize abstract policy categories by exposing them to embodied experience and situated knowledge (Zhou & Laschefski, 2010; Leonardo Brasil interview; Fernando Michelotti interview; Patrícia Capanema interview).

Narrative practices play a central role in collaborative governance within water territories. Stories, testimonies, and collective memory articulate temporalities and relationships that cannot be captured through technical indicators alone - conveying knowledge about past floods, changes in river behavior, lost access points, and transformations in livelihoods. When acknowledged within governance processes, narrative practices challenge linear planning logics and foreground the historical depth of territorial relations. They also enable forms of participation that do not depend exclusively on technical literacy or formal representation, expanding the conditions under which actors can engage in governance debates (Santos, 2014; Krenak, 2020). The testimonies mobilized throughout this thesis - from Kátia Silene's

account of territorial loss to Ana Luisa's description of fighting for the river while living alongside its pollution - are precisely this kind of knowledge: not anecdotal, but constitutive of a different understanding of what governance in water territories requires.

Cognitive frameworks for shared understanding operate at a complementary level. Rather than seeking consensus on solutions, these frameworks aim to clarify how different actors interpret water, risk, responsibility, and territory - making epistemic assumptions explicit and rendering visible the rationalities that structure decision-making processes. In Marabá, such frameworks do not resolve conflicts between extractive interests and river-based livelihoods, but they expose the underlying logics through which decisions are justified and contested. This visibility constitutes a precondition for any form of negotiated governance in contexts marked by structural inequality (Castro, 2006).

Despite their potential, these instruments face significant structural constraints in the Amazonian context. The three conditions identified in §08.1 - the absence of a shared governance arena, the lack of mutual recognition as legitimate interlocutors, and the asymmetry of information controlled by extractive actors - do not disappear through the introduction of participatory tools. Power asymmetries remain decisive: actors endowed with economic resources, legal expertise, and institutional access are better positioned to influence outcomes even within participatory settings. Institutional inertia further limits the uptake of collaborative instruments, as governance systems tend to reproduce established procedures and sectorial divisions. In extractive territories such as Marabá, economic logics oriented toward large-scale infrastructure and commodity circulation frequently override slower, negotiation-based processes grounded in territorial care (Zhou et al., 2018).

These limitations indicate that collaborative governance cannot be understood as a neutral technical enhancement of existing policy frameworks - it is inherently political. Instruments for relational governance operate within governance environments shaped by unequal power relations, competing territorial projects, and extractive economic imperatives. Their effectiveness depends on prior political conditions: the willingness of institutions to recognize epistemic plurality, to accept conflict as a constitutive condition of territorial life, and to engage with uncertainty rather than seeking closure through standardized solutions (Acsegrad, 2004; Santos, 2014; Gualini, 2015).

Grounding collaborative governance in water territories offers a way to address these challenges without idealizing participation. Water territories provide a shared material reference that connects actors across scales while preserving the specificity of their relationships with water. A relational approach does not replace existing policy instruments nor

dissolve power asymmetries - it repositions governance as an ongoing spatial practice enacted through negotiation, adaptation, and situated engagement with living territories. Governance, understood in this way, is not a function exercised by institutions upon territory - it is a process continuously produced through the interaction of human and non-human actors, infrastructures, ecological dynamics, and the forms of knowledge and care through which communities inhabit water (Boelens et al., 2016; Escobar, 2008; Magnaghi, 2005).





09 CONCLUSIONS

09.1 Rethinking Urban and Territorial Categories through Water

A central contribution of this thesis concerns the analytical limits of applying inherited urban, political, and territorial categories to Amazonian peri-urban contexts without reworking their assumptions. Terms such as city, governance, territory, and democracy are not neutral descriptors - they are historically situated constructs shaped by specific trajectories of state formation, spatial ordering, and epistemic separation. When transferred uncritically to the Brazilian Amazon, these categories risk pre-structuring interpretation: they make certain relations immediately legible while rendering others secondary, residual, or unintelligible, with analytical blind spots that later reappear as governance failures (Santos, B. de S., 2014; Porto-Gonçalves, 2006).

The empirical work conducted in Marabá and the Akrátikatêjê territory demonstrates this concretely. The river-city interface cannot be adequately grasped through oppositions such as urban versus rural, formal versus informal, or infrastructure versus nature - binaries that presuppose separations repeatedly crossed in everyday life and in the territorial production of the Amazon. Water territories make this mismatch analytically precise: the river does not merely “pass through” a pre-existing urban container. It constitutes conditions of habitation, mobility, subsistence, and risk, while becoming simultaneously the medium through which extraction, institutional regulation, and inequality materialize. Sediment dynamics, seasonal

pulses, infrastructural decisions, and everyday practices connect what administrative borders and sectoral mandates routinely separate - and analytical categories that isolate one dimension at the expense of the others distort what is at stake.

Two recurrent simplifications become particularly fragile when the river is taken as the starting point rather than as background. The first is the reading of Amazonian cities as incomplete or delayed versions of an industrial-urban model - as if they were lagging a universal trajectory. What the Marabá case shows is not incompleteness but a different form of urbanism: one organized through hydrological continuity, seasonal variability, and the superposition of relational territorialities onto extractive economies, rather than through the progressive consolidation of bounded administrative space. The second simplification is the romanticization of the Amazon as an external “nature” surrounding the city, rather than a lived territory shaped by long-standing human–non-human relations as well as by violent histories of extraction and forced integration (Galeano, 1971; Porto-Gonçalves, 2006; Krenak, 2020). Both simplifications share a common structure: they position the Amazon as derivative - of urban modernity or of pristine nature - rather than as generative of its own territorial logics.

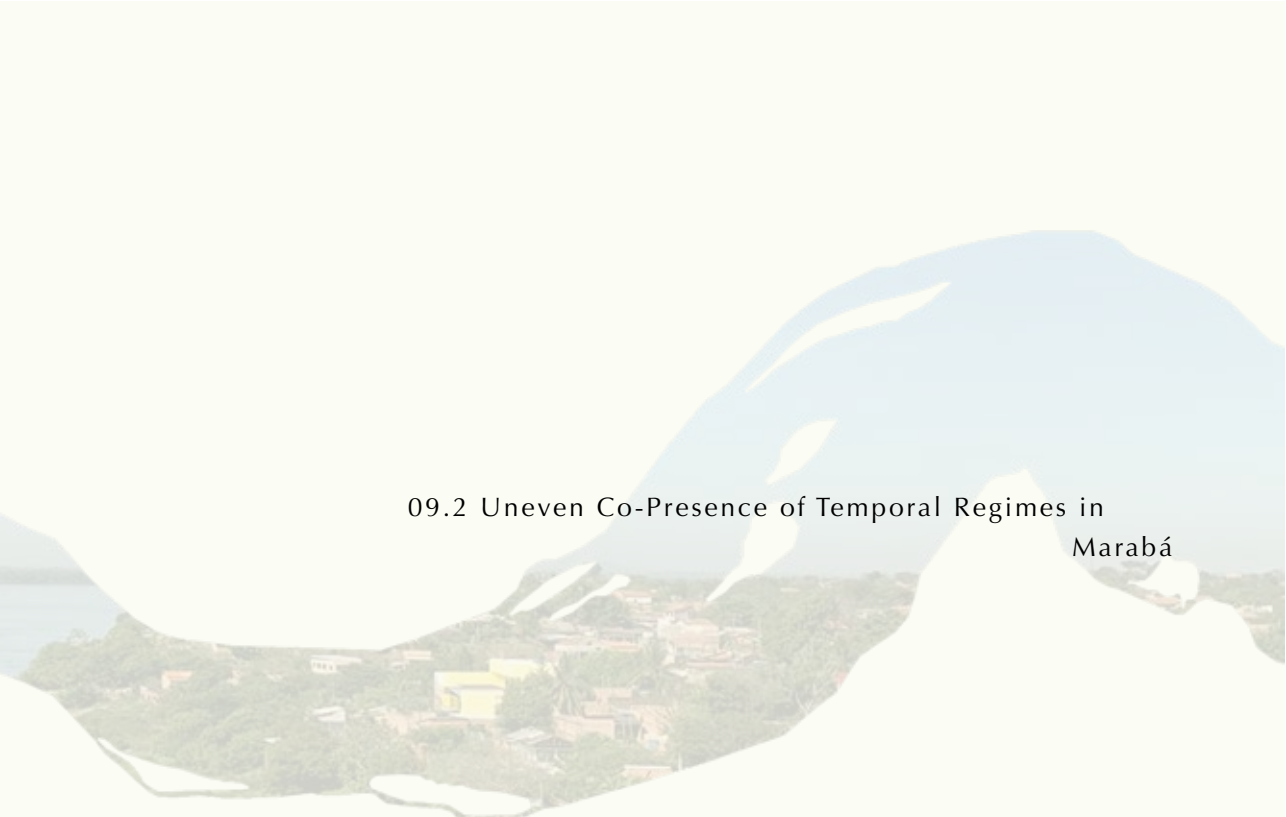
The thesis contributes to dismantling these simplifications not through theoretical critique alone but through empirical demonstration. The Akrátikatêjê practice of territorial governance through ecological care - eating and planting, reseeded wherever resources were consumed - is not a pre-modern residue but an operative logic of territorial reproduction that Western urban categories cannot accommodate. The loss of collective riverbank access at the Primeiro de Março settlement through judicial privatization is not a governance failure attributable to regulatory absence - it is a structural outcome of applying land-based, individual-ownership frameworks to a territory organized through collective water-based relations. These are not anomalies to be explained away; they are the evidence through which the analytical inadequacy of inherited categories becomes legible.

This also requires questioning the vocabulary through which policy is framed. As Antônio Bispo dos Santos argues, dominant terms such as development or sustainable development often reproduce external logics of control and extraction even when framed as progressive agendas. The concept of *biointeração* - foregrounding relational coexistence between human and non-human life - repositions territorial autonomy as a condition for collective survival rather than as a derivative of development paradigms (Bispo dos Santos, 2023). Reclaiming the capacity to name territorial processes becomes, from this perspective, a fundamental political act through which local populations reassert control over the terms through which

their territories are governed and known. The thesis aligns with this position not by adopting *biointeração* as a universal framework but by demonstrating, through the cases of Marabá and the Akrâtikatêjê, that governance grounded in relational ontologies produces territorial outcomes that development-centered vocabularies systematically misread.

The broader analytical implication is this: rethinking urban and territorial categories through water does not mean replacing one universal framework with another. It means developing analytical tools capable of engaging the specific relational logics through which particular territories are produced, inhabited, and contested - tools that remain accountable to the empirical conditions they seek to interpret rather than imposing pre-formed categories upon them. This is what the water territories framework, as developed in this thesis, attempts to provide: not a new master concept but a situated analytical lens that foregrounds continuity, relationality, and the co-production of space by human and non-human actors (Magnaghi, 2005; Escobar, 2008; Krenak, 2020).





09.2 Uneven Co-Presence of Temporal Regimes in Marabá

Among the analytical contributions of this thesis, the concept of uneven co-presence of temporal regimes represents one of the most empirically grounded and theoretically generative findings. It emerges not from theoretical abstraction but from what the fieldwork in Marabá consistently revealed: that practices and meanings often treated as successive “stages” in developmental narratives remain simultaneously present along the Tocantins - domestic uses of the river, artisanal fishing, fluvial mobility, informal infrastructures of access, institutional risk management, industrial logistics, and extractive corridors unfolding within the same territorial field. Their co-presence is not an anomaly or a sign of incomplete modernization; it is a structural feature of Amazonian urbanization shaped by the persistence of river-based territorialities and by the superposition of global extractive economies onto historically inhabited landscapes (Cardoso, 2010; Porto-Gonçalves, 2006).

The term simultaneity, often used to describe this condition, risks suggesting shared experience or reciprocity. The empirical evidence supports a more precise formulation: an uneven co-presence under asymmetric exchange. Proximity does not automatically produce common ground. The river is shared as a space of presence but not as a collectively governed or mutually recognized territory. Different practices along the same riverbank remain minimally connected, and their interaction is consistently shaped by asymmetries of power,

legitimacy, and infrastructural reach. The fishing community at Cabelo Seco, the vazante farmers of São Félix, the tourist waterfront project, and Vale's logistical corridors occupy the same hydro-social field - but under radically different conditions of recognition, protection, and political visibility.

This uneven co-presence is also epistemological. Different ways of knowing the river coexist without converging into a single interpretive framework. Riverine and Indigenous readings grounded in observation, memory, and seasonal rhythm encounter institutional and corporate rationalities oriented toward metrics of control, efficiency, and threshold-based risk management. These are not simply different perspectives on the same object - they are modes of knowledge embedded in different relations to water and different capacities to negotiate within the political economy of the peri-urban Amazon (Viveiros de Castro, 2004; Porto-Gonçalves, 2006). What the Akrātikatêjê case reveals with particular clarity is that Indigenous territorial knowledge is not a cultural supplement to technical governance - it is an operative system with its own spatial logic, its own temporal orientation, and its own criteria for territorial legitimacy, all of which become invisible within governance frameworks organized through administrative categories and project-based temporalities.

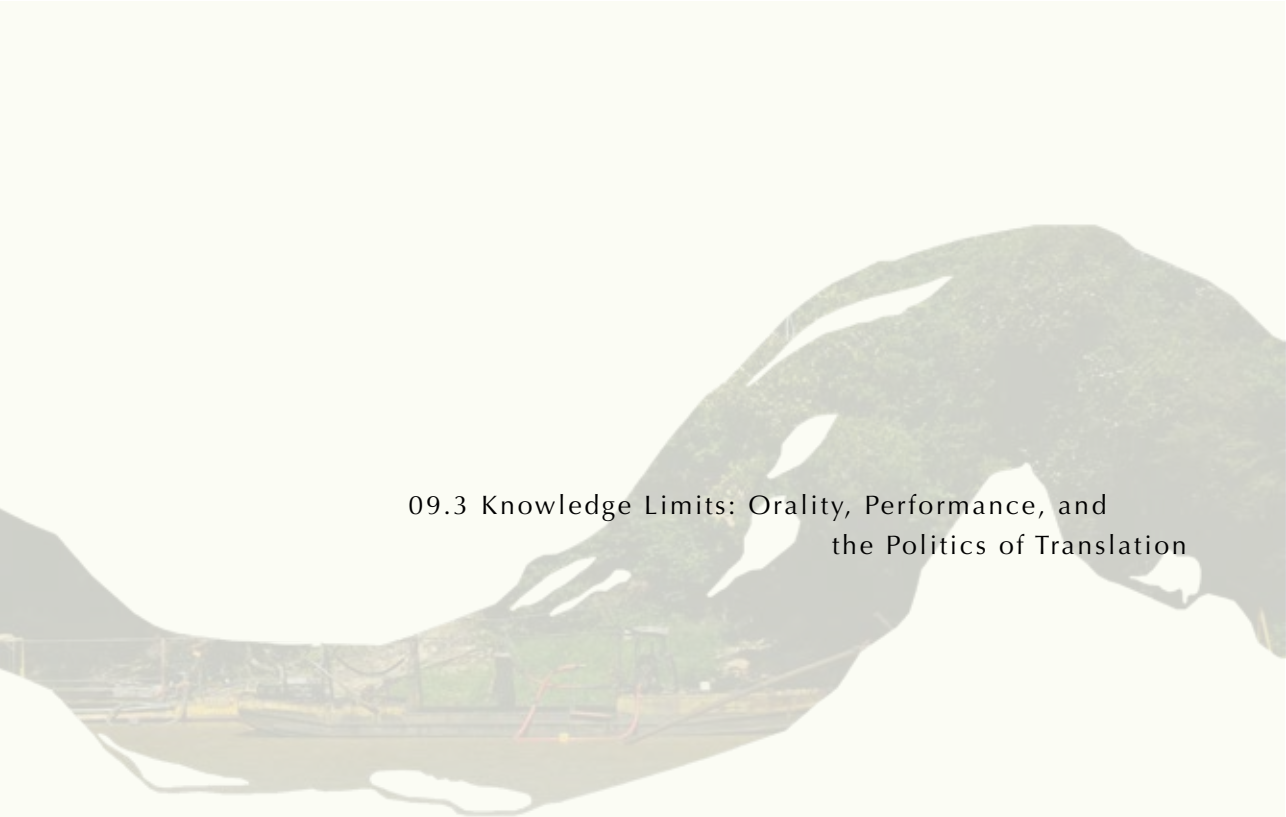
The urban form of Marabá materializes this condition. Certain settlements maintain embodied and adaptive relations with hydrological variability, adjusting dwelling practices and routines to seasonal pulses. Other parts of the city are planned to turn away from the river, privileging road-based infrastructures and technocratic logics intended to neutralize variability through control. These orientations coexist within the same urban fabric, producing differentiated exposures to vulnerability and risk. The river becomes a line of articulation through which competing territorial rationalities become legible - not a boundary separating "urban" from "nature" but a medium through which multiple temporal regimes of modernity produce their material effects simultaneously.

The analytical value of uneven co-presence as a concept lies precisely in what it adds beyond existing frameworks. It is more specific than Tsing's (2005) friction - which describes encounters between global and local without fully accounting for the temporal dimensions of co-presence. It is more empirically grounded than Lefebvre's (1974/1991) simultaneity - which theorizes the co-presence of spatial logics without the asymmetric exchange dimension that the Amazonian material makes unavoidable. And it is more analytically precise than the notion of hybrid urbanism - which tends to flatten the power differentials that structure co-presence into a neutral description of mixture. In the Brazilian Amazon, co-presence is never neutral: it is always structured by histories of dispossession, by unequal capacities

to claim institutional recognition, and by the material fact that some actors control the conditions under which others must adapt.

This concept has potential applicability beyond Marabá. Rapidly urbanizing territories in other parts of the Global South - where extractive economies, Indigenous territorialities, and administrative urban frameworks converge in the same spatial field - present analogous configurations. The uneven co-presence of temporal regimes offers an analytical lens for reading these configurations without reducing them to developmental lag, cultural conflict, or governance failure - repositioning them instead as structural features of a form of urbanization that Western urban theory has consistently misread as exceptional or transitional (Cardoso, 2022; Haesbaert, 2020; Escobar, 2008).





09.3 Knowledge Limits: Orality, Performance, and the Politics of Translation

A thesis committed to epistemic plurality must account honestly for the conditions under which its own knowledge was produced. Limitations are not incidental defects to be minimized in a concluding section - they are constitutive conditions shaping what can be seen, how it can be asserted, and whose claims become legible within academic and policy discourse (Haraway, 1988). This section reflects on those conditions not as an act of methodological self-criticism but as a substantive contribution to understanding how knowledge about water territories can and cannot be produced.

The first limitation concerns exhaustiveness. Water territories are produced by multiple actors, temporalities, and relations that exceed any single research design. Documentary analysis, interviews, relational mapping, and spatial-visual interpretation can trace connections and misalignments, but the heterogeneity of practices along the Tocantins exceeds the temporal and logistical scope of doctoral fieldwork. Long ecological cycles - sediment regimes, slow contamination, infrastructural path-dependence - remain only partially observable within the research timeframe. This is not a correctable deficiency but a structural feature of the object itself: water territories are, as this thesis has argued, inherently processual and relational, and no single research design can fully capture what is constitutively open and ongoing.

The second limitation concerns the asymmetry between research

time and territorial time. Water territories operate through seasonal and long-duration rhythms - the annual flood pulse of the Tocantins, the multi-decade trajectory of the Akrátikatêjê's legal struggle for territorial restitution, the slow contamination of fishing grounds by upstream garimpo - that cannot be fully captured through a limited number of field campaigns. Longitudinal research would be particularly valuable: repeated observation across wet and dry seasons, longer-term community-based monitoring, or collaborative documentation practices would allow certain transformations to be followed rather than inferred. This points toward a productive direction for future research - one that takes the temporal rhythms of water territories seriously as a methodological constraint rather than a background condition.

The third limitation concerns orality and the politics of the research encounter. Knowledge production in peri-urban Amazonian contexts occurs where orality is central and where testimony can be shaped by the research encounter itself. Oral narratives may be strategic, selective, or calibrated to what is expected from an external listener - at times they take the form of performance. This does not devalue oral knowledge; it clarifies the interpretive labor required and the political conditions of visibility in these territories: what becomes sayable and credible is shaped by unequal recognition and by the anticipated effects of speaking (Kvale & Brinkmann, 2009; Santos, 2014).

This limitation is particularly acute given the positionality described in the Foreword. As a Brazilian researcher from the South - neither an Amazonian insider nor a European outsider - the author occupies a specific epistemic position that shaped both what was accessible and what remained opaque in the field. The partial familiarity that enabled sustained community engagement also created its own blind spots: certain forms of knowledge circulate only within specific relational networks, in languages and registers that four months of fieldwork cannot fully penetrate. Triangulation across observation, mapping, and documents reduces but does not eliminate the structural risks of partial translation. What it produces is not a complete picture but a situated and accountable reading - one that acknowledges its own partiality as a condition of its analytical honesty.

The fourth and deepest limitation concerns translation itself. Several epistemic worlds encountered in the field do not align with policy or academic grammars. Different knowledges do not always refer to the same objects - the Akrátikatêjê understanding of water as a relational field that includes ancestors, non-human beings, and spiritual presences does not map onto the hydrology of institutional governance frameworks, nor onto the social science categories through which this thesis primarily operates. Any attempt to render relational engagements with water into governance or analytical

categories risks reduction - producing what Viveiros de Castro (2004) calls an equivocation: the illusion of translation where fundamental ontological divergences remain. The analytical contribution of this thesis lies not in resolving this tension but in making it visible as part of the territorial condition itself - and in resisting the temptation to domesticate radical epistemic difference into the familiar vocabulary of governance studies.

This resistance is itself a methodological and political position. It connects to a broader argument in decolonial and feminist epistemology: that the most important thing a situated researcher can do is not claim neutrality but demonstrate accountability - to the territory, to the interlocutors, to the limits of one's own position (Haraway, 1988; Quijano, 2000; Mignolo, 2011). The thesis does not claim to speak for Indigenous, riverine, or quilombola communities. It claims to have followed river paths attentively enough to identify where governance frameworks fail them - and to have produced analytical tools that might make those failures more legible to those with the power to address them.





09.4 Following River Paths

If the thesis is read through the lens suggested by its title, following river paths is not a metaphor added at the end of the argument but the methodological and political discipline that has guided the entire work. It means starting from the river as a living territorial medium and letting its continuities and interruptions define what counts as a relevant scale, a meaningful relation, and a plausible site of responsibility. In Marabá, river paths do not coincide with municipal borders, sectoral mandates, or project perimeters. They connect upstream and downstream dynamics, sediment and contamination trajectories, seasonal pulses, riverbank practices, and infrastructural decisions into a single hydro-social field. Reading policy and territory from this standpoint shifts the gaze away from administrative segmentation and toward the relational continuities through which vulnerability, livelihood, and territorial legitimacy are materially produced.

This shift has immediate consequences for how governance instruments are interpreted. The Marabá case demonstrates that tools often presented as collective or collaborative cannot be treated as primary drivers capable of generating cooperation by design. Where actors are not reciprocally familiar, where exchange is structurally unequal, and where coexistence is frequently organized through negotiated distance rather than shared institutions, governance tends to be a downstream construction - it emerges, if it emerges, after

processes of recognition, habituation, and partial mutual intelligibility have already taken place. In water territories, the critical question for participation is not whether communities are consulted but whether governance processes create the temporal conditions under which actors who inhabit different temporal regimes of modernity, and who depend on the river in radically different ways, can build minimal grounds for mutual recognition. This is specific to water territories: their seasonal rhythms, their long ecological cycles, and their hydro-social continuities require forms of engagement that conventional project-based instruments - designed for bounded spaces and short planning horizons - structurally cannot provide (Acselrad, 2004; Zhouri & Laschefski, 2010).

Following river paths therefore redefines what policy can reasonably aim to do in peri-urban water territories shaped by contamination and transformation. It does not imply that public action should retreat - it calls for a more precise ambition. The most consequential policy work may consist in enabling durable conditions for recognition and reciprocal familiarization across unequal actors, rather than immediately prescribing allocation rules, compensation schemes, or standardized participation formats. Policy relevance is not measured only by the existence of an instrument but by whether it alters the conditions under which unequal exchange persists, and by whether it creates any space - however fragile - for negotiated coexistence and collective care along river continuities.

Finally, following river paths provides a criterion for evaluating policy beyond administrative compliance. Administrative boundaries and sectoral competences fragment what the river keeps continuous: pollution dynamics, flood pulses, sediment regimes, mobility corridors, and the uneven distribution of exposure. A water territories orientation takes continuity as the baseline condition and asks whether interventions reduce fragmentation or reproduce it. Policy assessment, from this standpoint, cannot be limited to whether regulations are formally applied - it must consider whether interventions contribute to the erosion of relational worlds, including immaterial heritage and territorial identity, by treating territory as a surface rather than as a field of relations (Porto-Gonçalves, 2006; Krenak, 2020).

This thesis makes four interconnected contributions to urban and territorial studies. First, it develops the concept of uneven co-presence of temporal regimes as an analytical tool for reading Amazonian - and more broadly, extractive frontier - urbanism beyond the frameworks of developmental lag, hybrid urbanism, or governance failure. Second, it elaborates governance without territory as a structural condition of water-based environments where regulatory instruments are formally active but territorially misaligned - contributing to political ecology and planning theory debates on the limits of sectoral governance. Third,

it demonstrates that dispossession from relational forms of territorial organization - the gradual erosion of collective water relations through administrative, legal, and infrastructural mechanisms - constitutes a form of territorial loss that no compensation mechanism can restore, and that planning and policy frameworks are not currently equipped to address. Fourth, it proposes water territories not as a management category but as an analytical lens capable of holding together practices, actors, scales, and temporalities that institutional governance systematically separates - contributing a situated, empirically grounded framework to debates on relational urbanism, hydro-social systems, and decolonial approaches to territorial governance.

The policy implication of the thesis is deliberately cautious. Marabá does not support heroic expectations that a single collective governance device can repair the socio-territorial consequences of contamination and dispossession, nor that technocratic tools can substitute for the slow work through which shared experience becomes possible. What it does support is a different standard for policy thinking: one that follows river paths as a way of identifying where responsibility accumulates, where vulnerability is redistributed, and where identity is destabilized through unequal exchange. In the peri-urban Amazon, governance becomes intelligible not as an upstream command imposed on territory but as a downstream practice that can only take shape by remaining accountable to the living continuities of water territories.

The river, in this sense, is not only the object of the thesis - it is its method.

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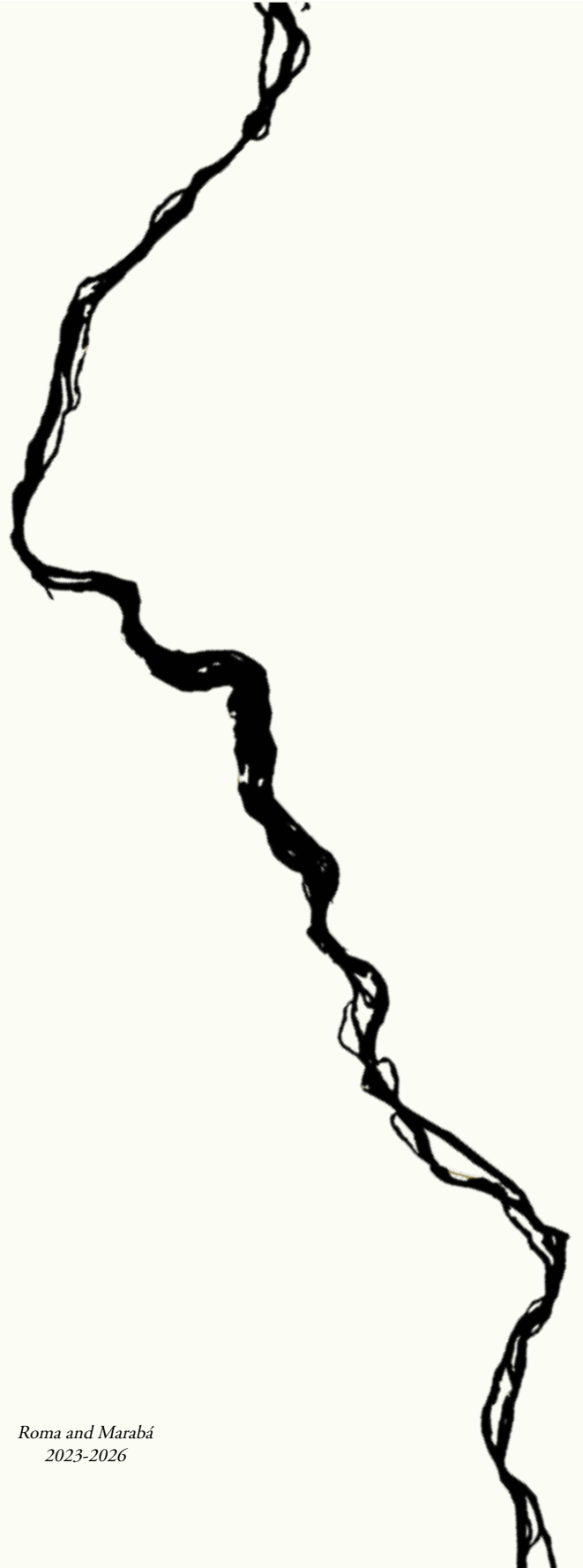
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ANNEXES

A Interviews

B Article - Indigenous knowledge in territorial planning



Roma and Marabá
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