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Introduction

So far, this thesis navigated a topic in a broader sense, under a critical tone on the large-scale plans and policies from the past. From this chapter onwards, the project aims to address and mediate these conclusions, ideas and projections into the reality of Alter do Chão extended territory.

Under the legal and spatial framework, project aims on addressing the conditions of land ownership on site, its conditions related to land use and practices in place, as well as income and value generation. The financial aspect does not mean commodifying Nature, but a means of navigating a scenario of illegality, informality and degradation with several market-based instruments that aim at biodiversity conservation and economic shifts.

Background

The site of Alter do Chão, an extensive territory, is marked by an ever-expanding frontier of the agriculture sector that threatens Indigenous Territories and the native forest, as previously discussed.

The neighboring plots along BR-163 present specific challenges. The east side of the road is particularly affected by illegal occupation, with fires and deforestation being the primary drivers of land appropriation. Additionally, some privately owned plots, although legally registered, have irregularities in the Rural Environmental Registry (CAR, in Portuguese). These irregularities violate the Forest Code, which mandates that 80% of the land in the Amazon Biome must remain as intact or regenerating forest. Research suggests that, despite intentions to comply, owners often opt to pay fines instead of incurring the high costs associated with the regeneration process.

The dual nature of ownership—state-owned forest versus private or illegally occupied land—complicates efforts to address deforestation. The vastness of the Amazon makes it physically challenging to enforce regulations and control state-owned forests, rendering them vulnerable to encroachment.

Brazil has implemented several market-based instruments to encourage nature conservation, including grants, subsidies, and an offset trade mechanism with CAR that trades credits for intact or regenerating forests (Law No. 14.119/2021) (MayerBrown, 2013). Nationally, the government supports bio and sustainable economy initiatives through various funds linked to international sponsors. Notable among these are the National Programme on Sharing of Benefits (SISGEN, MMA, and BNDES) and the Natural Capital Accounting and Valuation of Ecosystem Services (UN and IBGE), which facilitate equitable benefit-sharing and ecological value assessment.

The first program has developed community protocols outlining consultation procedures within each community. These protocols allow indigenous communities to control access to their traditional knowledge and establish parameters for free, prior, and informed consent, as well as benefit-sharing agreements (OECD, 2021). The latter program has created data and protocols for environmental-economic accounting, particularly ecosystem accounting. The upcoming chapters will build on these proposals to explore the implementation of governance and assessment mechanisms, as well as the associated power-knowledge dynamics. Furthermore, a model for Governance-Economic Shift will be proposed, based on assessment protocols, ownership reviews, funding mechanisms, and monitoring processes.

higher instance the local wisdom to be able to control, inform and respond to the situated conditions of their sites. The project stands for the idea that Incorporating traditional knowledge into these roles is crucial for the success and sustainability of the project. Partnering with institutions, NGOs and government agencies, in this case, can provide support and resources to blend traditional and contemporary approaches effectively.

Model for a Governance-Economic Shift

IV.III.I PROTOCOLS OF ASSESSMENT

Currently Brazil offers two mechanisms for assessing Environmental Services (Contabilidade e Valoração do Capital Natural) and creating Sharing Benefit Funds (Fundo Nacional de Repartição de Benefícios) that aims on offering a safe and innovative mechanism to include market interests on ecological conservation. As per the tone of this project, the thesis aims on mediating the existing mechanism and policies to the proposed Taxonomy developed so far. As a way of creating a framework that is informed by local scale practices and grounded, original knowledge.

This thesis will argue that, although ecological services and biodiversity conditions can be measured by modeled parameters, cultural relations as seen in daily life practices to Nature as well as spatial relation to frontier expansion demands different methods of assessment that often are not considered in such frameworks. This project advocates for the integration of a more sensitive assessment of the site, seen from a time analysis of land-use, land ownership and proximity of frontier expansion; as well as deep analysis of cultural connection to Nature and original practices, which demand an ethnographic, anthropologic and metabolic analysis.

This assessment, if made by National Programme on Sharing of Benefits and the Natural Capital Accounting and Valuation of Ecosystem Services would be able to inform in proper and thoroughly manner the correct investment and direction of funds, as well as create a reflexive and critical analysis of the conditions of the site, without exclusively addressing the market interests.

As an outcome, the assessment would:

1. inform the site condition and indicate areas of regeneration
2. ensure adequate consultation and engagement on, and compensation for, access to traditional knowledge (OECD, 2021), informing what is restricted to Indigenous knowledge, what is shared with institutions and what is of common usage
3. clearly outline the capacity and skills of each area and community (not separating one from the other, as Indigenous communities and their land are one) and inform possible roles and tasks to be delegated
4. critically assess the human resources, skills, local expertise, and urgency on regeneration in order to direct funds and human efforts (areas in which tourism would targeted first)

These protocols, create an overall analysis of the site, informing different spheres of the project, from spatial framework to resource demands, expertise available and proposition of a horizontal and local power structure. In sum, it aims to upscale and bringing to a



IV.III.II REVIEW OF OWNERSHIP

The presented model for economic shift demands intensive review of the ownership of land in the extended territory of Alter do Chão. As presented in the introduction of this Appendix, as well as developed in Topography of Values, the conditions of plots follow a trend of relationship between practices-landuse-land ownership. This makes it easier to trace and predict areas in which degradation takes place, as well as, judging by the type of ownership suspect the landuse and practices that will be attributed on the following years.

It is important to emphasise that this project, in order to upscale and leverage agency on the territory, will take the side of original local communities. In alignment with that, it understands as an unnegotiable conduct, the reclamation of illegal ownership of stolen state-owned forests or indigenous land.

Using this as a base for analysis and intervention: the project suggests the following legal framework: Illegal land ownership and irregular situations on CAR are reclaimed (100 and 80%, respectively). This creates two different categories of land: (1) devolution of 100% land on illegal ownership cases, completely changing the ownership system. (2) concession of 80% land on irregular cadastre, allowing management and full program concession to third parties without changing ownership.

This differentiation is relevant, and not for granted, as it will allow different funding methods and achieve different outputs. Both funding and outputs will be disclosed in the following chapters.

IV.III.III FUNDING

The review of ownership will identify the land to be reclaimed and incorporated into the project target area for Strategy 03. Despite the two different categories of land reclamation, both will operate on a reforestation program intersecting with the tourism sector.

The differentiation is made to better align with the funding mechanisms and subsidies available in Brazil's current policy system. Although some considerations were already made regarding the methods Brazilian institutions use to assess values, there is little in the way of policies, grants, and subsidies to support and upscale local initiatives.

Illegal Land and Agricultural Reversion Land

The project proposes that land or the concession of the land be offered to different stakeholders as a form of investment. The first category allows for land ownership for tourism-related use for a commissioned time until the land is fully regenerated. Although there is a renewal in the land ownership system, the goal is to achieve a Conservation State and, within a 40-year frame, to become a Natural Reserve.

Funding is derived from land acquisition and is fully returned to support the implementation of the new governance. This coalition of the private sector allows for a quicker economic return, justifying the sudden land use change.

Investors relinquish land management and follow local and specific project policies. Communities are assigned tasks and roles in the administrative, operational, and decision-making systems. The project is further financed by national and state institutions and grants such as:

Fundo Clima - International and Public
Fundo Amazonia - International and Public
Plano Gestor Territorial e Ambiental - National and Public
Adopt a Park - National and Private
National Programme on Sharing of Benefits (UN and BNDES) - International and Public
Floresta + Empreendedorismo - National and Public

These funds, grants, or subsidies support different stages of the economic shift, including infrastructure implementation, decommissioning, reconstruction, and officialization, as well as wages, maintenance, and staff training.

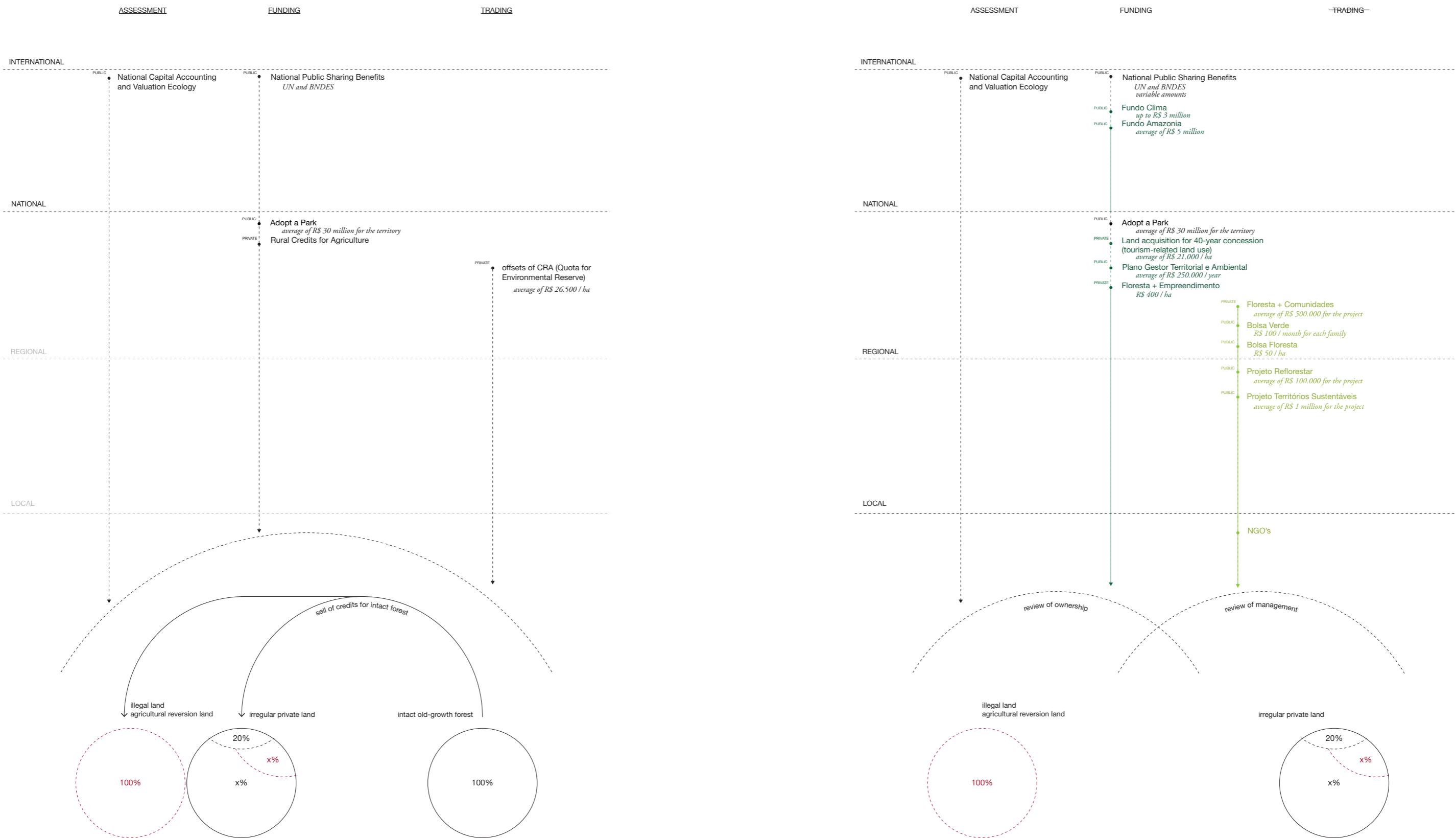
Irregular Cadastres

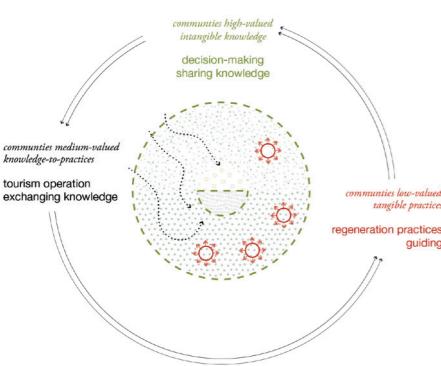
The latter category of land reclamation involves changing the management of 80% of the plot land (as per the Forest Code) to regeneration efforts. Ownership remains unchanged, but management is transferred to another party responsible for long-term regeneration. This area will follow local and specific project policies. Communities are assigned tasks and roles in the administrative, operational, and decision-making systems. The project is further financed by national and state institutions and grants such as:

Fundo Amazonia - International and Public
National Programme on Sharing of Benefits (UN and BNDES) - International and Public
Floresta + Carbono - National and Public
Bolsa Verde - National and Public
Bolsa Floresta - National and Public
Projeto Reflorestar - State and Public
Projeto Territorios Sustentáveis - State and Public
NGOs:
Projeto Saúde e Alegria - Local and non-Profit
Associação Floresta Protegida - Local and non-Profit
Operação Amazônia Nativ - Local and non-Profit
Instituto de Desenvolvimento Sustentável Mamirauá - Local and non-Profit

Noticeably, the latter category receives more investment from local institutions and lacks major investments from large-scale institutions. This is significant for two reasons:

- (1) Illegal and agricultural reversion land results from a lack of planning, monitoring, and fiscalization, and—as this thesis argues—a direct response to large-scale national plans that often overlook their impact on small, local sites. This effort aims to draw attention and accountability to the reflection of such plans.
- (2) The second category relates to private land under management concession agreements. Funding is more challenging since no ownership can be granted, and no rights or rewards can be assured to investors after the goals are achieved. Therefore, more grants and subsidies are required to sustain maintenance and community wages. Additionally, as these lands remain in agricultural use, engaging multiple parties as funding partners aims to ensure constant observation and fiscalization to prevent frontier expansion during the project.





IV.III.IV MANAGEMENT AND ROLES: CYCLIC TIMEFRAME AND SHORT-TERM GOALS

Previously in the Chapter 9 *Ethos*, the project suggests a new model of governance that aims to include local communities and their engagement with the land in the policy-making system. This goal seeks to bridge the gap between decision-making and the subtle site conditions observed and monitored by local communities.

To implement the model of reflexive governance suggested in the chapter, the reclaimed lands would be offered as test sites, managed and operated by local communities. During the assessment phase—described in the IV.III.I protocols of assessment—communities are evaluated on their cultural-ecological values and assigned roles accordingly. This approach fosters a sense of collective ownership on the test sites. The project identifies four areas of expertise for the roles: Management, Assessment, Operation, and Regeneration.

Management Roles involve decision-making, establishing guidelines, setting priorities, coordinating multiple stakeholders (owners, tourists, local population, neighboring agricultural agents, governors, NGOs, institutions, etc.). These roles are granted to communities with better agency reach and territorial representation, specifically indigenous elders and seniors, who possess the wisdom and knowledge necessary for relevant outcomes. Special attention is given to representatives already advising or representing the community in association and deliberative councils, familiar with the political and planning systems.

Assessment Roles are linked to the review and analysis of physical conditions, requiring knowledge of ecology, wildlife, and the monitoring of natural conditions. These roles are essential for setting normative conditions and understanding the site's air, water, and soil conditions and their reactions to different practices. Such roles demand the presence of senior or elder Indigenous individuals and are effective when performed by communities that work closely with traditional practices and understand nature's response to human interaction.

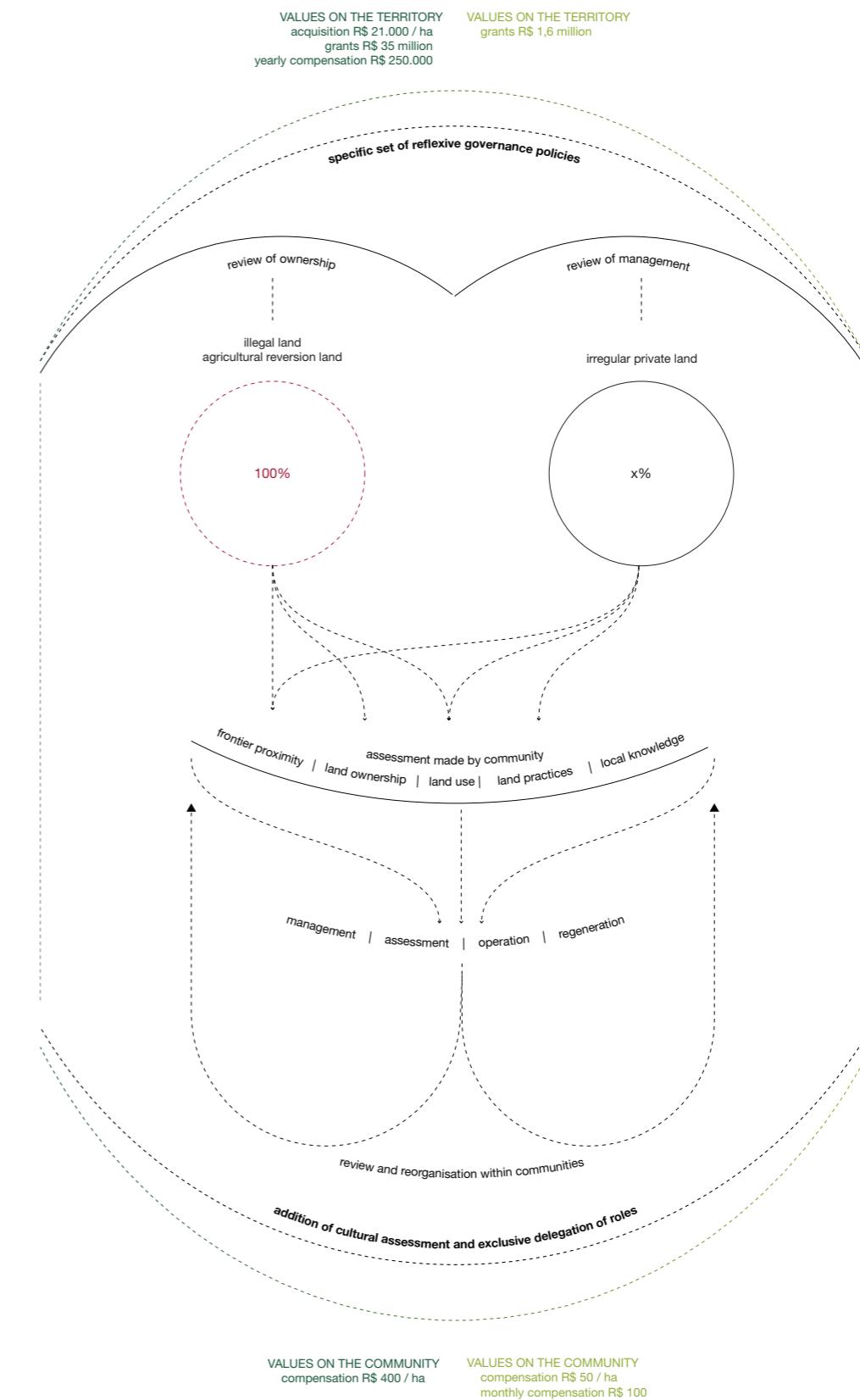
Operation Roles relate to synergy with tourism. As the economic shift proposal intertwines regeneration with the tourism sector, individuals with knowledge of local history are crucial. These roles require skills such as digital marketing, activity management, and guiding. They encompass a range of individuals from young locals to elders, facilitating the sharing of knowledge and questioning practices in adjacent roles.

Regeneration Roles involve tasks like managing, planting, maintaining, monitoring, and developing forest regeneration. They require knowledge of ecological handling and basic tasks such as site maintenance, gardens, and nurseries. Outreach is a key role here, passing knowledge to other individuals, communities, and tourists to assist with these tasks.

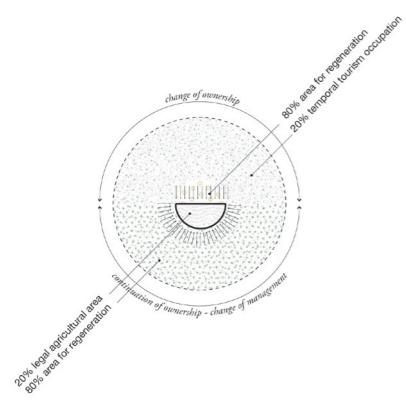
Together, these roles cover the necessary skills and expertise to test the governance model on-site without external input. The project emphasizes that traditional knowledge should not only be incorporated but is fully capable of providing administrative, assessment, and operational expertise.

Although the project advocates for tourism as the best industry

for the site and sees it as a way to empower local communities, it acknowledges that tourists are not irreplaceable in this paradigm shift. Tourism is seen as a financial and physical lever to advance the process. Tourists play a significant role in Operation and Regeneration, and their involvement in Monitoring will be elaborated in the next chapter.



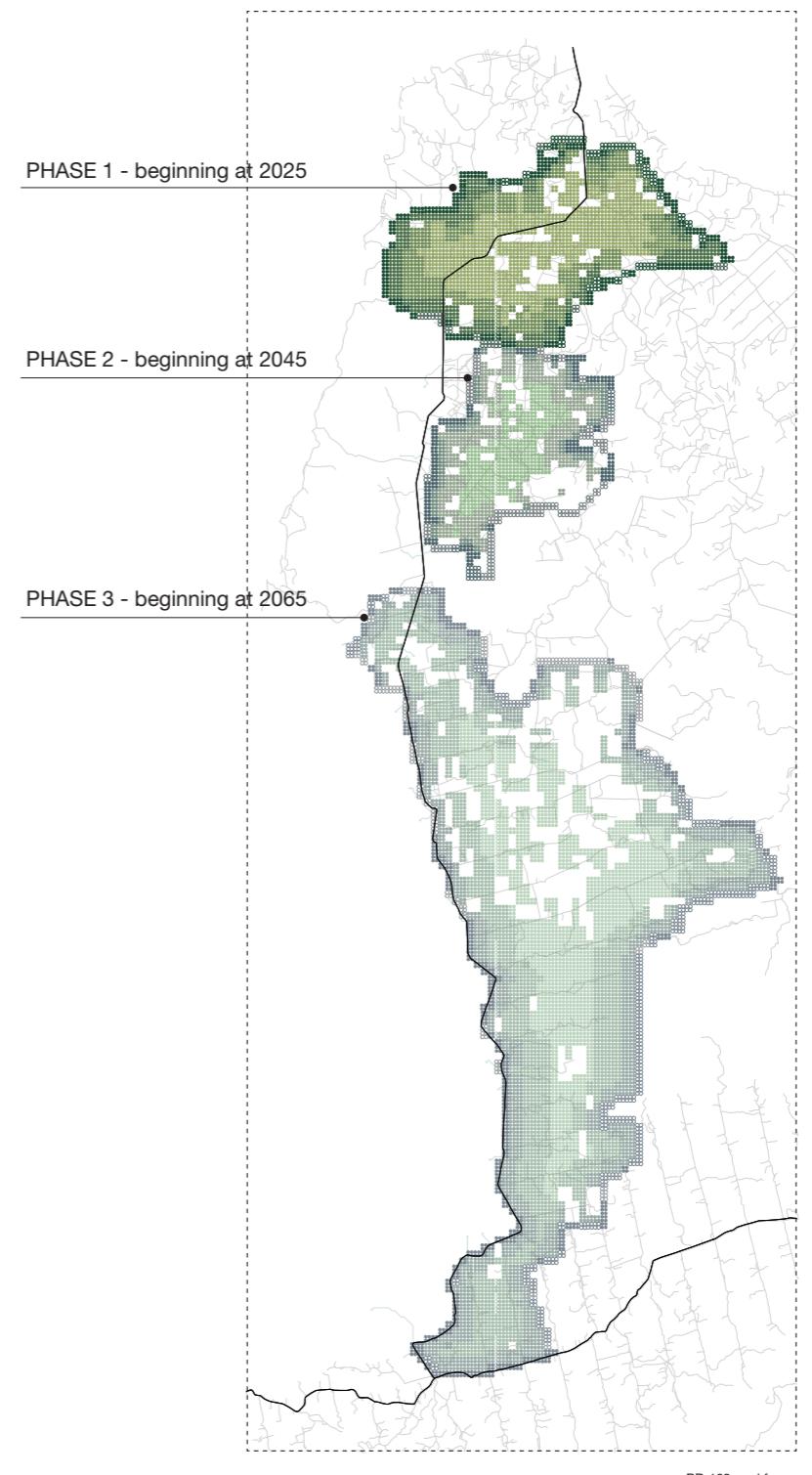
IV.III.V MANAGEMENT AND MONITORING: LINEAR TIMEFRAME, LONG-TERM GOALS



By applying the model of reflexive governance, the test sites of reclaimed land become targets for management and monitoring of regeneration progress. Instead of merely replanting the land's surface, the project proposes active engagement with the land, guided by the knowledge and counsel of Indigenous elders to inform practices, plantation schemes, and care protocols.

As introduced in previous chapters, there is a need for constant review and evaluation of the roles performed and the knowledge distributed. These assessments inform policy in terms of areas requiring intervention, the nature of the intervention needed, and the human resources and skills required. Furthermore, the regeneration process demands knowledge of the site, soil, fauna, and flora. While local communities are more than capable of handling this, the scale of the land can become overwhelming. The project believes that tourism can play a significant role in monitoring and documenting this evolution.

One of the main outcomes of intertwining tourism and reforestation is that tourists can act as agents of photographic documentation of fauna and flora, incorporating these activities into their visits. Moreover, data monitoring related to soil, air, and water can be collected by tourists without requiring extensive knowledge. This creates a direct link to the material ecology proposal addressed in Chapter 10 *Processes*. Used as a reference case study, visitors of the Amsterdamsebos play a crucial role in monitoring biodiversity and generating data that help inform the park's governance. Despite the different context and scale, this successful interaction illustrates how tourists could assist in monitoring regeneration sites in the Amazon Forest.



0 10 25 km

fiscalisation help to maintain the biodiversity of the region while still allowing for sustainable economic benefits from tourism.

CONTROL OF TOURIST INFLOW AND LOCAL TOURISM MANAGEMENT

Different from its neighbours (India and Nepal), Bhutan prioritizes a centralized control of the inflow of tourists, with visa applications, environmental fees, and full operational control of tours, stays and transport system of the tourists. This alone makes Bhutan a rather selective country to visit, in which the type of visitors is filtered solely by the application process and strong policies and fees, as well as the limited and prescript tours and locations that can be visited. Although this can be argued to be a negative aspect, it allowed Bhutan to have a very selective and engaged group of tourists that are in full alignment with their goals.

In this way, Bhutan offers a model for sustainable development that prioritizes well-being, cultural preservation, and ecological health of their Nature and society. The inclusion of cultural and environmental indicators in the GNH (Gross National Happiness Index) ensures that economic progress does not come at the expense of the country's natural and cultural heritage.

Benchmark and Case Studies

The governance and economic shift proposed above, this project has used some case studies as benchmark when it comes to economic shifts, alternatives for project funding, alternative land ownership models and territorial management management. In terms of scale, the selected projects reflect a range of vast territories, usually related to regional to national scales — due to the magnitude of Amazon's territory — for later comparison, this project discusses and proposes interventions in around 320.000 hectares.

Emscher Master Plan (Germany), Instituto Inhotim (Brazil), Fernando de Noronha (Brazil), and Bhutan offer valuable lessons for integrating sustainable development, land rehabilitation into the tourism sector.

RETREAT

The Emscher Master Plan exemplifies how a degraded region, formerly occupied by exploitative industry can be transformed into a thriving, sustainable landscape. The project offers insights on processes of decontamination, reforestation, and the integration of green and blue infrastructure. The project proposed not only an ecological restoration but also the creation of educative, recreational and cultural spaces for residents and visitors, demonstrating the potential for large-scale environmental and social revitalization.

REFORESTATION AND EDUCATION

Instituto Inhotim is a non-profit institution that proposed to reforest and regenerate a thriving mining area. What is most remarkable in the case of Inhotim, is its predisposition to promote an economic shift before the decay of the exploitative industry. By focusing on ecological restoration, sustainable land use, and the creation of engaging public spaces, Inhotim has become a leading example of how art, education and nature can coexist harmoniously. Moreover, Inhotim is a great case study to showcase the effects of added-value tourism and an equitable distribution into society.

LAND OWNERSHIP

Fernando de Noronha, another Brazilian case study, is the eastmost island on the Brazilian Marine Territory — 370km from the Atlantic Ocean's coast. It is known for being an extremely biodiverse environment and being home to isolated communities. It became a renowned tourist destination in the 2000s, but despite the growth of the tourism sector, the island operates on strict land ownership and tourism policies.

The government's control of land ownership, combined with visitor caps and environmental fees, ensures that tourism does not overwhelm the island's ecosystem. This underscores the importance of controlling development to protect sensitive environments. Apart from the difficulty of access to the island, the robust policies and

This kingdom is steeped in history,
but our gaze is fixed on the future.
This is our moment of evolution.

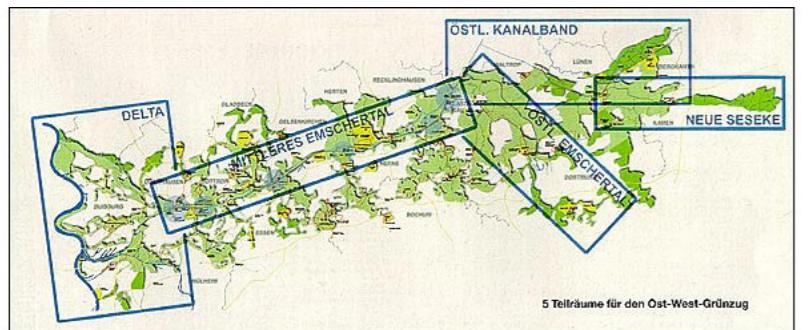
Guardians of some of the world's
most pristine, wild and sacred places
– and of a rich, deeply rooted culture –
we are steadfast as the cypress in our
commitment to conservation.

Our future requires us to protect our
heritage and to forge fresh pathways
for forthcoming generations.

Those who seek us out are called
here. Arriving as guests, you become
our partners in this transformative
moment and make a meaningful
contribution towards preserving what
is priceless.

We see a bright future. And we believe
in our ability and responsibility to
realise it together, and shine as a
beacon of possibility in the world.

BHUTAN
Believe



LEARNINGS AND REFERENCE DATA

For the previous chapter, in which the Model of Governance-Economic Shift is explained, many of the data and outcomes of these four projects were incorporated. For transparency reasons, the values and aspects will be here presented.

Inhotim

250ha — as reference for an agroforestry plot on the New Tourism Zones

_operates under specific legislation for the site — Private Reserve of National Heritage

_management and maintenance of hydrologic, and waste resources, as well as fauna and flora.

_performs nursery programme with 118 species and 9.000 seedlings and 90.000 seeds of preserved biome and 300.000 seeds aimed at reforestation of other areas.

_production and trade of 5.000t / year of CO2

_increased tourism numbers — 1000%

_reduced active mining activities — -60%

_decrease on the unemployment rate — -50%

_increased GDP in the area — 150%

Fernando de Noronha

2.600ha — as reference for possible collective management and ownership on the New Tourism Zones

_exclusive and specific policies for the island, concerning land ownership

_application of environmental tax and fees

Emscher

30.000ha — as reference for the planning of a Phase 1 of the New Tourism Zones

_was conceived and operates as a Private Public Partnership — funded by a coalition of corporate investments, public budgets, NGO's, funds, direct funding, governmental grants and subsidies as well as funding from the European Investment Bank

_80% of its investments come from infrastructural plans — addressed for water management and touristic development

_developed through an intense co-planning, consultation sessions and boards of citizens

Bhutan

3.839.400 ha — as reference for the feasibility of strict control, management of tourism and specific regulations for the total area of the project

_centralized control and management of tourism inflow

_application of environmental tax and fees

Altogether, when adopting Emscher's regenerative approach to infrastructure, Inhotim's blend of education and nature, Fernando de Noronha's controlled development, and Bhutan's systemic sustainability policies, the project aims to mediate the theoretical and critical topics discussed so far to feasible applications. These benchmarks provide an insightful framework for a harmonious balance between environmental preservation, cultural vitality, and economic viability.

