BECOMING INDIGNEOUS TO PLACE

Reimagining Urban Futures through Ancestral Knowledge and Territorial Resilience in Chile

Thesis for a Master's degree in Urbanism
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BOOK 1

Introduction. Position and Methodology

"...Eymun allku tuimun
Allku tu chi kim key"

"You have listen;
people who listens are
the ones who learn"

Foreward.

This thesis condenses and portrays the development of a different way of inhabiting — a way of (re)thinking, (re)narrating, (re)designing, and (re)planning the territory based on the practices and knowledge of the Indigenous peoples of Chile. Through a fluid and (de) structured process, each chapter (book) addresses a specific theme related to how the Chilean territory is inhabited: natural disasters, operational landscapes, sacred landscapes, and the imagination of possible urban futures. Taken as a whole, the thesis guides us through a complex deconstruction of identity and Western knowledge, challenging traditional approaches to doing urbanism and spatial planning.

This process has been an exciting space of learning, exploration, and inner journey — interdisciplinary and multiscalar — which evolved, always with the guidance and support of my beloved supervisors, from disaster management strategies along Chile's coast to radically reimagining and (re)creating sustainable urban landscapes in the Chilean territory, drawing on Indigenous teachings.

This research is an invitation to reexamine and reinvent ourselves in many ways — a methodological contribution to the field of urbanism, aimed at creating spaces from pluriversal, inclusive, and nature-respecting worldviews — to become indigenous to place (Kimmerer, 2015).

Abstract.

This research offers a critical reassessment of Chilean urbanism through the integration of territorial memory and Traditional Ecological Knowledge (TEK) of Indigenous peoples. From an interdisciplinary perspective that bridges urbanism, anthropology, history, and ecology, it explores how Indigenous communities have inhabited and understood the land for millennia, in contrast to the colonial, extractive, and technocratic logics that have dominated in recent centuries. The thesis argues that incorporating these perspectives is not a symbolic gesture, but a fundamental strategy for confronting climate change, building territorial resilience, and responding to natural disasters from a situated, contextual, and relational viewpoint.

Through the concept of radical spatial imagination, it proposes a methodological framework to envision and project more just and sustainable urban futures, rooted in reciprocity with nature. This proposal challenges the dominant narratives of modern urbanism and disaster management, promoting a paradigm shift: from viewing territory as a resource to understanding it as a living being.
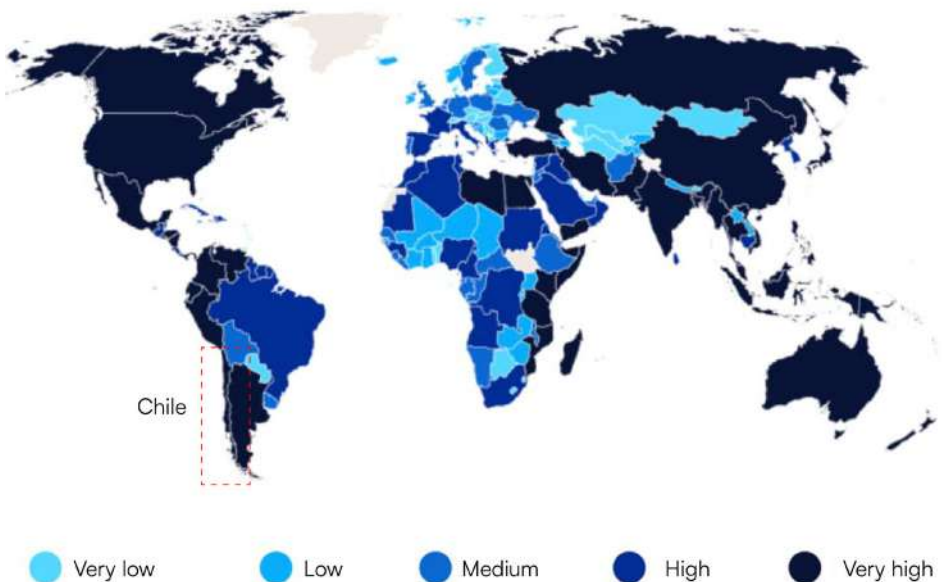
Accordingly, planning, design, and public policy must evolve toward practices that recognize the land as an extension of collective identity, fostering a mode of inhabiting that is conscious, restorative, and deeply connected to ancestral territorial knowledge.

Image 1: Global Climate Risk Index
Data Source: Institute for International Law of Peace and Armed Conflict (IFHV) of Ruhr-University Bochum, 2019.

Introduction.

Climate change is one of the most urgent environmental challenges of our time. Its impacts transcend geopolitical borders and disproportionately affect tropical, subtropical, coastal, and urban regions across the globe. Phenomena such as flash floods, prolonged droughts, and sea level rise represent increasing threats to social security, food sovereignty, water resources, agricultural supply chains, and the stability of coastal cities (UNFCCC, 2023).

In this context, Chile offers a representative case. Its geographic and climatic diversity places it among the countries most exposed to natural disasters — earthquakes, tsunamis, volcanic eruptions, and floods — all of which profoundly alter the relationship between local communities and their environment.
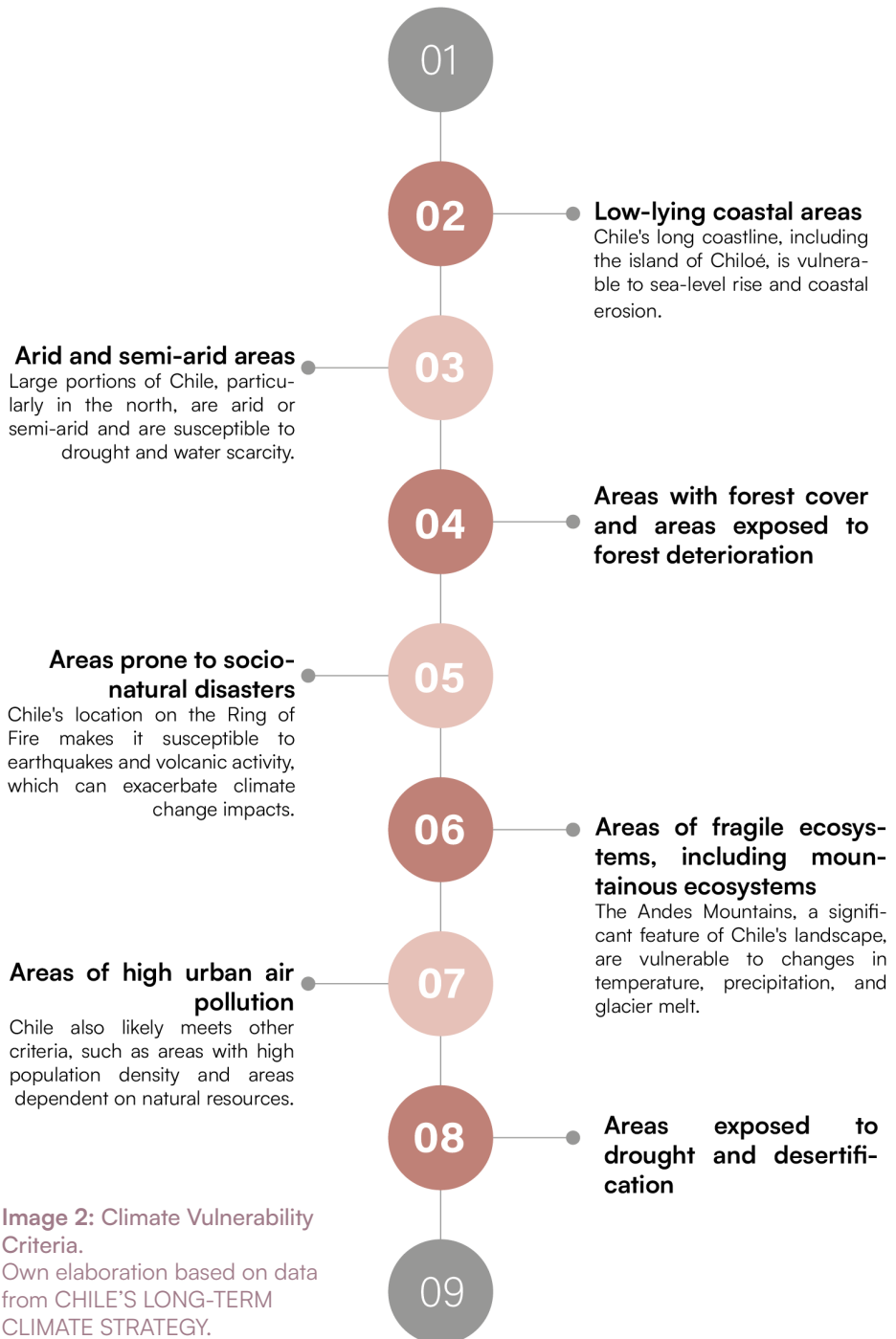

Chile

Very low   Low   Medium   High   Very high

01

02 Low-lying coastal areas
Chile's long coastline, including the island of Chiloé, is vulnerable to sea-level rise and coastal erosion.

Arid and semi-arid areas **03**
Large portions of Chile, particularly in the north, are arid or semi-arid and are susceptible to drought and water scarcity.

04 Areas with forest cover and areas exposed to forest deterioration

Areas prone to socio- **05**
natural disasters
Chile's location on the Ring of Fire makes it susceptible to earthquakes and volcanic activity, which can exacerbate climate change impacts.

06 Areas of fragile ecosystems, including mountainous ecosystems
The Andes Mountains, a significant feature of Chile's landscape, are vulnerable to changes in temperature, precipitation, and glacier melt.

Areas of high urban air **07**
pollution
Chile also likely meets other criteria, such as areas with high population density and areas dependent on natural resources.

08 Areas exposed to drought and desertification

Image 2: Climate Vulnerability Criteria.
Own elaboration based on data from CHILE'S LONG-TERM CLIMATE STRATEGY.

09

According to the United Nations Framework Convention on Climate Change (UNFCCC), Chile meets seven of the nine climate vulnerability criteria, including low-lying coastal areas, disaster-prone zones, fragile mountain ecosystems, and arid regions. Climate Risk Atlas* (ARClim, 2021) projections estimate that between 2035 and 2065, the country will experience a temperature increase of between 1.15°C and 2°C, a decrease in rainfall in the central zone, more frequent droughts, and a significant reduction in snow cover in the Andes. These changes will not only intensify existing vulnerabilities but will also jeopardize food security, trigger climate-induced migration, and severely impact urban infrastructure.

*ARClim is the Atlas of Climate Risks for Chile, a project developed by the Chilean Ministry of the Environment and other institutions to assess and map climate-related risks across different sectors in Chile.

In Chile, this constant state of exposure has shaped a cultural identity that some have termed "terremoteada" (shaked) (Riquelme & Silva, 2011), marked by the internalization of disaster as a historical and geographical constant. Onetto (2017) observes that catastrophe has been naturalized in the national imagination, integrated into the landscape as part of everyday experience. However, as widely argued in the social sciences, disasters are not purely natural phenomena: they are deeply social processes structured by dynamics of

The impacts of climate change affect the natural habitat and society across the country, and in a cross-cutting manner, various sectors fundamental to the nation's livelihood.

vulnerability, inequality, and territorial exclusion (Hewitt, 1983; Oliver-Smith, 1986; García Acosta, 2021; Peña, 2025).

In the face of new disasters driven by global warming, governmental responses have tended to focus on technological complexity and reactive management of existing problems. A technocratic approach predominates, oriented toward specific solutions
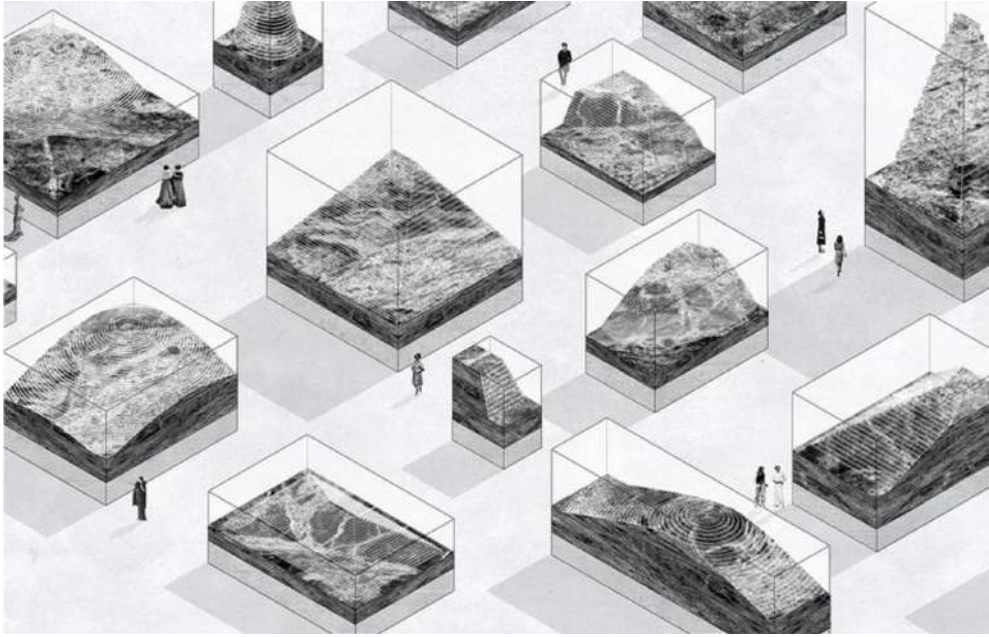
11

Image 3: MUSEUM OF LOST VOLUMES
Nemstudio, (2015)

Image 4: Natural Disasters in Chile
Source: Institution of Prevention of Disasters, Chile (August 2021)

— resilient infrastructure, early warning systems, adaptation plans — but rarely questioning the structural relationship between humans and nature.

Jean-Luc Nancy* (2015) warns that the modern urban model reproduces a logic that alienates humans from their environment, turning ecosystems into economic assets through mechanisms such as "environmental accounting." This approach, rooted in an extractivist rationality, not only deepens the ecological crisis but also hinders genuinely sustainable solutions. Despite policy instruments like the National Climate Change Adaptation Plan (2017—2022) or ARClim itself, most strategies maintain a hierarchical and functionalist view of territory, without challenging the cultural assumptions underlying the exploitation of nature.

*Jean-Luc Nancy, a French philosopher, explored community and being-in-common, offering a philosophical lens on urbanism as shared experience—shaping thought on contemporary urban life without proposing a literal urban model.

Disciplines such as urbanism, architecture, and landscape have also responded with a technical-infrastructural lens, expressed in trends such as nature-based solutions or biodiversity-based planning. While these approaches — promoted by the global urban agenda — have brought important advances, they often reproduce, under a new vocabulary, the foundational principles of modern urbanism already outlined by Le Corbusier in The Three Human Establishments (1964): order, control, and progress as the pillars of a rationalized civilization. But what happens when these models encounter fragmented territories, wounded memories, and non-linear ecologies?

This thesis is grounded in a dual hypothesis: first, that spatial disciplines have contributed to the production of vulnerable territories by privileging criteria such as efficiency, productivity, and economic growth; and second, that they have lagged behind in the epistemological debate around disasters as social

constructs. Unlike anthropology or history, which have advanced in denaturalizing disasters, urbanism has yet to systematically integrate these critical approaches. This omission hinders our understanding of how spatial decisions — the location of infrastructure, settlement patterns, landscape fragmentation — directly contribute to the production of risk (Mileti & Myers, 1997; Smith & Petley, 2009; Peña, 2025).

The proposed approach seeks to rethink this relationship from a territorial and contextual perspective. Resilience cannot be understood solely as a technical capacity, but as a situated practice that acknowledges the multiple dimensions — material, symbolic, spiritual — of our relationship with the land. In this sense, ancestral knowledge of Indigenous peoples offers fundamental insights. It is not merely about recovering sustainable practices, but about reconfiguring our way of inhabiting territory by incorporating principles such as reciprocity, restoration, and care (Nabhan, 2020).

In Chile, where 12% of the population* identifies as Indigenous, meaning that the bond with the land is a central dimension of life. These communities — descendants of cultures that have inhabited the territory since pre-Columbian times — have sustained a relationship with nature as a source of life, wisdom, and spirituality. However, colonization — both historical and ongoing — has eroded this relationship, transforming the land from a living, sacred entity into a commodified resource. The global economic model has reinforced this extractive vision, disregarding the spiritual, ecological, and communal values of the territory (Nancy, 2015).

This thesis situates itself at the intersection of identity, ancestral knowledge, and climate resilience. Through

a critical and situated lens, it explores how Indigenous knowledge can help transform Chile's urban metabolic processes, fostering a more harmonious and sustainable relationship with territory. This proposal is not about idealizing the past or replicating traditional practices uncritically, but about offering a contemporary and context-sensitive re-reading of that knowledge — one capable of challenging dominant narratives that have distanced us from a holistic understanding of space.

The challenge, therefore, is not only to implement technical solutions but to reimagine the narratives and practices through which we relate to the land. Recognizing that we are part of the landscape we inhabit — and not merely users of the soil — is the first step toward a paradigm shift. It is urgent to build alternative models of urbanism and planning that incorporate the ontological dimension of territory, recognizing Indigenous worldviews as legitimate sources of knowledge and as guides for imagining more just urban futures.

This research embraces a dual challenge: on the one hand, to reimagine what it means to inhabit in times of ecological crisis; and on the other, to rearticulate the foundational concepts of urbanism through other epistemologies — especially those rooted in the knowledge systems of the Global South. As Pink et al. (2017) suggest, imagining urban futures also means imagining new ways of knowing and feeling in the face of risk, uncertainty, and collapse.

To inhabit — as Troncoso Meléndez (1999) reminds us — is not merely to occupy physical space, but to construct meanings, bonds, and memories. And these memories do not always align with narratives of progress. This thesis, therefore, is also a search: for

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Image 5: "LET'S DESCOLONIZE.
Nothing to celebrate the 12 of October"
Protests 2021 on Hispanic Day (12.10)
Source: Diario Público Espana
Image 6: Protests in Brasilia against mining projects that threaten its land (2022)
Source: OutrasMídias

new ways of seeing the world, for alternative principles to guide urbanism, and for new ways of designing, building, and coexisting. It does not seek to romanticize the past or replicate cultural models uncritically, but rather to build — from the present — a new territorial awareness: one that recognizes the interdependence between the social and the ecological, the historical and the projective, and that dares to imagine more just, resilient, and rooted urban futures.

As Gary Nabhan (2020) argues, the recovery of Traditional Ecological Knowledge offers a path toward a more balanced future. This thesis is an invitation for architecture, territorial design, and public policy to adopt a holistic approach — one that understands the land not only as a resource, but as an extension of our collective and spiritual identity.

Image 7-12: Chilean landscapes, form north to south
1. Chungara Lake
2. Camarones Ravine
3. Elqui Valley
4. Central Valley
5. Bueno Rivercahuello
Photos from Guy Wenborne

The principle is deeply rooted in the Haudenosaunee (Iroquois) Confederacy's Great Law of Peace, a constitution that outlines governance and spiritual beliefs. It encourages leaders and individuals to make decisions that not only benefit the present but also ensure a healthy and sustainable future for their descendants.

The Seventh Generation Principle can be applied to various areas, including energy, water, natural resources, single-use plastics, and business practices.

It promotes the idea that the Earth is being borrowed from future generations, emphasizing the need for responsible stewardship of resources.

The principle challenges short-term thinking and encourages a broader perspective that extends beyond one's immediate lifespan.

It encourages individuals to leave a positive legacy of care, respect, and hope for future generations.

Chapter 1:

Relation to Territory, Knowledge, and Research

I.I. Personal Background and Experience

I am Chilean, a woman, an architect with a master's degree in architecture and landscape architecture. Third generation of Italian migrants in Chile, today I find myself once again in a migrant condition, this time in the Netherlands. Since this new experience, I have gone through a deep process of feeling out of place. Although I have found the Dutch to be kind, respectful and friendly people, they are not "my people". We do not share the language, the social codes, nor - what I have noticed most - the geography. I deeply miss my homeland: the mountains, the colours, the biodiversity, the smells. Holland, with all its canals, ducks and density of people, it has no smell.

I have lived in other countries before, both in Europe and Latin America, but this time, perhaps because I study urban planning, I have questioned more intensely how we inhabit a territory. What is the same in other places? What is different? And why? Although I have European citizenship, I have never felt European. My territory is Chile. However, my father, a second generation migrant, does not feel entirely Chilean either. The son of Italians, he worked most of his life for Spain, and considers that country his second home, and Europe the origin of his ideals. These identity tensions have marked my initial reflection on this research: how do we become natives of a place? When is the sense of belonging constructed? Is it the first generation? The seventh* ? Or never at all?

This map is considered the first historical map of Chile
It is oriented with north to the left, from Atacama to Tierra del Fuego.
The Andes are depicted from north to south, accompanied by a label that describes them as volcanoes
To the west of the mountain range, the many rivers that cross Chile from north to south,
as well as some major cities, such as Santiago, Valparaíso, Concepción, and Chiloé (4).
To the southeast, beyond Tierra del Fuego, Ovalle represents Terra Incognita. Although it is located in the same direction as Antarctica, this continent had not yet been discovered
The map also features many animals and mythological creatures

This map was based on stories

Image 13: Map of Chile
by Alonso de Ovalle in 1646, it was published as part of his work Historical Account of the Kingdom of Chile.
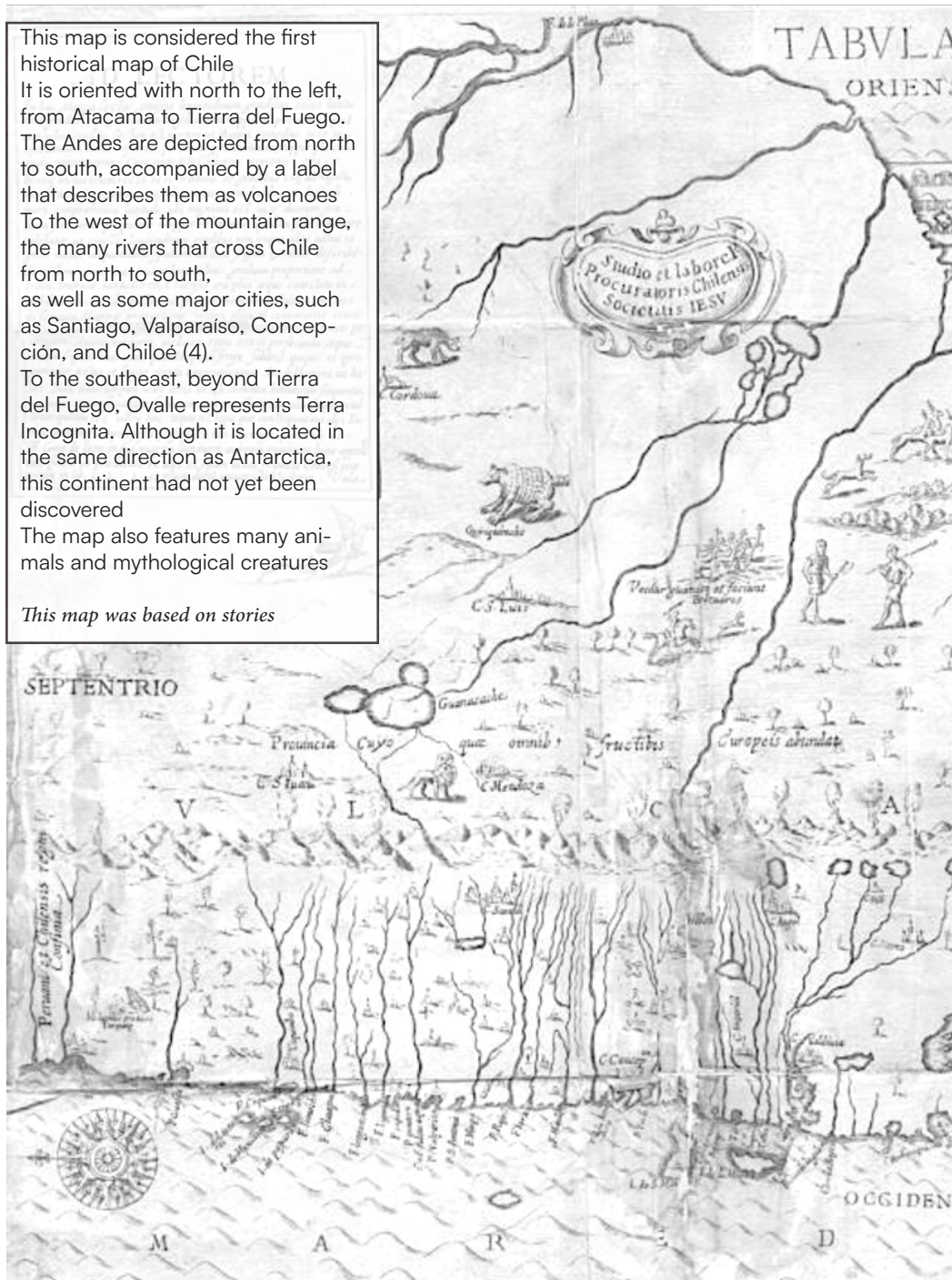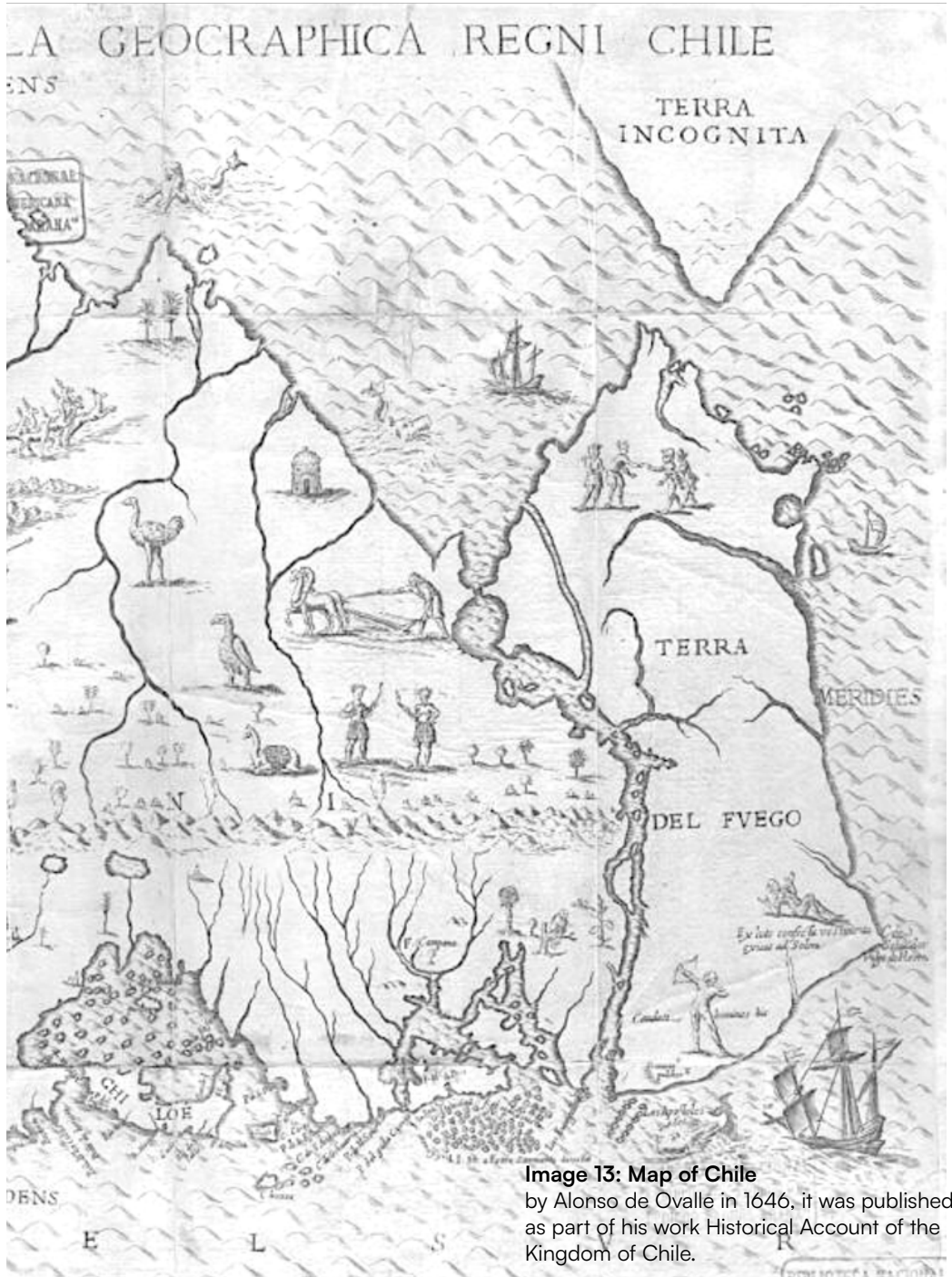
So begins the idea of this thesis: "Becoming Indigenous to place: Reimagining Urban Futures through Ancestral Knowledge and Territorial Resilience in Chile". The question that accompanies me is how people come to inhabit respectfully and really belong to a place, understanding that this territory has already been inhabited, colonised, modified and narrated by multiple peoples, languages, knowledge and cosmologies.

My perspective is multi-scale: architecture, landscape and urbanism. And situated: from Holland, studying indigenous cultures in Chile. I want to question, from the discipline of urbanism, what it means to "become indigenous" or native to a place in this century, in contexts of climate crisis, icnrease natural disasters, loss of biodiversity and constant migration.

This thesis has been, for me, a process of decolonisation of knowledge, of imagination and also an inner journey. It began with technical research on coastal infrastructures and resilience to climate change in Valparaíso. Studying the urban evolution of this city, I came to ask myself: what was there before the Spanish, how did indigenous coastal peoples deal with the same problems we face today? And so I began this journey.

I decided to study urbanism with the intention that topics that I am passionate about - such as landscape, water, the relationship with land - could have a place in discussions that are considered "serious" or "technical" and "necessary". Subjects that are essential, but often excluded from classical urban frameworks. I am interested in bringing to the centre of the urban debate questions such as: why don't we know where the water we drink comes from? Why doesn't anyone recognise the tree from which the fruit we eat comes?

I grew up between the city and the countryside. Between chickens and pigeons, between mud and concrete. This double experience gave me the tools to understand the tensions between nature and urbanism, and this master's degree has helped me to spatialise these conflicts: to see how they manifest themselves in everyday territory and to incorporate other perspectives of design and planning towards climate resiliency.

I.2. *Relationship to Territory and Indigenous knowledge*

This research starts from a study led by the Research Center for Integrated Disaster Risk Management (CIGIDEN), which revealed that 90% of Concón Bay in Chile has low levels of coastal sustainability. Urbanisation, industrial forestation, roads and real estate expansion have degraded critical ecosystems such as wetlands and dunes, essential for climate resilience and disaster mitigation.

The state of deterioration of this area is not exceptional: it reflects Chile's economic, political and urban model, which prioritises the exploitation of the territory over its care. From urbanism, this diagnosis led me to ask myself: what territorial knowledge are we ignoring, and what alternatives could we recover?

I chose to work in Chile for practical and affective reasons: it is my context, it is where I live and where I want to continue working. I thought it would be a manageable subject within the TU Delft approach, where urbanism is understood as an interdisciplinary activity focused on the design of sustainable urban landscapes. But as I delved deeper, I realised the complexity of the issue: multiple scales, historical layers, conflicting worldviews and deep colonial wounds still open.

Image 14:
Concon Bay, Valparaiso
Source: @Deensel
Flickr

A sustainability index for anthropized and urbanized coasts: the case of Concón Bay, central Chile.

The study assesses the level of anthropization in Concón Bay, one of central Chile's most urbanized coastal areas, using a Coastal Sustainability Index. Results show that 89.7% of the area has low to moderate sustainability, mainly due to residential, industrial, and infrastructure pressures. Only 10.3% remains highly sustainable. The findings support the need for conservation-oriented land-use planning to protect vulnerable coastal ecosystems.

My approach to the indigenous world has been progressive. At school, I learned the minimum: a list of peoples, classified according to geography and abilities. The history taught was white, masculine and Eurocentric. The indigenous appeared as a chapter before the "real" history: that of the Republic, the presidents, the wars and Europe. Paradoxically, I learned more about Europe than about Latin America.

My links with indigenous knowledge have been occasional: trips to Bolivia and Peru, volunteering at Pachamama Raymi (founded, ironically, by a Dutchman), and lately in the professional world, the times when my architectural project were halted because archaeological remains were found on the site. This thesis is my first systematic immersion in this knowledge, and I do so with humility. I am not an anthropologist, archaeologist or expert on native peoples. I apologise if I make mistakes in interpretation. My aim is to bring this knowledge into the urban and landscape conversation, to specialise it, not to appropriate it.

I am neither a climatologist nor a geologist. The subject of natural disasters is not my speciality, but it is my reality. I come from a city (Santiago) where it no longer rains as it used to, where the heat is unbearable in summer, where water is increasingly rationalised. And I now live in a country that - if it continues like this - will be under water. From an urban planning perspective, I propose to look at how indigenous cosmologies can help us rethink territorial planning in the face of these challenges.

1.3. *Positionality in Relation, Urban Studies, and Climate Resilience*

What does it mean to "inhabit"? and, what does it mean to become indigenous to a place?

What I've learned from this research is that Indigenous knowledge is not only knowledge about the environment, but a way of living in balance with it. Indigenous worldviews do not separate nature and culture, individual and community, time and space. Concepts such as Az-Mapu (Mapuche) or Pacha (Andean) do not distinguish between physical and spiritual territory: they are living notions, linked to a specific space and time, which articulate memory, landscape and identity (interviews, 2025). (interviews, 2025).

Colonisation fractured this relationship. It not only appropriated land, resources and people, but also knowledge, languages and ways of doing things (Bustamante, 2025). Western thought has tended to fragment the world in order to understand it, separating the scientific from the spiritual, the urban from the natural (Troncoso Meléndez, 1999). Today, even science is beginning to recompose these divisions.

Thinking about urban futures from the perspective of urbanism also implies considering the imaginaries that these futures propose. Design and infrastructures are not neutral: they can reproduce logics of exclusion or open up democratising possibilities, which is why urban planning must question its epistemological foundations. For this reason, urbanism must question its epistemological foundations: what if we think of the city not from Le Corbusier, but from ancestral agricultural calendars, from reciprocity instead of property, from

A year after the Lisbon earthquake of 1755, which was felt from Morocco to northern Europe, Rousseau wrote to Voltaire: "Concede, for example, that it was hardly nature who assembled twenty thousand houses of six or seven stories. If the residents of this large city had been more evenly dispersed and housed less densely, the losses would have been fewer or perhaps none at all" (as cited in Nancy, 2015, p. 4). By then, as Jean-Luc Nancy has observed, faced with a planetary catastrophe, enlightened men like Rousseau could still imagine a city planned differently.

Chapter 2.

Rethinking the Roots: A Critique of Classical Urbanism

care instead of extraction?

This thesis proposes a crossover between urbanism, indigenous knowledge (specifically from Andean and Mapuche culture) and climate resilience. Not to romanticise the past or essentialise cultures, but to imagine viable, necessary and contemporary alternatives. In times of the Anthropocene, where survival is at stake, I propose to think urbanism from principles such as gratitude, observation, balance and memory.

Why talk about memory and not tradition? Because memory is resilient. It is transmitted orally, it adapts, it transforms. Unlike tradition - which tends to freeze fragments of the past - memory is dynamic, living and deeply contextual. It is in this memory that a real alternative to the 'traditional' Western way of inhabiting the territory resides.

Questioning Classical Urbanism

Modern urbanisation, based on Eurocentric and extractivist logics, has built cities disconnected from territory, nature and local knowledge. These cities reproduce colonial imaginaries where urban space is neutral, functional and segregating. Urban planning has tended to be reactive and technocratic, limited to managing "problems" without questioning their structural causes (Carrasco, 2024).

Contemporary urban and territorial planning practices, despite adopting languages and concepts such as nature-based solutions, biodiversity, nature-inclusive design, sustainable built environment or urban ecology,
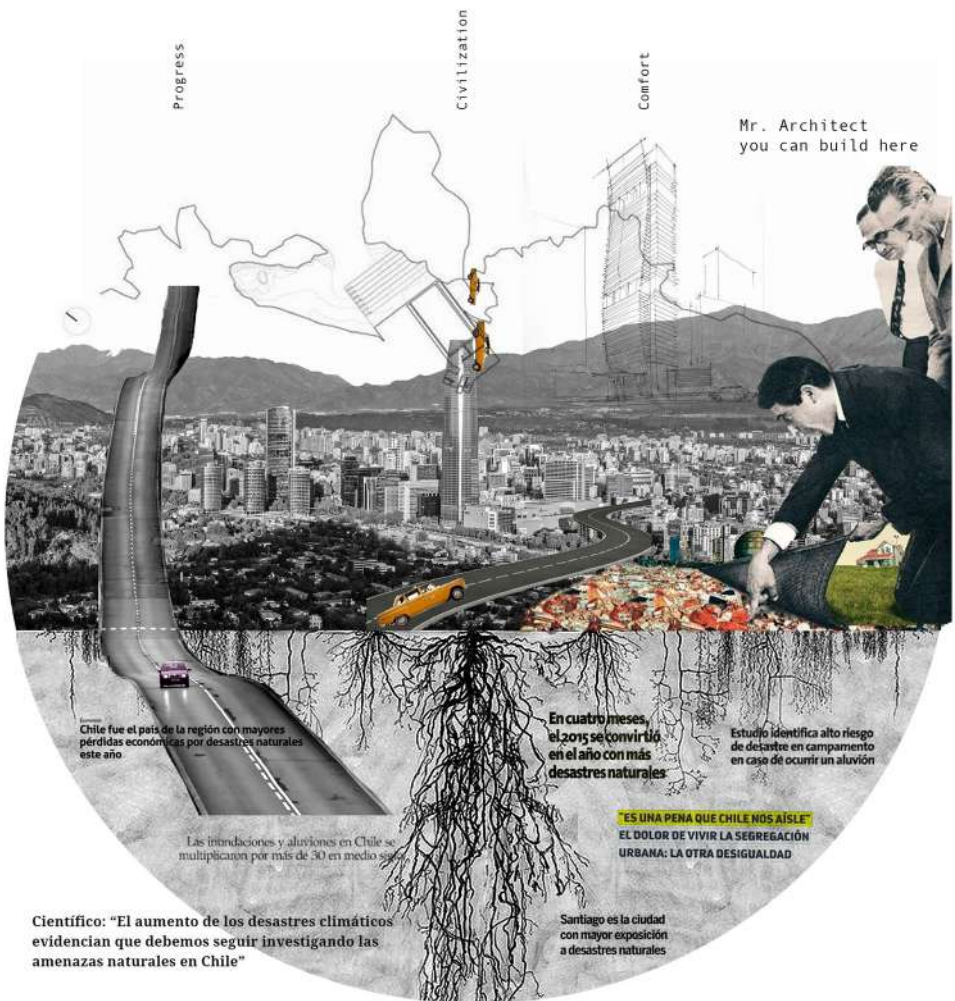
Text visible within the collage:

Progress

Civilization

Comfort

Mr. Architect
you can build here

Chile fue el país de la región con mayores pérdidas económicas por desastres naturales este año

En cuatro meses, el 2015 se convirtió en el año con más desastres naturales

Estudio identifica alto riesgo de desastre en campamento en caso de ocurrir un aluvión

Las inundaciones y aluviones en Chile se multiplicaron por más de 30 en medio siglo

"ES UNA PENA QUE CHILE NOS AÍSLE"
EL DOLOR DE VIVIR LA SEGREGACIÓN URBANA: LA OTRA DESIGUALDAD

Científico: "El aumento de los desastres climáticos evidencian que debemos seguir investigando las amenazas naturales en Chile"

Santiago es la ciudad con mayor exposición a desastres naturales

Image 16: Photocollage of urbanism processes in Chile and the climate crises hidden underneath. Own elaboration

rarely structurally question the dominant urban model. They reproduce, albeit with new languages, the modern principles of urbanism that Le Corbusier (1964v) had already put forward in The Three Human Establishments: order, control and progress, as a function of a rationalised ideal of civilisation. But what happens when these logics are confronted with fragmented territories, wounded memories and ecologies that do not respond to linear models of development?

These theories, when integrated into institutional discourses and technical frameworks, tend to instrumentalise nature as a resource that can be managed, optimised or incorporated into the urban fabric, without altering the socio-cultural foundations of existing urbanism. However, urbanism is not just a technical practice, but a way of life that reflects the collective psychology and the dominant logic of consumption. This is why climate change and natural disasters become catastrophes only when there are vulnerable ways of life built on territories at risk. Regardless of scale, site or context, design projects are always immersed in a complex web of socio-ecological processes that transcend the architectural object. Yet the current model continues to project with nature "outside", reaffirming the separation between society and the natural environment. This approach reproduces the civilisation-nature duality, where nature "thrives" only in the absence of humans, perpetuating the idea that coexistence implies domination or exclusion, rather than a radical transformation of the way we live.

This approach dissociates living from territorial cycles and breaks the relationship between the human and the natural. The ability to think space from other

Map of social conflicts in Chile
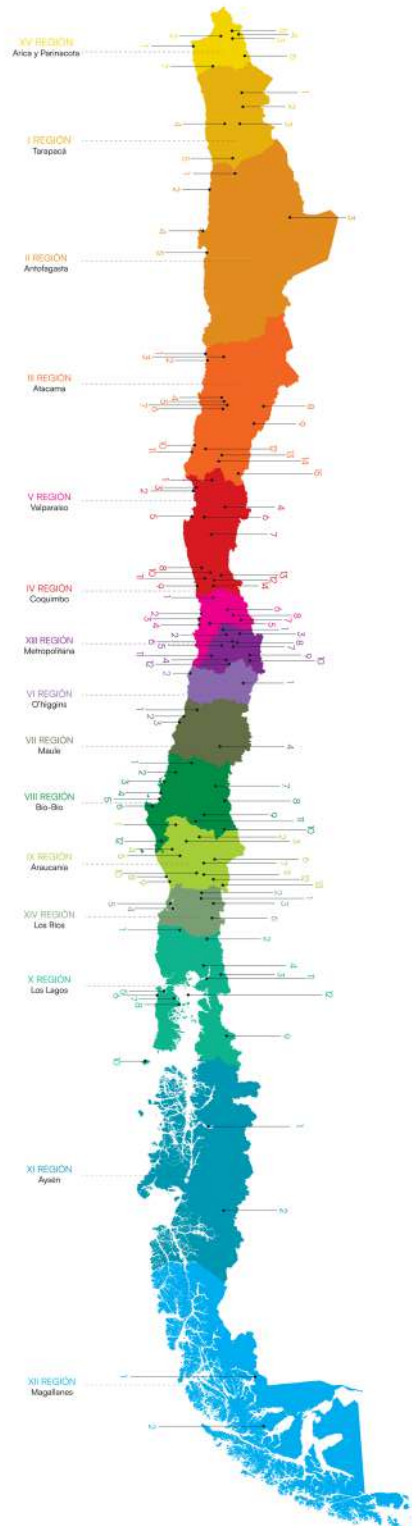
Image 17:
Map of Chile's 119 active socio-environmental conflicts (2021). These conflicts reflect deep-rooted inequalities tied to extractive capitalism, colonial land models, and environmental injustice affecting rural and Indigenous communities.

Design: Catalina Marchant V. / Mapping: Raimundo Marchant V. More information available at: Google Drive

link.

ontologies has been lost. The modern city is not only infrastructure, but also an ideological project that reinforces colonial and capitalist hierarchies. In the face of this, there is an urgent need for a different, sensitive and decolonial urban planning, capable of imagining cities that are just, sustainable and deeply connected to the environment.

Chile as Case Study

Chile offers a paradigmatic case where natural hazards, colonialism, extractive capitalism, territorial inequality and environmental injustice converge. Its exposure to earthquakes, volcanic eruptions, droughts and forest fires is intertwined with a development model based on the exploitation of natural resources and the marginalisation of rural and indigenous communities. Since the Spanish conquest, the model of territorial occupation has been built under a vision detached from the original natural and cultural cycles. This model, consolidated by neoliberalism in the 20th century, produced socio-spatial inequalities and territorial fragmentation (Brites, 2017). In Chile, the landscape has been transformed by monocultures, mining and megaprojects that degrade ecosystems and erode traditional ways of living.

The so-called "earthquaked identity" (identidad terremoteada) in Chile, as described by Riquelme and Silva (2011), is intertwined with a catastrophist discourse rooted in the processes of conquest and colonisation (Onetto, 2017). This narrative maintains in the collective imagination the idea of a "country of catastrophes", and is inscribed in the Western paradigm shift that displaced divine guilt towards nature as the origin of disaster. However, since the mid-20th century, social sciences have shown that disasters are not natural

events, but social constructions that reflect structural vulnerabilities such as poverty, exclusion, unequal land distribution and poor urban planning (Hewitt, 1983; Oliver-Smith, 1986; García Acosta, 2021; Peña, 2025).

The contemporary approach to disaster management tends to respond to the climate crises we are experiencing with plans focused more on increasing the technological, social and economic complexity of cities, or on responding reactively to existing problems and needs, without questioning the structural factors that generate vulnerability, such as the (globalised) economic model we have. This technocratic treatment is a reflection of a capitalist rationality that has commodified ecosystems, turning them into monetarily valued terms and inventories (Carrasco, 2024; Nancy, 2015). The Capitalocene (Moore, 2016) expresses the current stage of global capitalism and social psychology, in which nature is inscribed in extractivist and supply-side logics at global scales, with instruments such as carbon credits and circular economy, which perpetuate exploitation rather than question it.

Although disciplines such as geology, history and anthropology have documented the effects of disasters since the nineteenth century (Noria, 2018; Mellafe, 1994; Salazar et al., 2022), architecture and urbanism have been absent in this epistemological turn. Recent studies (Carreño et al., 2023) have emphasised the importance of integrating indigenous knowledge, especially in sacrifice zones and territories affected by extractivism. The COVID-19 pandemic exposed the interdependence between health, environment and inequality, reaffirming the need for contextualised urban planning. Sustainable mitigation' and the 'complexity paradigm' propose understanding disasters as processes rooted in policy decisions and

development patterns (Mileti and Myers, 1997; Smith and Petley, 2009).

This disciplinary void becomes even more relevant when we consider that many of the factors that determine vulnerability to disasters are territorial, that is, they are linked to decisions on land use and design, the location of settlements in risk areas and the disconnection of infrastructures from the natural environment. It is here where urban planning and landscape architecture must rethink their approaches and theories to incorporate a comprehensive view that not only addresses disasters from a technical perspective, but also from a social, political and environmental critique that considers territorial memory and local knowledge.

Disciplinary Gap: The Urgency of a New Urban and Territorial Perspective

From anthropology, several works have been developed that explore anthropological futures, arguing that the future is not a distant and diffuse place, but an alterity of the present, constituted through practices and discourses that can be approached from a phenomenological perspective and through ethnographic research that validates the approach to "the uncertain, the unknown and the risky" (Pink et al., 2017, p. 144; Cereceda Otarola et al., 2025).

Despite the valuable contributions of anthropology and history in the social understanding of disasters, there is a significant disciplinary gap in the approach to these phenomena from spatial disciplines such as urban planning, architecture and landscape. This gap becomes particularly interesting and critical for urban planning, considering that many of the factors that determine vulnerability to disasters are directly

territorial: poor urban planning, location of settlements in risk areas, disconnection between infrastructure and the natural environment, rigid and anachronistic infrastructure, and loss of territorial memory.

During the research carried out in this thesis, it was identified that urban planning has remained focused on technocratic paradigms that do not question the power structures and extractive dynamics that permeate urban design. In this sense, approaches focused on infrastructure and technology have been privileged, without considering that vulnerability and risk are products of development models and urban policies that fragment the relationship between society and nature.

My contribution to urbanism lies in pointing out the need to rethink the way we make cities, especially in contexts such as Chile's, where natural hazards are constant and urbanisation has historically been uneven. This rethinking must recognise the history of the territory and value the territorial memory of communities. This approach must not only be sensitive to risk and socio-environmental dynamics, but also promote spatial justice, recovering knowledge displaced by the dominant development model and proposing sustainable alternatives that do not continue to reproduce the extractive logic.

The incorporation of indigenous knowledge in urban design implies a profound questioning of the colonial model of territorial organisation. My proposal is a change of narrative. Urbanism must stop seeing territory solely as a resource for human consumption and begin to understand it as a living entity with which we must coexist. As Gary Nabhan has written, we can't meaningfully proceed with healing, with restoration, without "re- story-action". The origin of our

disconnection from nature lies in the stories we tell about it. Healing this relationship requires a new story, a new perspective towards the land-narratives that honour and respect landscapes as more than mere resources for human consumption (Nabhan, 1997). This shift involves becoming Indigenous to a place, living as if the future of our children depends on it, and recognizing the land as an extension of identity, sustenance, and spirituality. In the context of Chile, this approach calls for a deeper engagement with traditional ecological knowledge as viable and sustainable alternatives to 'traditional' colonial worldviews that have alienated humans from their environment.

Chapter 3.

Methodology and Research Questions

To address the ecological and social crises facing our cities, we must **reimagine** urban metabolism through the lens of Traditional Ecological Knowledge (TEK)—a multigenerational body of practices, beliefs, and observations rooted in deep reciprocity with the land. In a country where climate change and disaster risk are intimately linked to geography, landscape, and resource extraction, this reimagining is both urgent and necessary.

Contemporary **urban design** often reproduces colonial and capitalist logics that fragment ecosystems and alienate communities from their environments, perpetuating unsustainable and extractivist practices. The prevailing technocratic approach of **governance** —focused on managing the economic, technological, and social complexity of cities—translates environmental issues into monetary terms, treating ecosystems and managing life itself as inventories within global supply chains. This worldview has stripped the land of meaning, memory, and spirit.

Reclaiming **spatial justice** demands a radical shift in our relationship with territory—not as a commodity, but as a living extension of our identity, culture, and survival. Indigenous knowledge systems offer tools for adaptation and a fundamentally different way of inhabiting and imagining place. Integrating TEK into design processes invites a more holistic, place-based approach—one that restores our relationship with the land and fosters truly resilient, just, and regenerative urban futures. Becoming indigenous to the land is not a metaphor—it is a political, cultural, and ecological imperative for urban futures.

Research Question.

How can TEK and Indigenous territorial memories reshape urban planning in Chile, shaping new relationships between people and landscape that foster resilience, spatial justice, and sustainable futures in the face of climate crisis and natural hazards?

Sub-questions.

How can Indigenous imaginaries challenge technocratic disaster management and capitalist urban governance, fostering more relational, place-based approaches to risk and resilience?

What conditions must be met—across political, social, and cultural spheres—for diverse actors to engage with the territory as a space of identity, reciprocity, and justice, rather than as a commodified resource?

How can Indigenous knowledge systems and radical spatial imagination serve as methodological and conceptual tools for rethinking urban design, enabling post-extractivist, ecologically embedded futures?

I propose a methodology structured like a palindrome. A palindrome is a word, phrase, or sequence that reads the same forward and backward. This means the order of the research process—such as literature review, mapping, or analysis—can shift or reverse without breaking the coherence of the overall narrative. The key is that each step remains connected through the storyline. This flexible structure not only maintains internal consistency, but also allows for new and different conclusions to emerge at any point in the process.

How to read the methodology

Literature Review

Mapping

Narrative / conection
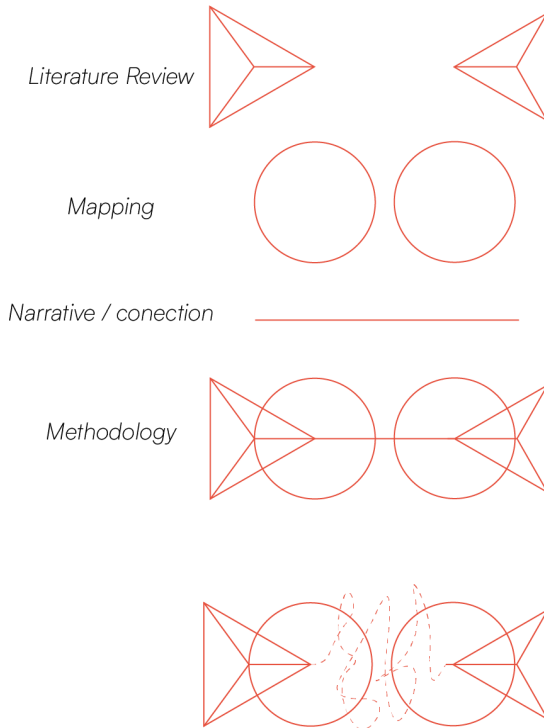
Methodology

Methodology.

The methodology of this research employs a decolonial, transdisciplinary methodology that integrates Indigenous knowledge systems, critical spatial practices, and speculative design to reimagine urban planning and environmental governance in Chile. This approach combines archival research, mapping, fieldwork, and design-based speculation to recover territorial memory and envision just and resilient for Chile's landscape and urban planning in the context of climate change. By combining a literature review with design and exploratory methods such as counter-mapping, counter-narratives, and radical spatial imagination, the study aims to critique and reimagine conventional frameworks of environmental governance, urban planning, and cultural identity.

The methodology unfolds across five interlinked phases:

P1. Literature Review and Theoretical Grounding
A comprehensive review of pre- and postcolonial academic sources provides the theoretical foundation of the problem field in disaster management and colonial and extractivist practices. This includes:
- **Climate Projections and Risk**: Studying climate forecasts and natural hazard risks (Chile 2050).
- **Colonial and Capitalist Urbanism**: Analyzing how extractivist logics have shaped territorial governance.
- **Governance and Environmental Policy**: Critiquing state-led plans such as the National Climate Change Plan.
- **Critical Theories**: Including ecofeminism, political ecology, and critiques of technocratic urbanism.

Disaster Management

Risk

Climate Projections

Urbanism

Disaster Management

Climate Projections
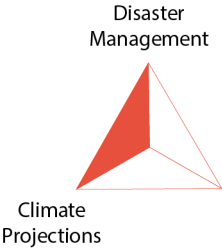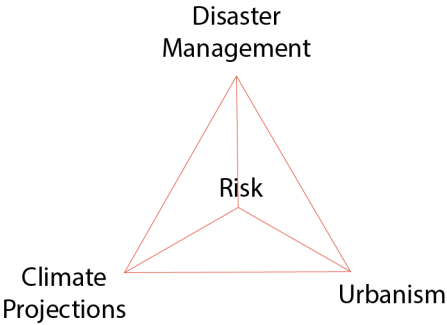
Mitigation plans & actions
Technocratic
Geography
Capitalism
Risk Management
Land use

Disaster Management

Risk

Urbanism

Climate Projections

Disaster
Management

Climate
Projections   Urbanism   Urbanism

Risk

Territory / territorial
Urban Metabolism
Capitalocene
Antropocene: limits of consumption
Vulnerability
Spatial Justice

Land use
Resiliency
Infrastructure
Colonial Urbanism
Technocratic Urbanism

Spatial Justice
Vulnerability
Climate Risk
Hydrological Risk
Meteorological Risk

Conceptual Framwork

Beliefs

Principles

Territory

Principles

Practices   Territory

Cosmologies

- Andean: Mutual Nurturing/ wakas
- Mapuche: Itro Fill Mogen/ gnem

Geomyths as territorial memory

- Kai Kai and Tren Tren as foundational narrative and Mapuche territorial logic.
- El Niño and La Niña currents: cosmoclimatic cycles and settlement logic
- Floods: toponymy and hydro-social memory
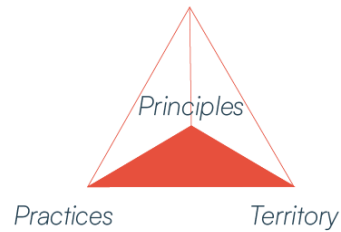
Cosmotechnics

- Waru-Waru / Andenería / Qochas
- Chullpas, Pukaras, Tambos
- Channels, fog catchers, sea lion rafts
- Species association: corn, beans, pumpkin
- Ceque
- Livestock rotation with Chilihueque and kanchas
- Qhapaq Ñan Road
- Coastal architecture and quincha
- Non-irrigated farms / Logging and slashing
- Shifting cultivation and multiple rotations
- Women's medicinal gardens
- Llolle / Chusquea Quila
- Chusquea Quila - forest management
- Seaweed harvesting
- Navigators
- Fishing Pens
- East orientation
- Good distances

Beliefs

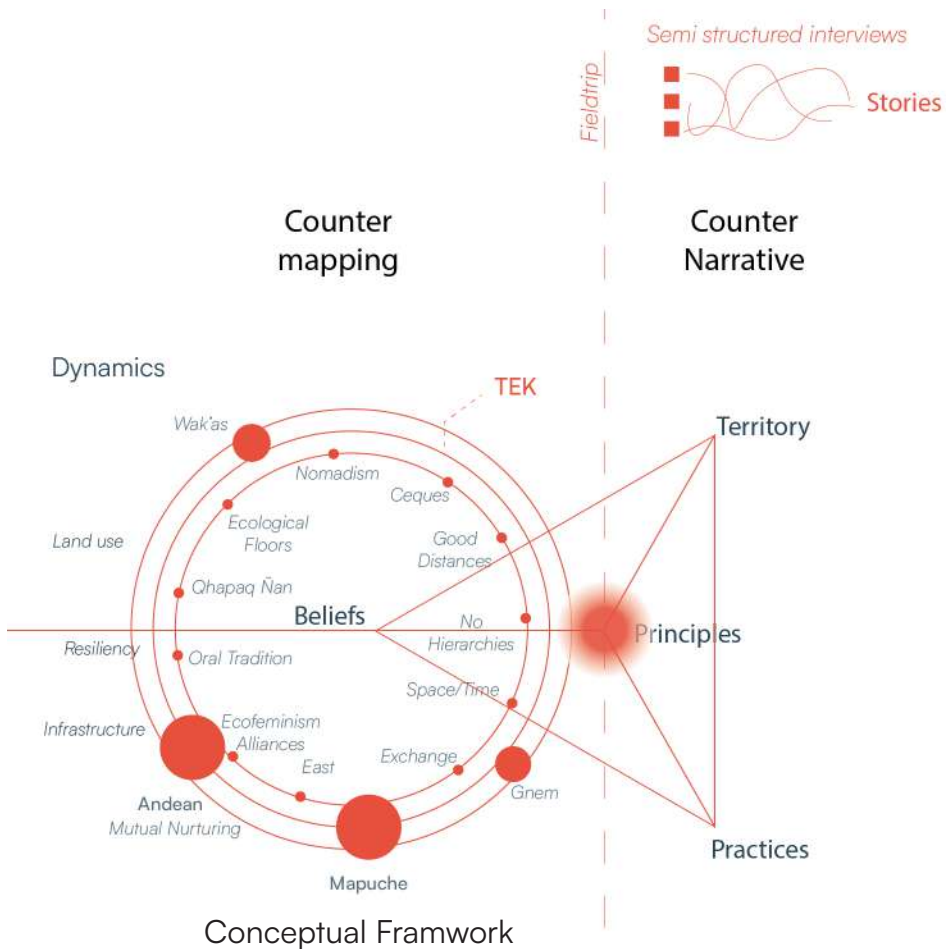*Principles*

Practices

Principles
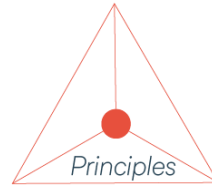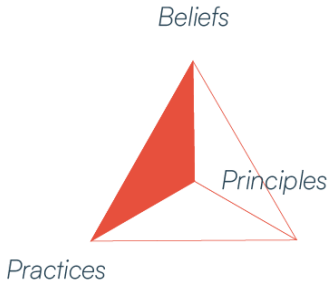
Dynamics

- Mobility as a territorial ethos
- Exchange - Ecological Floors:
- Reciprocity, Redistribution and Social Networks
- Territorial Orders: calendars, roads and landscape
- Non-hierarchical groupings
- Offerings and the Symbolic Value of Labour

New Principles for Urbanism
based on inhabitation memory

Territory

Beliefs   Principles

Practices

Semi structured interviews

Stories

Counter
mapping

Counter
Narrative

Dynamics

TEK

Wak'as

Nomadism

Ceques

Ecological
Floors

Good
Distances

Land use

Qhapaq Ñan

Beliefs

No
Hierarchies

Territory

Resiliency

Oral Tradition

Space/Time

Principles

Infrastructure

Ecofeminism
Alliances
East

Exchange

Andean
Mutual Nurturing

Gnem

Mapuche

Practices

Conceptual Framwork

Cosmologies

Wak'as

Andean
Mutual Nurturing

Gnem

Mapuche
Itro Fill Mogen

Practices (Cosmotechnics)

Traditional Ecological
Knowledge (TEK)

Wak'as

Andean
Mutual Nurturing

Gnem

Mapuche
Itro Fill Mogen

Dynamics

TEK

Wak'as

Nomadism

Ceques

Ecological
Floors

Good
Distances

Qhapaq Ñan

No
Hierarchies

Oral Tradition

Space/Time

Ecofeminism
Alliances
East

Exchange

Andean
Mutual Nurturing

Gnem

Mapuche

P2. Knowledge Recovery and Spatialization
(TEK Mapping)

This phase involves researching and spatializing Indigenous territorial knowledge across Chile's diverse ecologies, emphasizing:

- Settlement patterns and land-use systems
- Agricultural and hydrological knowledge
- Sacred landscapes and spatial ethics
- Seasonal rhythms and multi-scalar relationships with territory
- The result is a foundational layer of spatialized TEK to inform future projections.

P3. Fieldwork and Oral Histories

Qualitative data is gathered through interviews and dialogues with Indigenous scholars, architects, anthropologists, linguists, and local knowledge holders. These engagements validate and expand on TEK, incorporating stories of:

- Spatial organization and understandment of the territory
- Nomadic systems, temporalities and settlements
- Indigenous approaches to risk, care, and reciprocity
- Cosmopolitical ontologies of space and place
- Sacrality of natural elements and how they configure spatial planning

These stories, paired with spatial analysis, reveal 500 years of territorial resilience and memory.

P4. Counter-Mapping, Counter-Narrative, and Counter-Process

To challenge dominant planning paradigms, three interrelated critical tools are used:

- **Counter-Mapping**: Constructing alternative cartographies rooted in Indigenous worldviews

How to read the methodological framework
(next page)

Disaster
Management

Archeology

Risk

Stories

Climate
Projections

Urbanism

Antropology

Etnohistory

Cosmologies

Practices (Cosmotechnics)

Dynamics

Relations

Palindrome

Literature Review and Mapping
One belongs to the other

How the process actually was
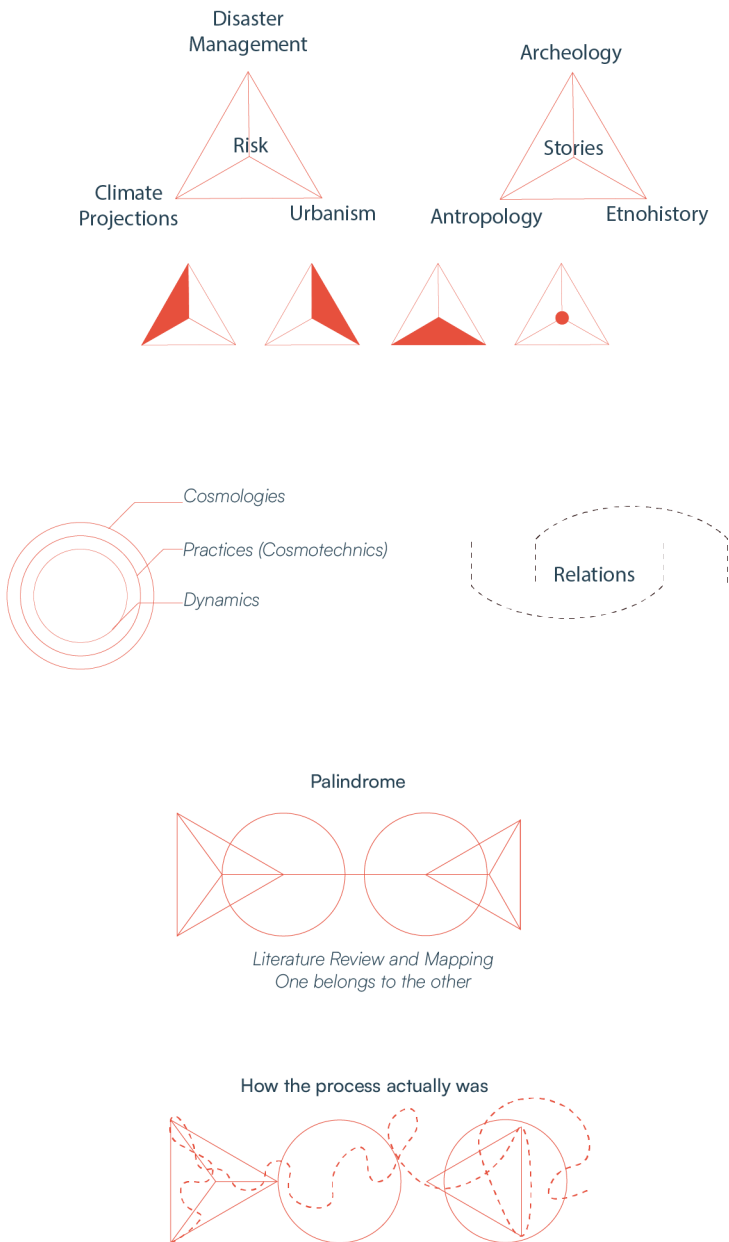
and land ethics.

- **Counter-Narrative**: Reframing national and environmental histories through Indigenous cosmologies and ecofeminist values.
- **Counter-Process**: Proposing systemic alternatives to current urban design, language, and education practices—towards radical, biodiverse, and situated planning models.

The interviews provided **stories**—of **nomadic coastal lives, agricultural terraces, Incan influence, Indigenous politics, trade routes, sacred landscapes, and feminist perspectives**—which, alongside mapped TEK and literature, reveal **500 years of spatial resilience**.

P5. Radical Spatial Imagination (RSI) and Design Projections

The final phase is speculative and imaginative. Drawing on RSI, the research visualizes future territorial scenarios that center reciprocity, relationality, and care. Through design tools such as **collage**, the project synthesizes the research into visual, conceptual, and spatial propositions:

- "What if" futures that challenge extractivist urbanism
- Interspecies and interscalar spatial configurations
- Architectures of the heart: speculative models for place-based resilience
- Principles and guidelines for reimagining planning with Indigenous knowledge

Epistemology 1:
Operational Landscape

National Plans & Strategy
ArClim
Climate Projections
Academic Papers
National Reports

Graphical Analysis
QGIS
Diagram
Mapping
Section
Image

Cocneptual framework

Dynam

Climate Hydrological Meteorological Risk

Disaster Management

Territory / territorial

Vulnerability

Colonial Urbanism

Geography

Mitigation plans & actions

Land use

Risk

Urban Metabolism

Urbanism

Resiliency

Capitalocene

Infrastructur

Climate Projections

Risk Management

Capitalism

Mu

Technocratic Urbanism

Spatial Justice

Antropocene: limits of consumption

54

Epistemology 2:
Sacred Landscape

Epistemology 3:
RSI

Semi structured interviews

*where principles
became became in
Stories*

Counter
mapping

Counter
Narrative

TEK

Fieldtrip

Territory

Wak'as

Nomadism

Ceques

Ecological
Floors

Good
Distances

Qhapaq Ñan

Beliefs

No
Hierarchies

Principles

Oral Tradition

Space/Time

Ecofeminism
Alliances

Exchange

East

Gnem

Andean
tual Nurturing

Mapuche
Itro Fill Mogen

Practices

55
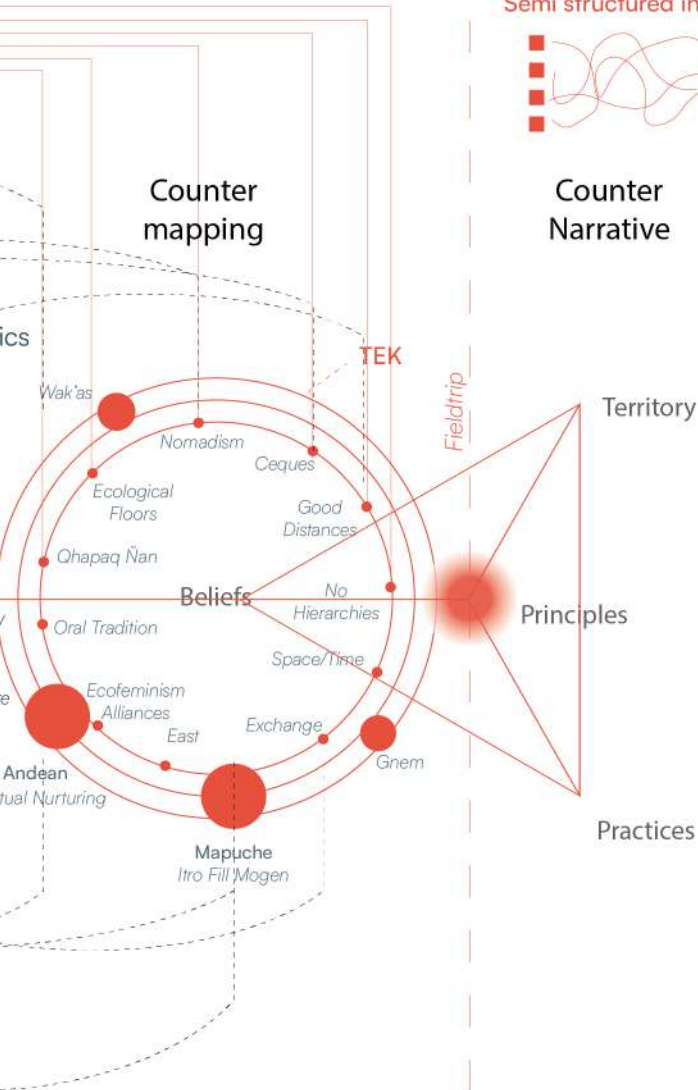
I work with these three epistemologies because they allow me to address the dual challenge my research presents:

Operational Landscape (how it is now) This epistemology grounds your work in the current realities of urban life, including the socio-ecological systems and structures that define how we inhabit space today. It helps you critically assess the present urban condition during ecological crisis.

Sacred Landscape (how it was) This draws from ancestral and place-based knowledge, particularly from the Global South. It enables a rearticulation of urbanism by reconnecting with cosmovisions and practices that honor land, memory, and spiritual ties—offering alternative foundations to Western urban thought.

Radical Spatial Scenarios (futures imagined) This epistemology responds to the call for new ways of knowing and feeling (as per Pink et al.) by projecting transformative possibilities. It imagines urban futures beyond collapse and uncertainty, integrating hope, speculation, and radical reconfigurations of space.

Together, these epistemologies allow for a multi-temporal and pluriversal rethinking of urbanism.

Through this methodology, my thesis does not merely propose a set of tools, but a methodological contribution to thinking and practicing urbanism from alternative epistemological frameworks. By questioning the foundational principles of modernist urbanism— particularly those of Le Corbusier and his technocratic, decontextualized derivatives—this research proposes new principles for imagining the city and the territory. These principles are not constructed in abstraction, but emerge from the geography, memory, and specific ecosystems of Chile.

The Indigenous notions explored here do not merely approximate the Western definition of "landscape"— they transcend it, weaving together territory, spirituality, and identity into a single practice. The true value of this proposal lies in the fact that it is not limited to a particular case: by working from memory—not tradition—it opens methodological possibilities that are adaptable and replicable in other contexts.

Why memory and not tradition? Because memory is resilient. It lives, is transmitted orally, it transforms, and it resists. Tradition, on the other hand, tends to freeze fragments of the past, fixing them in time. Memory, being dynamic and situated, offers a real and tangible path to rethink how we inhabit space.

Thus, this thesis is an invitation: to change the questions that guide urbanism, to imagine from other logics, and to stop thinking of the city as an object to be designed and instead begin to understand it as a living process— one in relation to the land, the cycles, and other beings.

Becoming indigenous to the land is not a metaphor—it is a political, cultural, and ecological urgency for urban futures.

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Decolonizing thought means radically questioning the structures of thinking that were imposed by coloni-alism, and allowing new ways of understanding and producing knowledge to emerge. It's a process that challenges Eurocentric and authoritarian worldviews, while giving space and value to the perspectives and wisdom of colonized peoples.

More than a goal, my thesis journey became a personal process of de-colonizing my own thinking. It meant recognizing that knowledge is not neutral—it's shaped by power dy-namics and systems of domination.

It also became a process of revaluing the traditional knowledge and prac-tices of Indigenous peoples in Chile, and to some extent, other parts of Latin America.

Thanks to the protection, trust, and encouragement of my thesis advisor, I felt supported to develop intellec-tual autonomy—to think and create for myself, and to start breaking free from intellectual and cultural de-pendence in the discipline of Archi-tecture and the Built Environment.

Ultimately, it's about building a new epistemology: de-veloping new ways of understanding the world that are grounded in the diversity of knowledges and perspec-tives. For me, that's key to promoting spatial justice in urban planning.
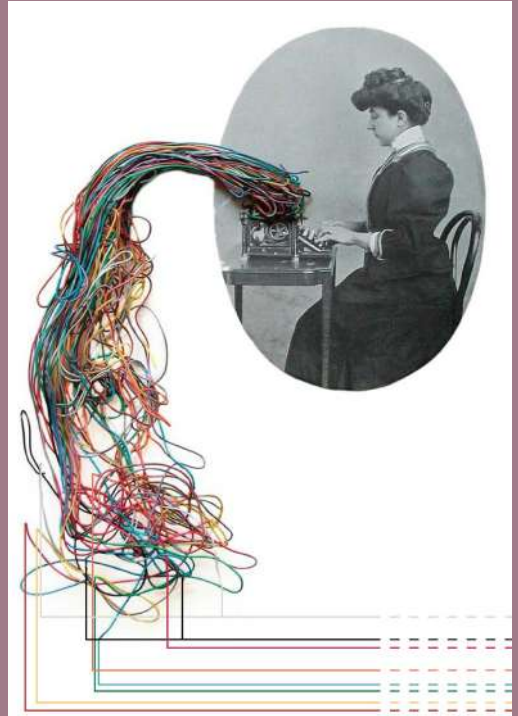
Image 15: Photocol-lage of myself an the process of the thesis

This is not about appropriating knowledge, but about building respectful and transformative alliances. This research is a search for meaning, for belonging, for different ways of seeing the world.

A key question runs through it: How do we become native to a territory? From a multiscalar approach—architecture, landscape, and urbanism—and from my position in the Global North, I study the territories of the deep South. Because it is from there, by reaching the roots, that alternative and necessary territorial futures can be imagined.

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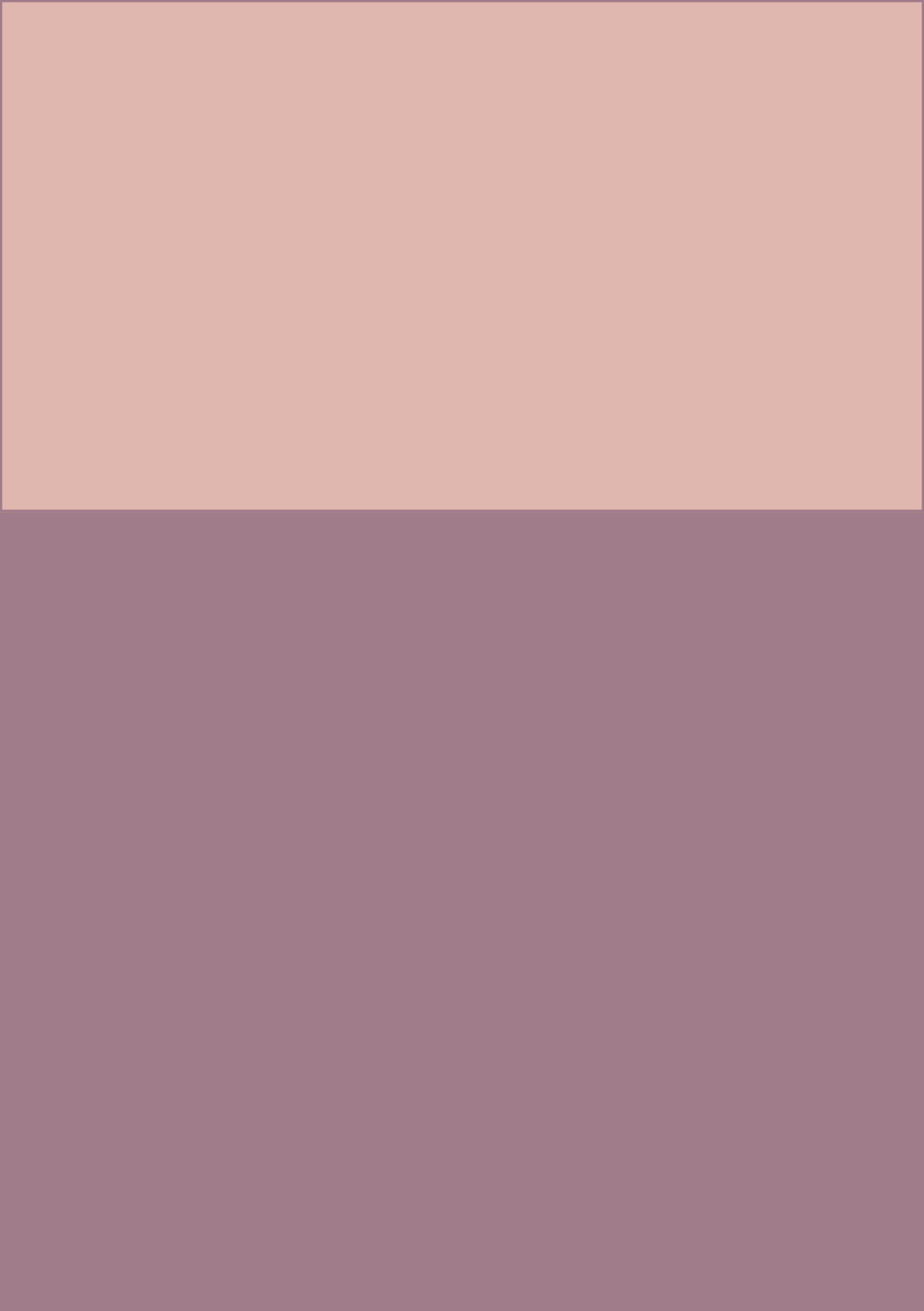
BECOMING INDIGNEOUS TO PLACE

Reimagining Urban Futures through Ancestral Knowledge and Territorial Resilience in Chile

Book 2

Risk is not Natural

Chapter 1.
Contextualizing Disaster in Chile

Climate change represents one of the most pressing environmental challenges facing every living being today. Its impacts transcend borders, affecting tropical and subtropical regions, coastal zones, and urban centres globally. With increasing frequency, natural disasters—such as flash floods, droughts, and rising sea levels—pose severe threats to food and water security, agricultural supply chains, and the stability of coastal cities.

Chile, with its diverse geographical and climatic conditions, offers a compelling case study to explore these dynamics of consumption model of landscape, natural hazards, climate risks and indigenous culture (Arriagada et al., 2018). With over 4,300 kilometres along the Pacific coast, Chile encompasses a wide range of ecosystems, from the arid Atacama Desert in the north to the temperate rainforests and glacial landscapes in the south. This diversity and extreme geographies make it a beautiful country, but vulnerable to climate change and natural disasters, including earthquakes, tsunamis, volcanic eruptions, and hydrometeorological events.

According to the United Nations Framework Convention on Climate Change (UNFCCC), Chile meets seven of the nine criteria for high climate risk, reflecting its exposure to a broad spectrum of environmental threats. These include low-lying coastal areas, arid and semi-arid zones, forested areas, regions prone to natural disasters, drought-prone areas, urban areas with high levels of air pollution, and fragile mountainous ecosystems.
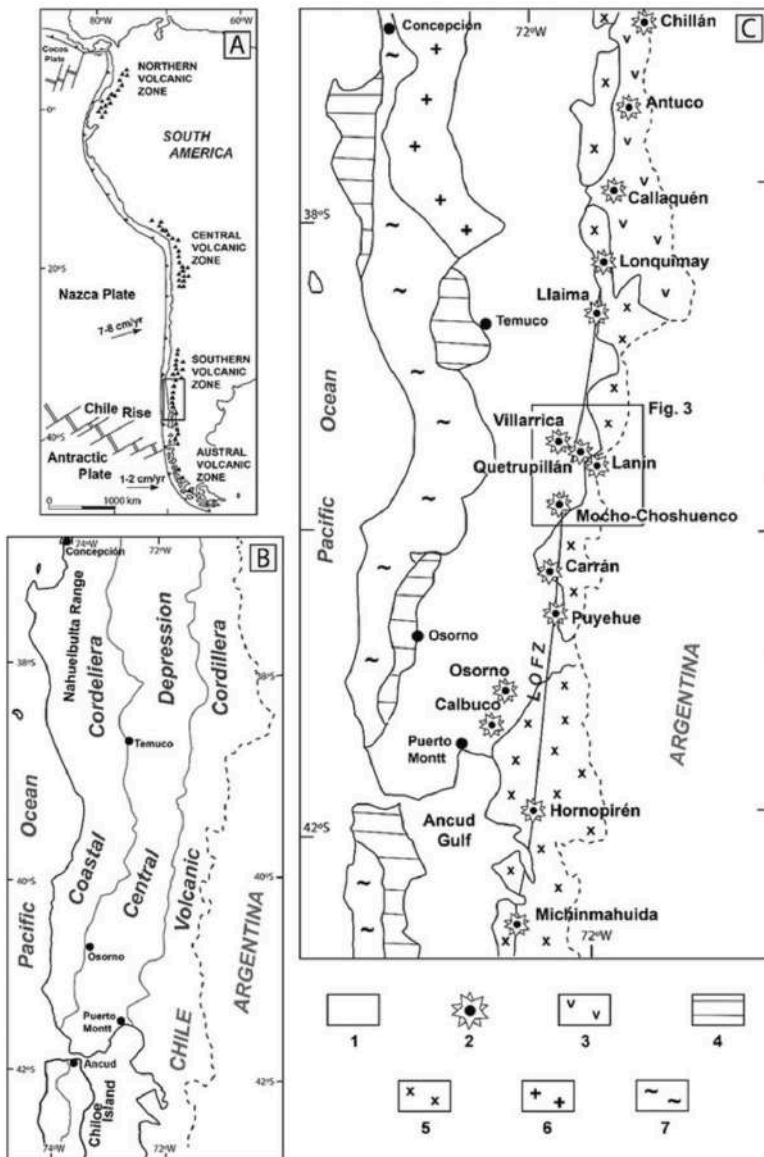
Image X: Location, morphostructural units and schematic geological map of the Mapuche region. A. The Andean mountain range along the active continental margin of South America and location of the Mapuche region in the Andean Southern Volcanic Zone (rectangle). B. Morphostructural units in the Mapuche region in Chile: Coastal Cordillera, Central Depression and Volcanic Cordillera. C. Main geological units

6

1.1 *Geographical and climatic diversity as a factor of environmental vulnerability*

Natural hazards are an integral part of Chile's environmental landscape, with earthquakes and tsunamis being among the most significant. Chile's wide geographic and climatic diversity - ranging from deserts in the north, a vast mountain range, vulnerable coastlines and polar regions in the far south - makes its territory particularly exposed to multiple environmental hazards. In fact, Chile ranks 27th out of 180 countries in the World Risk Report, placing it among the most disaster-prone nations globally (BEH-IFHV, 2019).

This geographical heterogeneity determines an uneven distribution of risks, with regions more prone to certain types of impacts than others. For example, according to the climate risk analysis conducted by the ARClim platform, 84% of Chilean municipalities are exposed to one or more severe climate risks, with sectors such as health, human settlements, biodiversity, agriculture and water resources standing out as the most vulnerable (Ministry of Environment [MMA], 2021).

These events arise every time the discussion of the interplay between natural hazards and human settlements in Chile, as many urban centres and economic activities are located in high-risk areas, inheritance of colonial urban planning processes.

1.2 *X-RAY of Disaster in Chile*

Chile's exposure is not only a matter of natural geography. Human decisions about settlement and land use have also played a key role in amplifying the impacts of natural phenomena. The historical and economic pressures that have shaped urban development in vulnerable zones—often prioritizing profitability over safety—have led to significant risks, particularly in coastal and mountainous areas (Camus, Arenas, Lagos, & Romero, 2016). As a result, the country's disaster risk management has traditionally

Climate Change has increase extreme precipitations, therefor
causing flooding in riverbeds
Damaging properties and infrastructure due to poorly plannin

Accu
drop
acce

When precipitation comes, there is
landslide and land remosion due to
drought and eroded soil

Wildfires burn
land and make it
unproductive

Unproductive
fields

Well pump

Huge amount of water goes
into urban landscapes

Increase of wildfires due to high
temperatures, poor waste maange-
ment and eroded soil

URBAN AREAS

URBAN

UHIE

UHIE

URBAN AREAS

RING OF FIRE

UHIE

THE C

Constant movement of tectonic plates
causing earthquackes and tsunamis

re,

ng

umulated snow in the Andes has
ped significantly, which has cause
lerated melting of the glaciars

Volcano activity due to Ring of Fire

Snow in the mountains feeds water
to aquifers and rivers, which is also
water for human consumption

With Global warming, aquifers have been receiving less and less water from rain and melting snow

N AREAS

CENTRAL VALLEY AQUIFER IS BEING DEPLETED EACH YEAR

Rain replenish the aquifers and valleys

Rainfall

Huge amount of water goes
into urban landscapes

Irrigated Fields

Well Pump

UHIE

Lakes and dams used to hold water reserves

Soil
collapse

Reduced water supply
at dams and lakes

Dry wells

Dry aquifer

Aquifers

BEFORE DROUGHT

CURRENT SITUATION
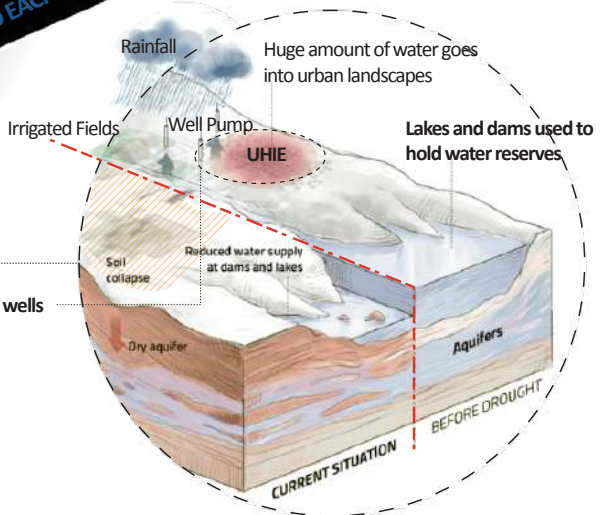
Flooding

24,65%

Image X: Accumulative Frequency of Natural Hazards in Chilean Territory for the past 15 years

8,45%

Wildfire

Earthquake **21,83%**

Storm **9,86%**

Volcanoes - 6,34%
Extreme T* - 6,34%
Drought - 3,52%

focused on reactive measures, with limited emphasis on preventive strategies (Mehsen, 2019).

Among the most destructive natural phenomena in Chile are **earthquakes and tsunamis,** both primarily associated with the country's position along the boundary of the Nazca and South American tectonic plates. These seismic events have repeatedly caused extensive damage and loss of life. The 1960 Valdivia earthquake, still the most powerful ever recorded globally (magnitude 9.5), not only caused thousands of deaths but also altered the landscape permanently (Urrutia & Lanza, 1993). More recently, the 2010 Maule earthquake (magnitude 8.8), followed by a devastating tsunami, resulted in over 500 deaths and economic losses equivalent to 14% of Chile's GDP (Camus et al., 2016).

Volcanic eruptions are another recurring threat. The Chaitén eruption in 2008 led to the complete evacuation and eventual relocation of an entire town. Similarly, the Puyehue-Cordón Caulle eruption in 2011 and frequent activity from Villarrica, Calbuco, and Láscar volcanoes continue to illustrate the ongoing risks from Chile's extensive volcanic chain (Radiografía a los Desastres en Chile, 2024).

Landslides and mudflows (aluviones) also constitute a significant hazard, especially in the Andean foothills and northern river valleys, where seasonal rains or snowmelt combine with unstable terrain and anthropogenic changes in land use. In March 2015, simultaneous aluviones in the regions of Atacama and Antofagasta caused the deaths of 26 people and were classified by SENAPRED as a historical disaster (Radiografía a los Desastres en Chile, 2024).

Forest fires—often influenced by both climate and land-use practices— fires have become increasingly

Figura 3. Tipos de desastres acontecidos en Chile, 1906-2019

Legend:
- Inundación
- Terremoto
- Accidente de transporte
- Tormenta
- Incendio forestal
- Temperatura Extrema
- Actividad volcánica
- Accidente misceláneo
- Deslizamiento de tierra
- Accidente Industrial
- Sequía
- Epidemia

Número de eventos
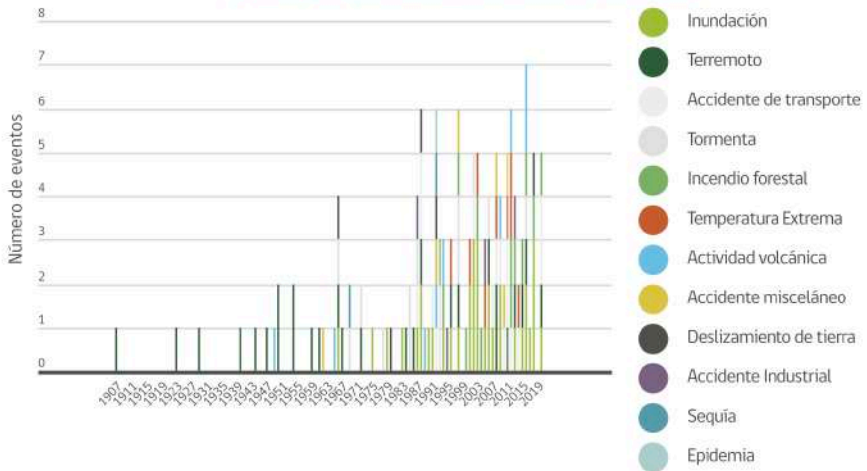
Figura 8. Eventos Hidrometeorológicos, 1902-2019

Número de eventos

Legend:
- Caída de roca
- Deslizamiento
- Flujo
- Inundación
- Deformaciones de ladera
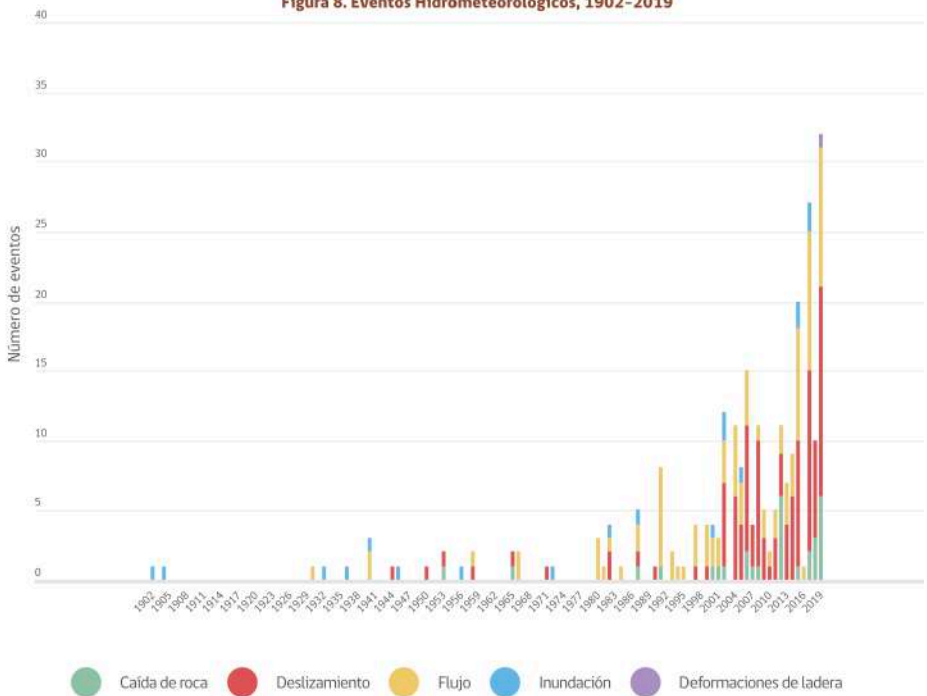
Image X: Prepared by the State of the Environment Report (2021) using data from the Center for Research on the Epidemiology of Disasters (CRED) EM-DAT, www.emdat.be, The International Disaster Database. Data obtained in August 2019.

14

frequent and severe. The Valparaíso wildfires in 2014 and again in 2024 exemplify the growing danger posed by these events, with the latter described as one of the most devastating urban-forest interface disasters in the country's history.

Importantly, the idea of natural disasters in Chile has evolved in recent decades. The traditional framing of such events as "natural" has increasingly been questioned. Scholars and institutions have emphasized the socio-natural dimension of disasters—those resulting from the interaction between environmental hazards and human vulnerability. As Romero et al. (2010) argue, deforestation, unregulated urban expansion, and socio-economic inequalities are often the catalysts that turn a hazard into a disaster. Following Lavell (2000), these events are best understood as socionatural risks, shaped by both natural processes and human decisions.

In recent years, efforts have intensified to improve Chile's capacity for disaster risk reduction. The increasing use of geospatial data and satellite imagery, for example, now supports early warning systems and informed decision-making. Institutions like the Servicio Aerofotogramétrico (SAF) have played a key role in supporting emergency management through spatial analysis, particularly in the context of mass movements and floods (Radiografía a los Desastres en Chile, 2024). Nonetheless, challenges remain. As Joselyn Robledo from SAF points out, the demand for emergency support has grown significantly—by 27% in the last decade— particularly during wildfire-prone summer seasons.

This surge highlights the urgency of strengthening public policies for prevention, risk governance, and institutional coordination, not just reaction (Radiografía a los Desastres en Chile, 2024).

In summary, natural disasters in Chile are the outcome of a complex and dynamic interplay between

environmental threats and human vulnerabilities. As we move forward in this report, it is essential to define the key concepts and frameworks that underpin disaster risk analysis and guide the policies for its management.

Next, we will explore these foundational definitions and terminologies in Section 1.3: Definition of Concepts.

1.3 Definition of Concepts

Disaster:
A disaster is typically defined as a sudden, unforeseen event—stemming from natural, technological, or social causes—that results in destruction, loss, and damage (Alexander, 2005b; Jorgustin, 2012; Parker, 1992; UNISDR, 2009). It overwhelms local coping capacity, necessitating external assistance and the involvement of multiple stakeholders (Coppola, 2015; Guha-Sapir et al., 2014; Moe et al., 2007). Disasters are often concentrated in time and space and impair essential societal functions (Fritz, 1961; Lindell, 2013; Wilson & Oyola-Yemaiel, 2001). They are also described as dynamic processes that begin with hazard activation and flow through systems, resulting in life, property, and livelihood losses (Biswas & Choudhuri, 2012; Iyer & Mastorakis, 2006).
Disasters exceed the capacity of routine systems, requiring the establishment of temporary, extraordinary systems (Baker & Refsgaard, 2007). Definitions vary due to differing causes, consequences, and geographic, economic, or political contexts, making a universal definition elusive (Alexander, 2005a; Eshghi & Larson, 2008; Shaluf et al., 2003).

*Referecences cited in: Al-Dahash, H., Thayaparan, M., & Kulatunga, U. (2016, August). Understanding the terminologies: Disaster, crisis and emergency. In *Proceedings of the 32nd annual ARCOM conference, ARCOM 2016* (pp. 1191-1200).

Crisis:

A crisis is defined as a disruption that affects a system's core assumptions and identity, posing a threat to its functionality and stability (Pauchant & Mitroff, 1992). It is often an abnormal, high-risk situation that elicits public and media attention and may trigger policy changes (Alexander, 2005b; Sawalha et al., 2013; Shaluf et al., 2003). Crises are usually unexpected, uncontrollable, emotionally charged, and not manageable by standard procedures (Booth, 1993, as cited in Moe & Pathranarakul, 2006; Alexander, 2005b).

They are also unique, with context-specific characteristics that influence managerial responses (Darling, 1994; Robert & Lajtha, 2002). A crisis may affect individuals, groups, or organizations and is typically associated with uncertainty, time pressure, and conflicting information (Beall, 2007; Farazmand, 2001; Lighthouse Readiness Group, 2015).

*Referecences cited in: Al-Dahash, H., Thayaparan, M., & Kulatunga, U. (2016, August). Understanding the terminologies: Disaster, crisis and emergency. In *Proceedings of the 32nd annual ARCOM conference, ARCOM 2016* (pp. 1191-1200).

Emergency

An emergency is an imminent or actual event—natural or man-made—that poses substantial risk to people, property, or the environment, requiring immediate, coordinated action (Alexander, 2003, 2005b; Shen & Shaw, 2004; WHO, 2002). Emergencies are typically unanticipated in nature, although some may be imminent and planned for. They suspend normal procedures to allow extraordinary measures for saving lives and restoring normalcy (Alexander, 2003; WHO, 2002).

Some definitions highlight that emergencies may be manageable locally without requiring additional resources or procedural changes (Eshghi & Larson,

Despite differences, most disciplines agree on defining vulnerability as the susceptibility of a system to be impacted by a disaster and that is the approach we will follow for the present study (Adger 2006; McEntire 2005).

Disaster Beyond the "Natural":
The concept of disaster as a socio-environmental construct refers to the idea that disasters are not purely natural or inevitable events, but phenomena produced and shaped by historical, social, political and economic processes. This perspective challenges traditional realist views that conceive of disasters as objective events external to society, and proposes instead that both their occurrence and their meaning are socially constructed and politically determined (Tierney, 2007; Boholm, 2015).

From a more epistemological approach, constructivism argues that the way we understand disasters is mediated by social constructions: our concepts, narratives and cultural practices shape the way we perceive and react to risk. Institutions, media and official discourses are actively involved in the construction of disaster, influencing what is considered a risk, who is affected and what action is taken (Tierney, 2007; Boholm, 2015). Thus, disaster is not only an objective reality, but also a discursive construction loaded with meanings and political consequences.

Disasters should therefore be understood as the result of an unequal interaction between natural phenomena and socially constructed structures of vulnerability (Faas & Barrios, 2022). This vulnerability does not come out of nowhere: it is produced and accumulated over time by systems of exclusion, inequality, colonialism, and inequitable territorial development (Wisner et al., 2004; Garcia Acosta, 1996).

2008). Others stress the urgency and need for rapid relief to prevent escalation into a disaster (Jorgustin, 2012; Lighthouse Readiness Group, 2015). Emergencies are considered broader in scope, encompassing disasters, catastrophes, and smaller disruptive events (Alexander, 2005b).

*Referecences cited in: Al-Dahash, H., Thayaparan, M., & Kulatunga, U. (2016, August). Understanding the terminologies: Disaster, crisis and emergency. In *Proceedings of the 32nd annual ARCOM conference, ARCOM 2016* (pp. 1191-1200).

Risk:
Risk is the probability that an outcome will have a negative effect on people, systems or assets, such as death, injury, damage to private property, loss of ecosystems and/or livelihoods, disruption of economic activity or environmental degradation; whether as a result of natural or anthropogenic hazards. Vulnerability or hazards, separately, do not represent a hazard. But together, they become a risk, i.e. the likelihood of a disaster occurring (UNDRR, 2021).
At the heart of the UNDRR approach is the idea of reducing risk, not just preventing or avoiding disasters, and making risk-sensitive investments - social, economic and environmental - the norm. UNDRR recognises that resilience is not just about recovery and that investments must not just build back better. Radical transformation is needed.

Vulnerabilization:
Vulnerabilization is a process whereby certain populations are systematically kept at risk due to (historical) socio-economic and political structures that prioritize profit and power over people and resilience (Algoed & Torrales, 2019) The definition of vulnerability varies according to the discipline from which it is studied (Khan and Salman 2012; Menoni et al. 2012).

Chapter 2 .
Climate Projections and Hydrological Risk

1.2. Climate change projections and their territorial implications

Climate projections for Chile are alarming and show profound transformations in territorial dynamics. The main impacts include an increase in temperature, changes in precipitation patterns, rising sea levels, glacier retreat and a greater frequency and intensity of extreme events such as floods and droughts (MMA, 2021).

The impacts of climate change in Chile are becoming increasingly evident. Projections from the Atlas of Climate Risks (ARClim) indicate that temperatures in the country will rise by 1.15°C to 2°C between 2035 and 2065, compared to the historical period of 1980-2010. This warming trend is expected to reduce snow accumulation in the Andes, exacerbate drought conditions, and decrease precipitation levels in central Chile by approximately 15%.
(MMA, 2021). These changes will have profound consequences for water security, agriculture, and biodiversity, particularly in regions that are already facing resource scarcity.

These alterations have specific implications by region. For example, in biodiversity, a significant loss of flora and fauna species is expected in regions such as Ñuble and Los Ríos, because they will not be able to adapt to the new climatic conditions in their current areas of distribution (MMA, 2021). The frequency of droughts is also projected to increase by 10%-23% between the Coquimbo and Los Lagos regions in the medium-term future. In agriculture, considerable risks are projected for annual crops and fruit trees, especially in coastal and central-northern areas of the country, both due to water deficit and increased temperatures (MMA, 2021).

0 50 100 km

TEMPERATURE

PRECIPITATION

Human migration
Animal Migration searching for
similar habitats
New agricultural Lands become
available
Migratory Hotspots

ANUAL PRECIPITATION

INCREASE OF TEMPERATURE

DROUGHT PERIODS

RISK ASSOCIATED WITH FIRE
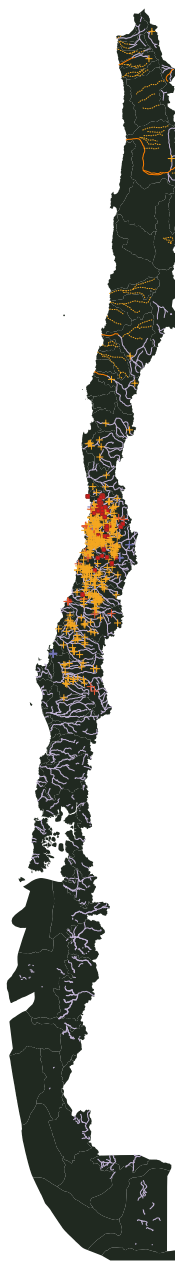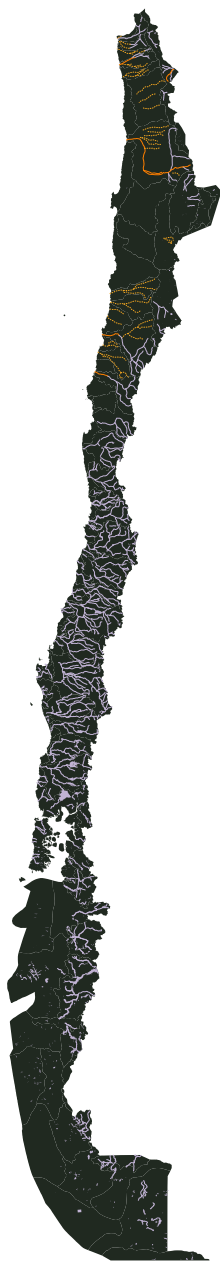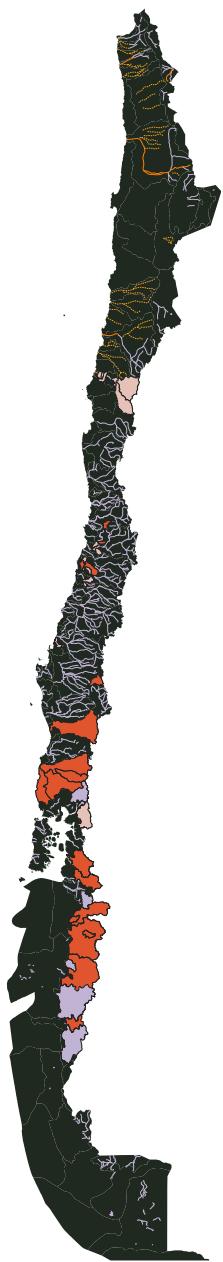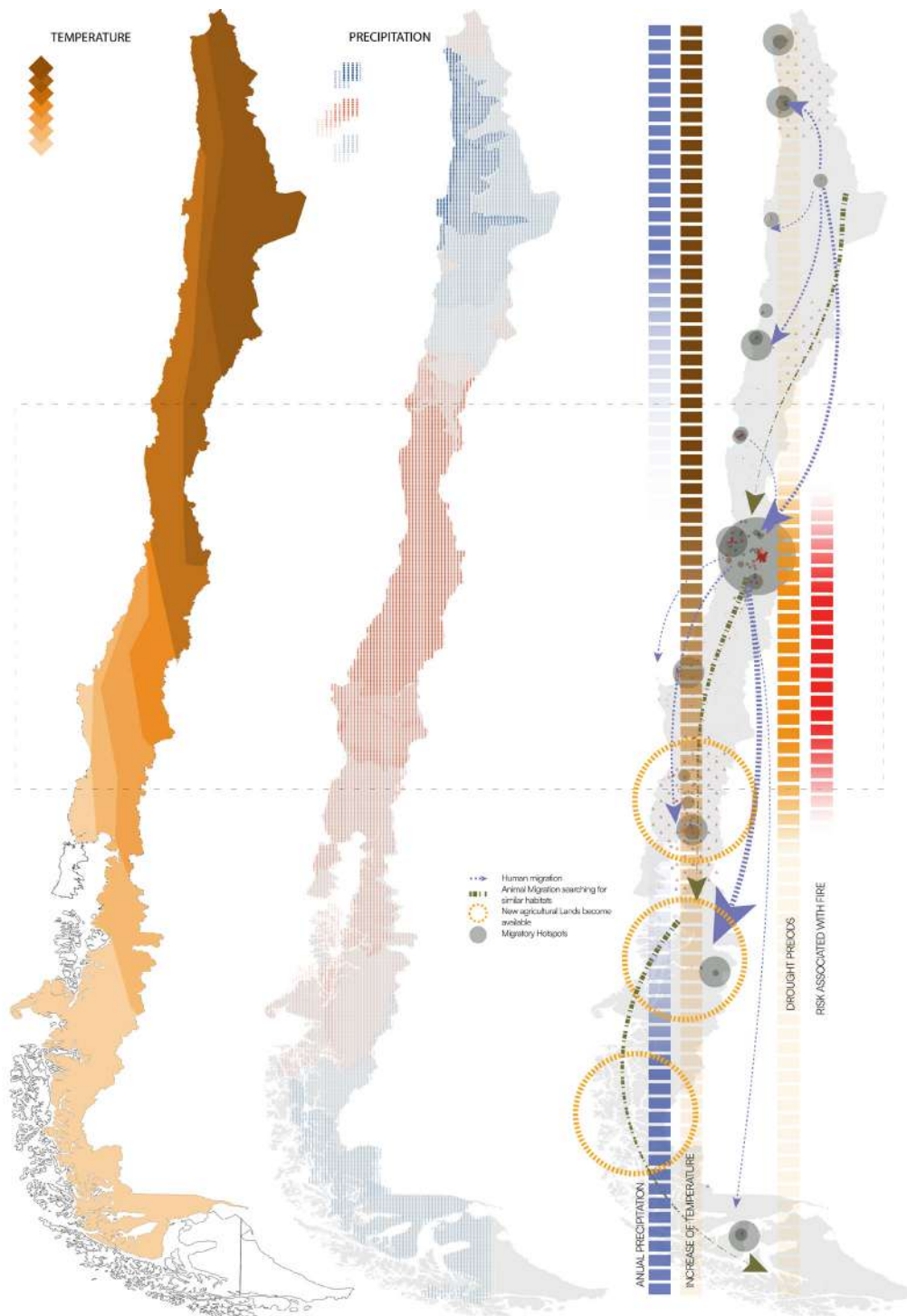
In terms of water resources, the risk of flooding will be higher in regions such as Atacama and Valparaíso due to poor infrastructure, while the risk of drought will be more severe in the centre- north, where it is expected to increase in frequency and severity (MMA, 2021). This scenario threatens food security, access to water and the resilience of natural and human systems. In addition, historical statistics show that Chile has already experienced an exponential growth in catastrophic events linked to climate change. According to the Centro de Investigación para la Gestión Integrada de Desastres (CIGIDEN), floods and floods in Chile have increased 30-fold in the last 50 years, while storms have increased five-fold, and forest fires and heat waves barely existed half a century ago (Cienfuegos, 2021).

Economically, this is reflected in a growing risk of economic and social challenges due to natural disasters in the context of climate change. Between 1980 and 2011, the country experienced average annual losses equivalent to 1.2% of its GDP due to these events.
In the last decade, however, the financial impact has continued to increase, especially in the wake of recent flooding, extreme drought and wildfires, which caused substantial damage to human life, infrastructure and productive sectors. (Disaster Management Reference Handbook - Chile (September 2021) - Chile, 2021)

The increase in the frequency and magnitude of natural disasters not only confirms climate and economic projections, but urgently demands new ideas and imaginaries for strengthening public policies for risk management, preventive territorial planning and climate adaptation based on scientific evidence, and situated knowledge

This challenging context, which has become a "new reality," requires the strengthening current response

ENVIRONMENTAL THERMAL DISCOMFORT (Future)

- Very low
- Low
- Medium
- High
- Very high
- Not Applicable

URBAN HEAT ISLAND EFFECTS (Future)

- Very low
- Low
- Medium
- High
- Very high
- Not Applicable

Image Source: ARClim
Climate Risk Atlas
Platform.
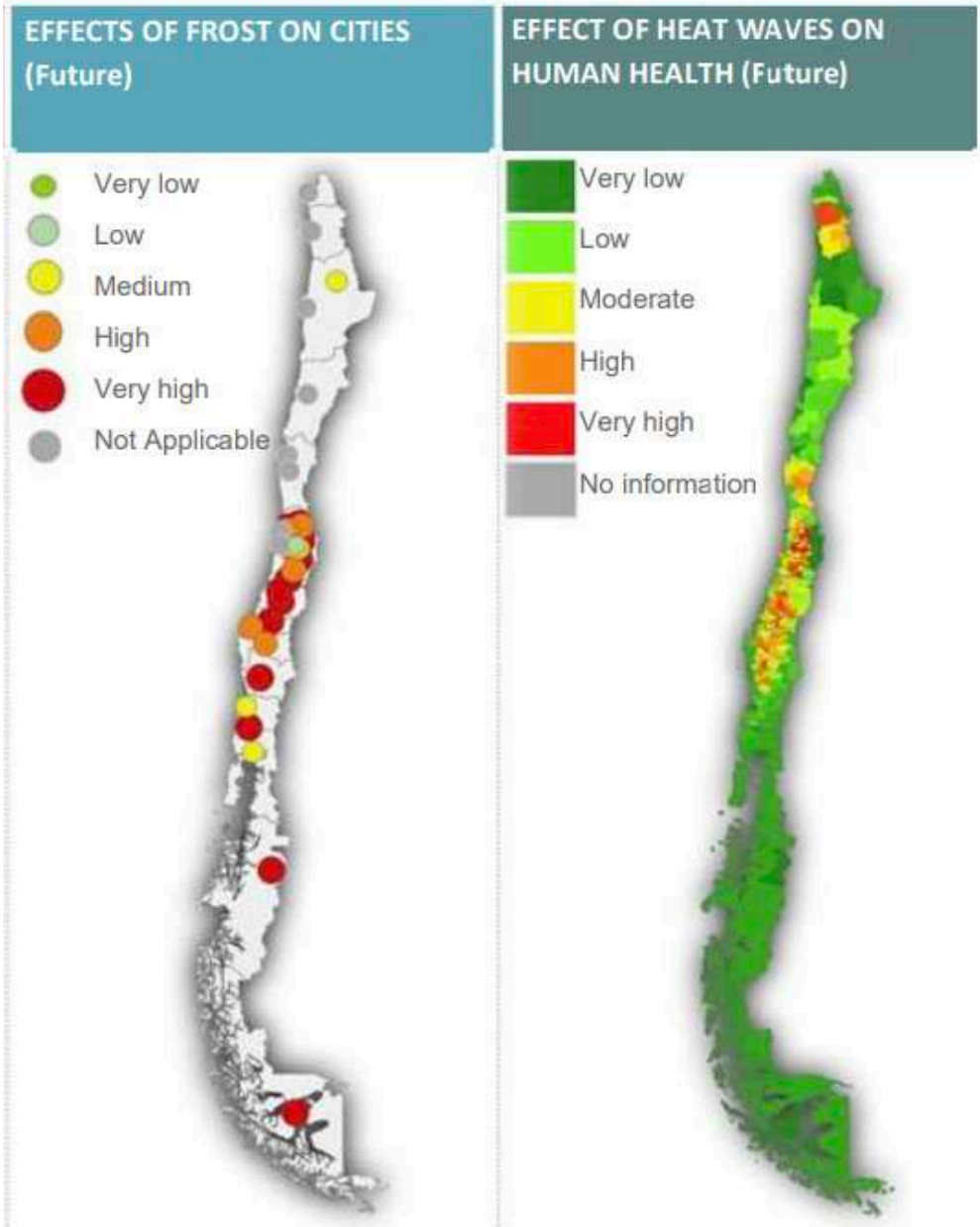
RISK - DROUGHT & FIRE   RISK - URBAN FLOODING   RISK - COASTAL INFRASTRUC-
                                                  TURE AND SEA LEVEL RISE

FIRES
DROUGHT PERIODS
HEAT WAVES
  80-180 days
  20-40 days
  5-10 days

Water availability

-50%

-50%

-40%

-5%

Populated area
Fishing areas exclusively
for indigenous use
Sea level in 2050-2100
% of Risk in Coastal
Infrastructure*
30-40%
20-30%
10-20%
<10%

*Specifically related with coast and Ocean:
Fishermen's cove, Ports, maritime
contentions, roads, other

capabilities and the developing of inclusive and just strategies focused on prevention and mitigation. Without a comprehensive and spatial just approach in all phases of the risk management cycle, from preparation to recovery, the vulnerability of these communities will continue to increase, seriously affecting their territorial development and quality of life.

TERRITORIAL CHANGES	MAIN SECTORS AT RISK (CHILE)	ASSOCIATED CHALLENGES

Agriculture
Human Health & Wellbeing
Native Forest
Aquaculture
Coastal Infrastructure
Water Resources
Tourism
Artisanal Fishing
Biodiversity
Forest Plantation
Mining
Energy

Need for technical irrigation.
Increase in pest and diseases.
Loss of biodiversity & habitats.
Fragmentation of ecosystems.
Alterations in ecosystem services.
Increase of Wildfires .
Harmful algal blooms (HAB).
Ocean acidification.
Less Productivity.
Sea level rise.
More frequent and severe storm surges.
Increase in Flooding events
Coastal erosion.
Loss of critical infrastructure (ports, coves, ski centers).
Increase in sea temperature.
Conflicts over water use (human, agriculture, industrial ...
Alterations in marine currents.
Glacier retreat and less snow.
Scarcity of water.
Prolonged droughts.
Urban Heat Island Effect in cities.
Loss of livelihoods.
Extinction of vulnerable species.
Loss of capacity in hydroelectric plants due to water sh...
Greater variability in wind and solar energy generation.
Increase in operational costs.

Higher Temperature
Decrease and Changes in Water Availability
Extreme Hydrometeorological Events and Precipitation Patterns
Coastal and Oceanic phenomena:
Impacts on Ecosystems and Biodiversity:

"A hazard can only become a disaster once it impacts on society or community.
A hazard is natural, disasters are not"

Chapter 3 .
Risk is Socially Constructed

The concept of disaster as a socio-environmental construct, explained in chapter 1, is also based on the notion of social production of disaster, which refers to the social structures and historical processes that generate conditions of vulnerability.

Risk cannot be understood solely from a technical or natural perspective. That is, disasters are not simply the result of natural events, but arise when they interact with vulnerable populations whose conditions have been shaped by social inequalities, colonial policies, unequal development models and unjust environmental policies (Faas & Barrios, 2022). This idea is synthesised in the assertion that "disasters are rooted in social processes" and that "vulnerability is determined by social systems and power, not natural forces" (Wisner et al., 2004, cited in Faas & Barrios, 2022). Johansson's (2020) article reinforces this view by analysing how natural disasters open "windows of opportunity" for social change, although these opportunities are often not taken advantage of due to pre-existing social structures that prioritise short-term or economic interests. In this sense, risk is not neutral: it is mediated by power relations, governance and institutional action (or inaction).

In Chile, this social construction of risk is observed in how certain communities are systematically more exposed. Bronfman et al. (2021) show that social vulnerability is not homogeneously distributed across the country, but responds to socio-economic, demographic and geographic factors that evolve over time. Thus, risk is a function of both the physical environment and the surrounding social and political conditions. From a more epistemological approach, constructivism argues that the way we understand disasters is mediated by social constructions: our concepts, narratives and

31

1992.   2002.   2017.

Social Vulnerability	Low	High	No data
	Very Low	Medium	Very High	Macrozone

1 cm = 220 km

0 250 500 750 1,000 km

Image: Social vulnerability index for Chile 1992—2017
Image from " Temporal evolution in social vulnerability to natural hazards in Chile "
Bronfman, N. C., Repetto, P. B., Guerrero, N., Castañeda, J. V., & Cisternas, P. C. (2021).

cultural practices shape the way we perceive and react to risk. Institutions, media and official discourses are actively involved in constructing our imaginary of 'disaster', who is affected and what action is taken (Tierney, 2007; Boholm, 2015). Thus, disaster is not only an objective reality, but also a discursive construction, a social imaginary loaded with meanings and political consequences ( ).

The social production of disaster approach argues that these events do not arise in a vacuum: they are the result of a network of geopolitical and territorial decisions, extractive models and colonial relations that have shaped conditions of vulnerability over time (Wisner et al., 2004; Garcia Acosta, 1996). In Chile, the neoliberal development model has deepened the concentration of resources and territorial exclusion, leaving many communities at permanent risk, especially in the face of climate change.

Galilea (2023) contributes to this discussion by pointing out that the expansion of monoculture tree plantations in southern Chile, promoted by state development policies since the 1970s, has contributed significantly to the generation of risk scenarios by modifying ecosystems, concentrating land ownership, increasing exposure to forest fires, and generating a socio-cultural rejection of forestry practices. This transformation of the territory is linked to structural factors and political decisions that prioritise productive interests over environmental sustainability, concern for the ecosystem services of the habitat and social resilience.

3.1. ¿Who is at risk? Social and Spatial Vulnerabilities

Research by Bronfman et al. (2021) clearly identifies that in Chile the people most affected by disasters are those belonging to historically marginalised groups: the elderly, women, people with disabilities, migrants

Image: Rebuilding Chile

and rural populations. The regions with the greatest vulnerability coincide with those with the least access to basic services and the highest dependence on precarious economic activities. In particular, areas such as the rural south and the urban periphery are highly vulnerable. The Annual Report of the INDH (2023) confirms this diagnosis by highlighting how the rural communes of Ñuble and Biobío, for example, were the most affected by the fires of 2023, due to their isolation and structural precariousness. Unequal access to rights such as health, education and housing in post-disaster contexts is a clear example of how social vulnerability increases the negative effects of natural events.

Galilea (2023) stresses that these areas coincide with intensive forest territories, where the combination of extreme weather conditions resulting from climate change and a highly concentrated forestry model has generated a permanent risk environment. This impacts most severely on rural populations and indigenous communities that already face multiple structural disadvantages. Not only because of their geographical location, but also because of structural conditions of exclusion, precariousness and state neglect (Faas & Barrios, 2022). Thus, the disaster exposes systemic failures of territorial planning.

3.2. Structural inequalities: indigenous peoples, migrants and urban peripheries

Structural inequalities in Chile intensify the effects of natural disasters. Bronfman et al. (2021) indicate that migrant populations, for example, are increasingly vulnerable, especially around 2017, partly because of precarious housing and employment conditions, and partly because of a lack of territorial memory due to a lack of knowledge of the historical dynamics of the territory (such as earthquakes or tsunamis). The INDH
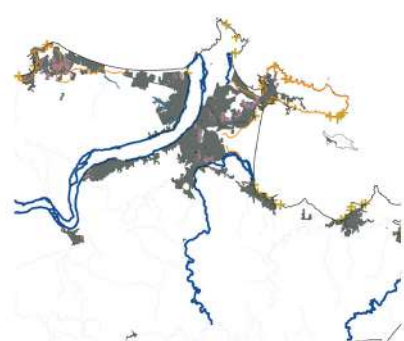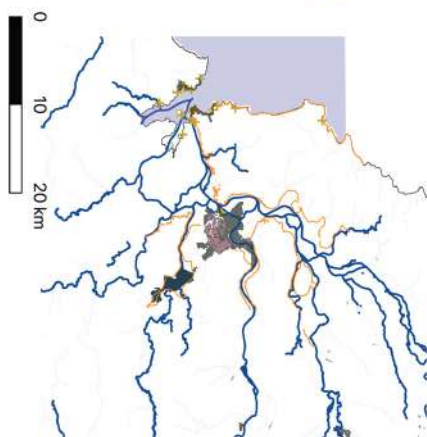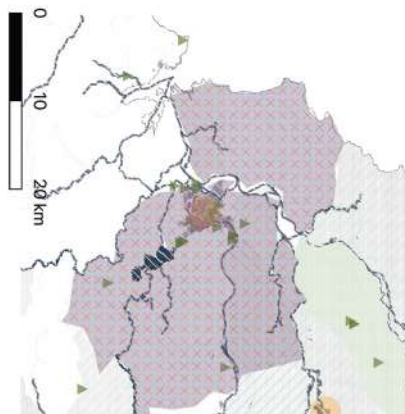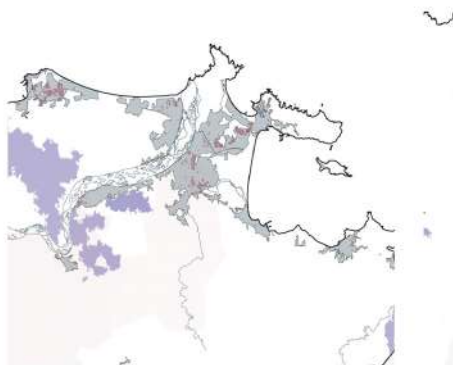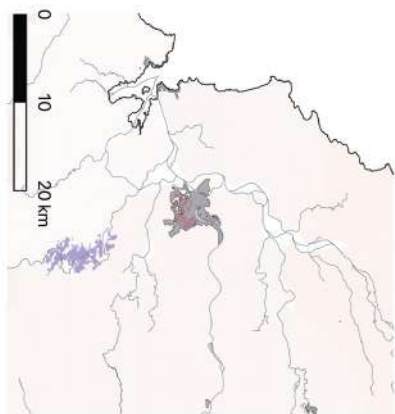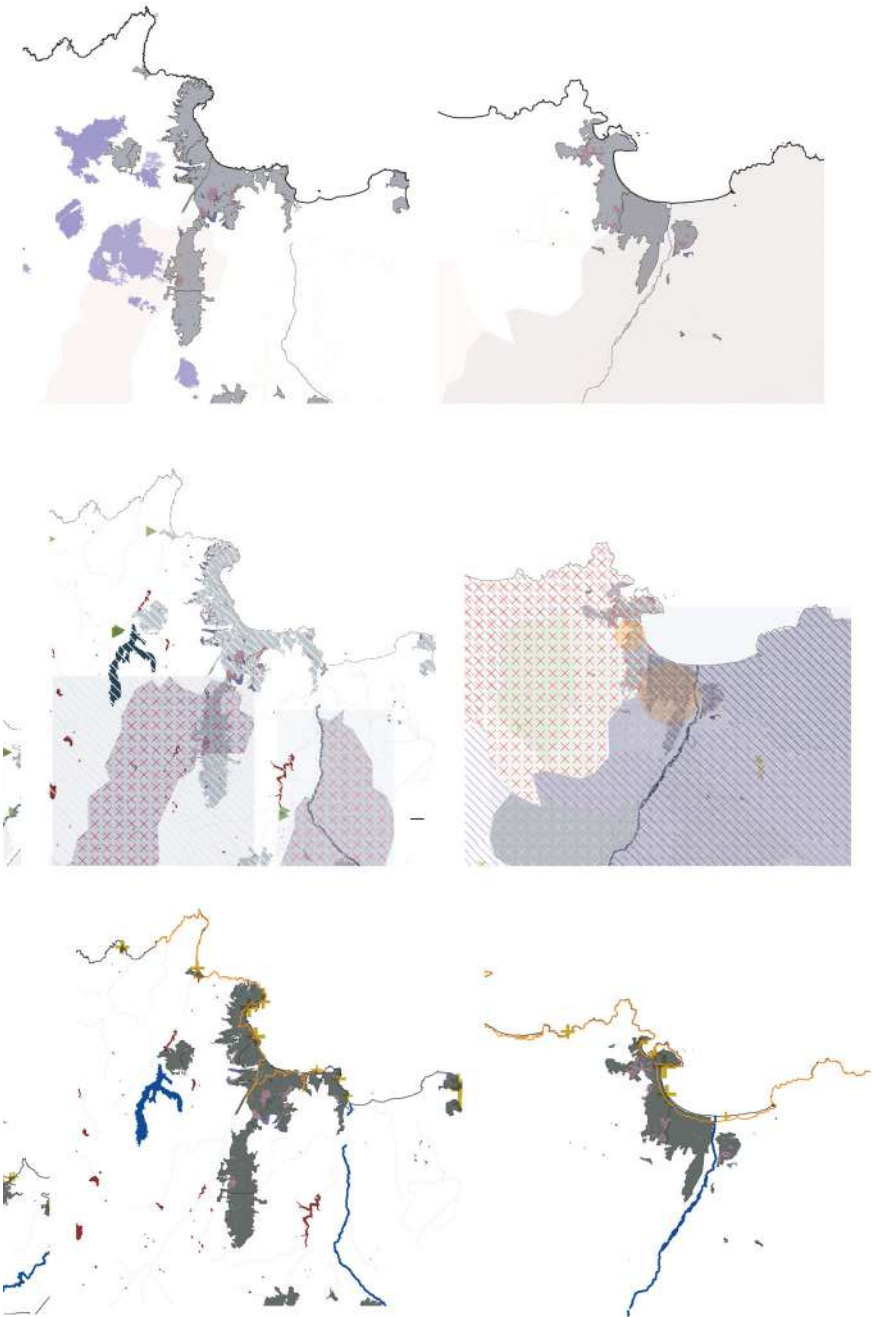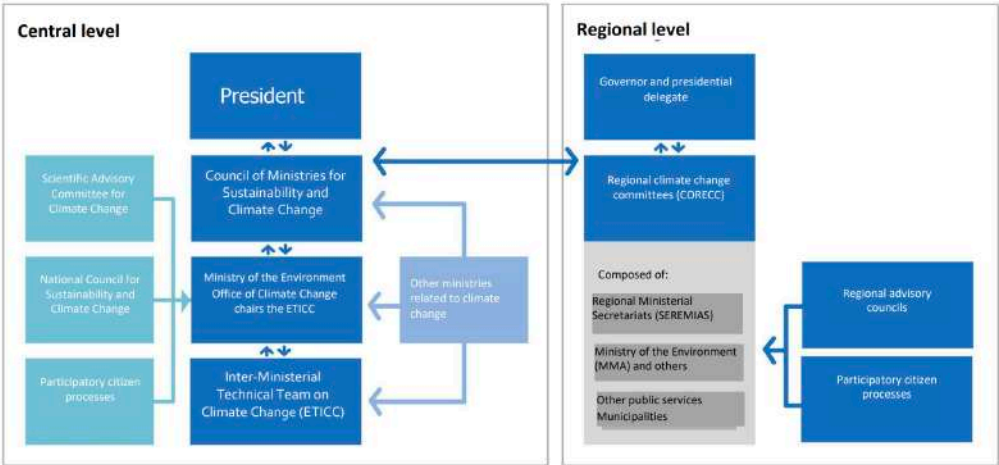
Image X: Climate Governance Chart
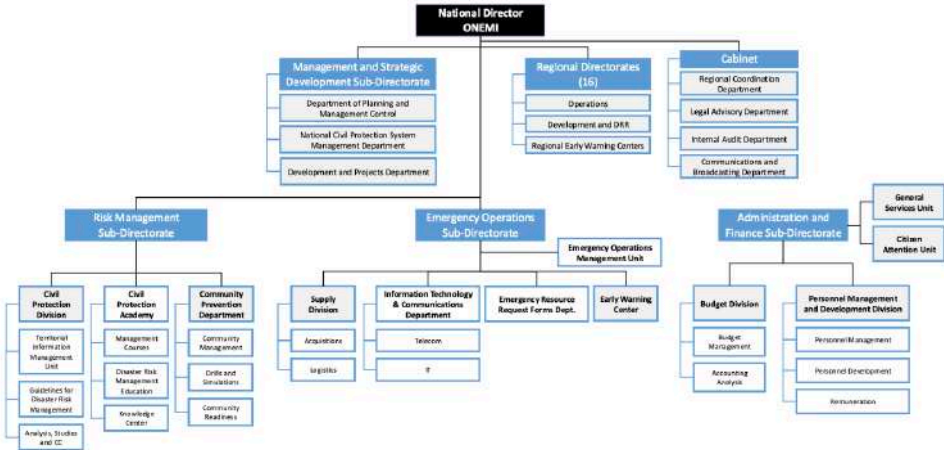
Image X: Organizational Structure for Disaster Management

(2023) points out that indigenous peoples and people living in rural or peripheral sectors are more exposed to human rights violations in the context of disasters, due to the lack of access to services and resources to deal with the emergency, as well as the lack of recognition of local community organisation as a preventive measure.

Furthermore, Johansson (2020) highlights how institutional responses are often determined by social and economic dynamics that leave the most vulnerable behind. Thus, while disasters can generate possibilities for change, the historical pattern has been the reproduction of inequalities.

Galilea (2023) complements this analysis by pointing out that the forestry production model, which has occupied vast areas in Mapuche territories, has exacerbated social tensions and territorial conflicts. These communities not only face historical discrimination, but also have to deal with a degraded and highly flammable environment, with little institutional capacity to prevent or cope with climate disasters.

Authors such as Phil O'Keefe et al. (1976) propose to "denaturalise" disaster, that is, to reject the idea that it comes simply from nature. The increase in disasters, according to these authors, is not explained by geological or climatic changes, but by increasing socio-economic polarisation between and within nations. This critique extends to post-colonial perspectives that link current vulnerability to historical processes of colonisation and imposed development models that reinforce structural inequalities (Garcia Acosta, 1996; Oliver-Smith, 1999a, in Faas & Barrios, 2022).
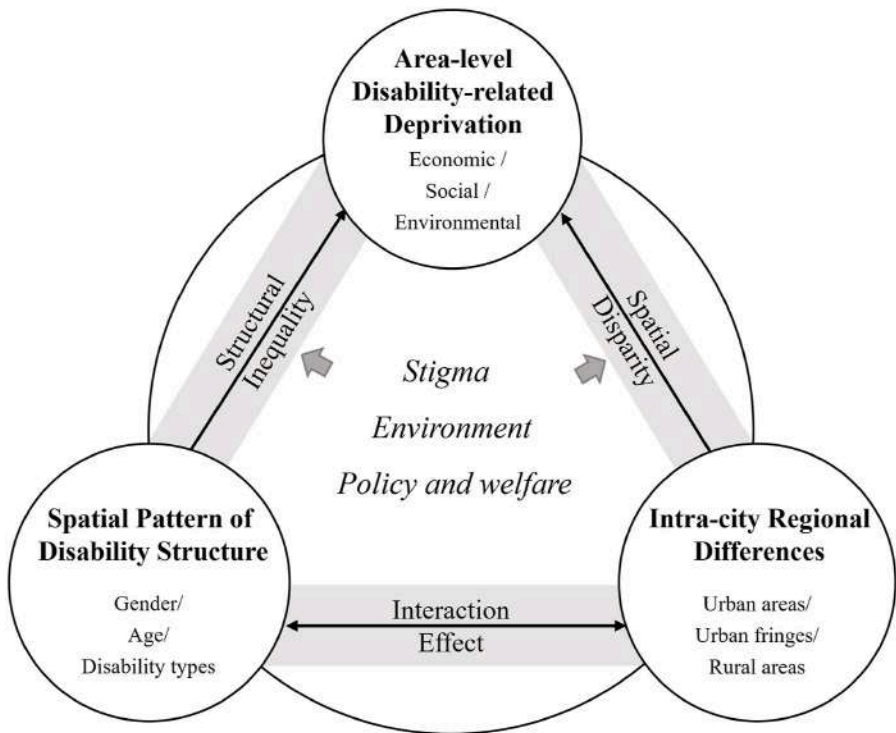
Image X: The proposed framework for understanding the structural inequality and regional disparity of disability-related deprivation. (2022)

3.3. *Urban planning and emergency systems as reproducers of inequality*

Risk governance in Chile has demonstrated important limitations. The INDH report (2023) denounces the disarticulation between regulations (such as Law 21.364 that creates the National System for Disaster Prevention and Response) and their local implementation. In particular, it highlights the lack of human and financial resources faced by municipalities to develop adequate emergency plans. This results in late, poorly coordinated or ineffective responses.

In addition, urban planning has contributed to vulnerability by locating marginalised populations in high-risk areas (Bronfman et al., 2021). In line with Johansson (2020), we can argue that emergency and planning systems not only fail to prevent risk, but often reinforce pre-existing inequalities by failing to consider the multiple social dimensions of disaster.

Galilea (2023) also highlights the lack of an effective land-use policy and regulation of the economic model (reflected in forestry, agricultural industries, mining, etc.) as a key factor in the reproduction of risk. Weak environmental control and the absence of integrated planning instruments have allowed the perpetuation of an unsustainable pattern of land occupation, with high exposure to fires, loss of biodiversity, environmental degradation and poor community preparedness.

3.4. *Territorial memory: the foundation of situated resilience*

Faced with this reality, territorial memory emerges as a fundamental resource (strategic, special and political) to face the disaster not only from the technical adaptation, but also from the revaluation of situated knowledge. When arriving in a new territory, it is not enough to have water, food and shelter: territorial memory is also needed. A memory that is not understood as a static tradition, but as a living, contextual and resilient story that is transmitted orally between generations, and that stores knowledge about the climate, soils, care practices and relationships with nature.

Image X: "Memory loss is our main threat." Image developed by CIGIDEN to view and download information compiled on socio-natural disasters that have impacted Chile throughout its history.

These territorial memories, embodied in peasant, indigenous and popular practices, contain fundamental knowledge about water cycles, the relationship with soils, forms of mutual care and respect for ecosystems. Far from being "minor knowledge", they represent real alternatives to face the climate crisis and disasters from a logic that is more respectful of the environment and fairer to communities (Marino, 2015; Faas, 2016). It is a deeply rooted form of resilience that cannot be designed from headquarters or replaced by standard solutions. Incorporating it into risk planning involves recognising the political value of territory and the agency of communities in building their own future (Marino, 2015; Faas, 2016).

"In vain, magnanimous Kublai, will I try to describe to you the city of Zaira with its high bastions.
I could tell you how many steps there are in its stairways, what kind of arches its arcades have, what sheets of zinc cover its roofs; but I already know this would be like telling you nothing.
The city is not made of this, but of relationships between the measurements of its space and the events of its past [...]"

Chapter 4 .
Climate and Politics in the History of Chile

The climate in Chile has played a crucial role during some of the most significant political moments in its history, particularly in the context of extreme weather events such as droughts and floods. According to the study by historians Pablo Camus and Fabián Jaksic (2022), there exists a close relationship between these natural phenomena and the social and political transformations the country has undergone. These climatic events have not only accompanied historical processes but, in many cases, have catalysed them— accelerating crises and precipitating political change.

One notable example is the 1924 drought, the most severe in two centuries. The resulting water scarcity led to widespread strikes and protests that contributed to the fall of President Arturo Alessandri's government, paving the way for Carlos Ibáñez del Campo's rise to power. This instance illustrates how an extreme climate event can destabilise a nation's political equilibrium, intensifying pre-existing tensions and triggering regime change.

Another significant case was the 1968 crisis, marked by a prolonged drought that severely affected agricultural regions amidst the agrarian reform led by Salvador Allende's leftist government. Water shortages and food insecurity heightened rural tensions, becoming one of the many contributing factors to the 1973 military coup.

Similarly, the 1982 floods, following a major economic crisis, impacted impoverished communities and spurred grassroots responses such as communal kitchens (ollas comunes). These acts of solidarity became spaces for civic engagement and resistance against the military dictatorship, helping to erode the regime and open a path toward democratic transition.

Camus and Jaksic (2022) warn that contemporary climate change may trigger new crises if preventive policies are not adopted. Droughts and floods continue to shape Chile's social and political dynamics. A more recent phenomenon worthy of study is the increase in wildfires and floods in the central-southern region, and their correlation with the rise of far-right and populist parties in the past five years. Though this remains the subject of another thesis, it is clear that social vulnerability to climate events demands urgent integration of climate into public policy and a reimagining of disaster mitigation strategies.

In sum, Chile's political history is deeply shaped by extreme climatic phenomena, which—much like in Indigenous cosmologies—highlight how natural elements can alter the course of social and political developments. The territorial spirituality of Andean and Mapuche peoples, with their emphasis on water stewardship and ecological balance, offers valuable insights for designing more resilient and sustainable policies in the face of future climate challenges

Chapter 5 .
Disaster Management in Chile

As we have seen until now, Chile faces an increasing frequency and severity of hazards, a trend exacerbated by climate change and unsustainable territorial development (Cienfuegos, 2021; Cavazos et al., 2024). These events are not "natural" per se, but socially constructed through political, economic, and cultural systems that condition vulnerability (Faas & Barrios, 2022; O'Keefe et al., 1976; UNDRR, 2023).

In response, Chile has developed in the last two decades a complex institutional framework and disaster management strategies that includes the transformation of ONEMI into the National Disaster Risk Management Service (SENAPRED), supported by systems such as the National Civil Protection System and the Early Warning System (SAE), as well as strategic climate adaptation plans like the Plan Nacional de Adaptación al Cambio Climático (2017—2022), the Atlas de Riesgo Climático (ARClim, 2024), and the Política Nacional de Cambio Climático 2030—2050. Together, these frameworks aim to reduce vulnerability, enhance preparedness, and build territorial resilience across multiple hazards (Ministerio del Medio Ambiente [MMA], 2021).

1. SENAPRED (National Disaster Prevention and Response Service):

This is the agency that replaced ONEMI, with a more comprehensive approach to risk management. It coordinates disaster preparedness, response and recovery, seeking greater intersectoral and territorial articulation.

- By: Ministry of Interior and Public Security.
- Involves: Regional and local governments, Armed

Forces, Carabineros, Firefighters, public services, civil society.
- Protects through: Inter-agency coordination, emergency plans, drills, risk reduction education.
- It acts: before (prevention and preparedness), during (response coordination), and after (recovery and evaluation).

2. National Civil Protection System:

It is a network of public, private and social institutions that act in disaster prevention, response and recovery. Its main role is to coordinate actions at national and regional level.
By: Coordinated by SENAPRED.
Involves: Ministries, municipalities, NGOs, private sector and organised community.
Protects through: Operational coordination of actors at each stage of the risk cycle.
Act: Throughout the cycle: before, during and after the disaster.

3. Alert System (SAE):

A technological platform that issues alerts to the population via mobile phones, enabling timely evacuation in the event of threats such as tsunamis, fires or floods.
- By: SENAPRED, in conjunction with telecommunications companies.
- Involves: The entire population with active mobile phones.
- Protects by: Issuing immediate warnings for evacuation or other protective measures.
- Act: Before or during the event, depending on the type of threat.

4. Risk Atlas (ARClim, 2024):

Geospatial analysis tool that identifies areas vulnerable to climate change, facilitating territorial planning

based on scientific evidence
- By: Ministry of Environment, developed together with academia and research centres.
- Involves: Territorial planners, regional and local governments, technicians and decision-makers.
- Protects through: Identification of risk areas, basis for preventive planning.
- Act: Before disaster strikes, as a preventive tool.

5. National Climate Change Policy 2030-2050:
Long-term strategic framework that establishes mitigation and adaptation goals, including carbon neutrality and territorial resilience building.
- By: Ministry of Environment.
- Involves: The entire state apparatus, private sector, civil society, academia.
- Protects through: Structural approach to adaptation, emission reductions and territorial resilience.
- Act: Primarily before the disaster, but set guidelines for action also afterwards in transformative recovery.
-

Despite these advances, the institutional approach remains technocratic, hierarchical, and reactive, prioritizing control and emergency response over long-term transformation and inclusive territorial planning (Disaster Management Reference Handbook, 2021; Faas & Barrios, 2022; Al-Dahash et al., 2016). The system is characterized by compartmentalization and sectoral fragmentation, with agencies operating in silos and limited integration across governance scales (Arriagada et al., 2018). This structure reflects a functionalist approach, typical of the modern planning paradigm, which distributes competencies according to sectors (housing, transport, health, public works, etc.) and scales (national, regional, communal), without effective mechanisms for territorial or ecological

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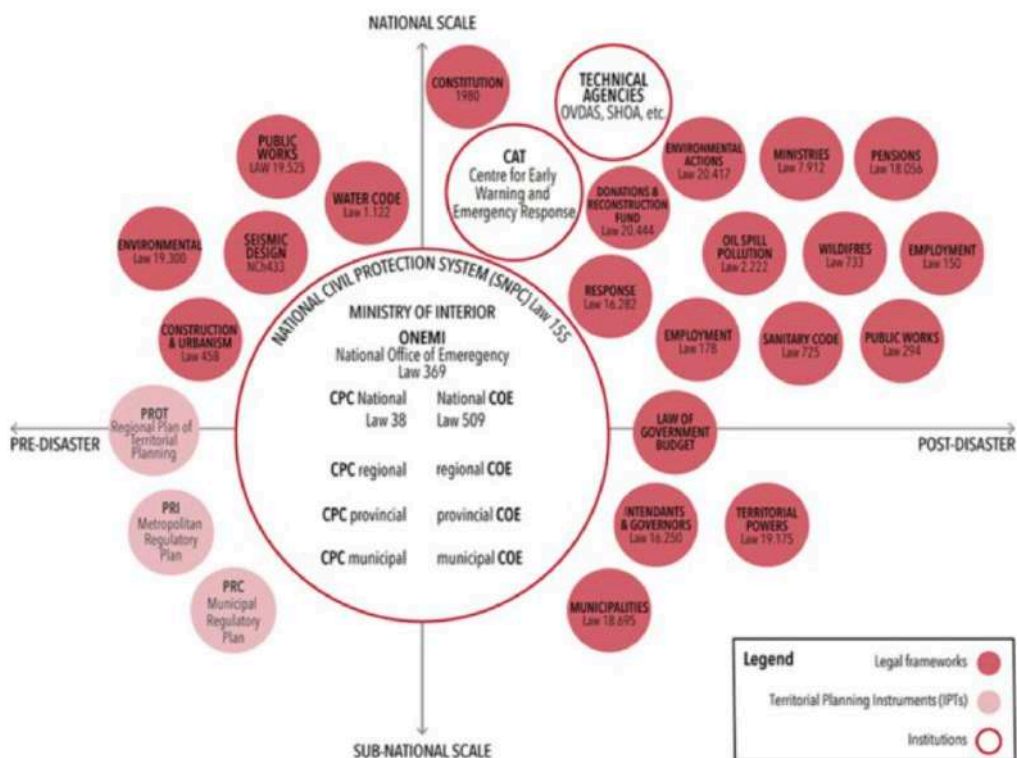
Image X: Map of Institutional Forms related to disaster risk management and disaster reduction in Chile
Data Source: Based on Sandoval and Voss (2018).

integration. As Faas (2016) and Boholm (2015) argue, this form of governance often neglects the socio-cultural and ecological dimensions of disaster vulnerability, reinforcing exclusion and systemic risk.

Galilea (2023) highlights how, although disasters have triggered progress in areas like seismic construction codes and emergency response, territorial planning has remained stagnant, hindered by bureaucratic inertia, overlapping legislation, and private interests that resist substantive regulatory change. As a result, instruments such as zoning plans or land use regulations often lag behind actual urban practices, reinforcing vulnerability in high-risk areas and undermining long-term resilience.

Urban planning in Chile reflects this fragmentation, often disconnected from ecological processes and landscape dynamics. Hydrological cycles, ecological corridors, and risk-prone geographies remain absent from zoning instruments, which instead rely on rigid, outdated regulatory schemes (Galilea, 2023). The result is an urban model dependent on grey infrastructure and blind to the regenerative capacities of the landscape and ecosystems.

Although the "Ley Marco de Cambio Climático (LMCC)" and the "Estrategia Climática de Largo Plazo (ECLP)" represent formal commitments to climate adaptation, their implementation is limited by a top-down governance model. Institutions like the Consejo de Ministros para la Sustentabilidad and the Comité Científico Asesor have advisory roles but lack the power to influence local planning tools like the Plan Regulador Comunal (PRC), which remain sector-driven and unresponsive to climate risk (MMA, 2021; Arriagada et al., 2018).
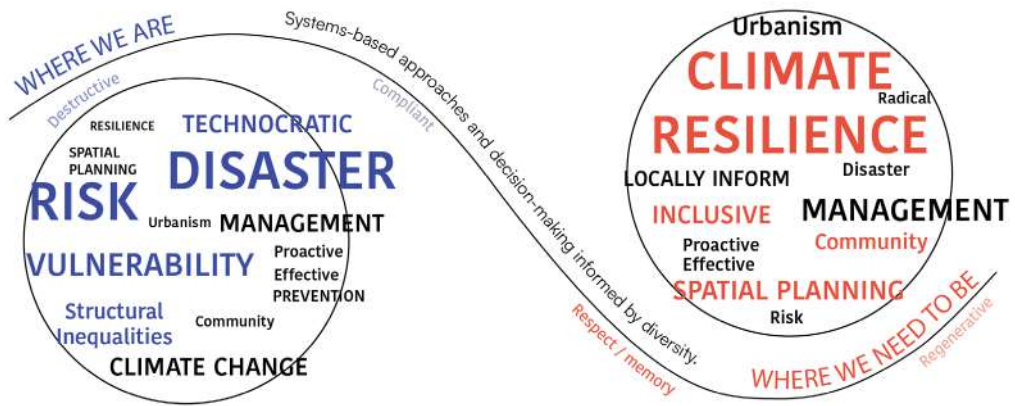
At the regional and local levels, instruments like the CORECC and the PACCC offer opportunities for decentralized adaptation but are frequently under-resourced and lack binding authority. This limits their effectiveness and contributes to a gap between national strategy and local action (Cavazos et al., 2024). Bronfman et al. (2021) note that this misalignment exacerbates social vulnerability, particularly in marginalized and peripheral communities.

SENAPRED's operational logic continues to focus on emergency response rather than proactive risk reduction. The legal framework—rooted in the 1965 Law No. 16.282—emphasizes securitization and centralized control (ReliefWeb, 2021), a paradigm critiqued by Tierney (2007) as outdated in the face of complex, systemic challenges. This framework fails to address structural drivers of risk such as informal settlements, territorial segregation, and ecological degradation (O'Keefe et al., 1976; Algoed & Torrales, 2019; Faas & Barrios, 2022).

A transformative alternative is offered by landscape urbanism, which advocates for the integration of natural and urban systems through adaptive infrastructure and ecological design. This paradigm challenges the dichotomy between city and nature, proposing instead a co-evolutionary model where urban growth is aligned with environmental regeneration (Bollier, 2020). Adaptation, from this perspective, becomes a territorial process—dynamic, inclusive, and multiscalar (Faas & Barrios, 2022; Garcia Acosta, 1996).

Implementing such a vision requires meaningful community engagement, recognizing local knowledge and empowerment and cultural memory as foundational to resilience (Garcia Acosta, 1996; Marino, 2015). However, in Chile, participation mechanisms remain largely symbolic. Territorial climate action tables exist, but without decision-making power or adequate resources, they struggle to effect real change (MMA, 2021; Cavazos et al., 2024).

Furthermore, formal adaptation strategies tend to frame local initiatives as informal or even illegal, overlooking their potential as bottom-up responses to climate risk. As Faas (2016) emphasizes, true resilience demands a shift from managing risk as an administrative task to reconfiguring space through social and ecological co-production.

Conclusions .

Towards a new territorial justice agenda

We know that not all natural hazards can be avoided—but disasters, as we've seen time and again, aren't just "natural." They result from the ways society is organized, how we use space, and whose voices get left out of decision-making. To truly reduce risk in Chile, we need to move away from simply reacting to emergencies and start rethinking how we relate to territory and to each other.

This means shifting from a disaster-response model to one of risk governance that takes prevention seriously and is rooted in territorial justice. Territories can't keep being treated as sacrifice zones or just areas to manage. They are lived spaces—full of memory, identity, and knowledge. Including those dimensions in planning and governance isn't just symbolic; it's key to building more just and resilient futures.

At the same time, climate phenomena don't just affect the environment—they intersect with politics, economics, and even the spiritual life of communities. There's compelling research showing how extreme weather events in Chile have historically aligned with moments of political crisis, like the 1924 drought before the fall of Alessandri, or the 1982 floods during the decline of the dictatorship. That pattern tells us we can't ignore the climate when we talk about social stability or political change.

But this also invites us to broaden how we understand these events. From Andean and Mapuche perspectives, for example, phenomena like El Niño or intense rains are seen not as random disasters, but as signs of imbalance—between humans and nature, or between opposing cosmic forces like Kai Kai and Tren Tren.

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These worldviews challenge us to think differently about risk, and to imagine urban planning that respects natural cycles and landscape entities, rather than trying to dominate or suppress them.

So if we really want to address the roots of vulnerability, we need a more integrated, culturally aware, and historically grounded approach—one that values diverse ways of knowing and puts justice at the center of how we govern territory in times of climate change.

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BECOMING INDIGNEOUS TO PLACE

Reimagining Urban Futures through Ancestral Knowledge and Territorial Resilience in Chile

BECOMING INDIGNEOUS TO PLACE

Reimagining Urban Futures through Ancestral Knowledge and Territorial Resilience in Chile

BOOK 3
Operational Landscape
Colonialism, extraction and territory
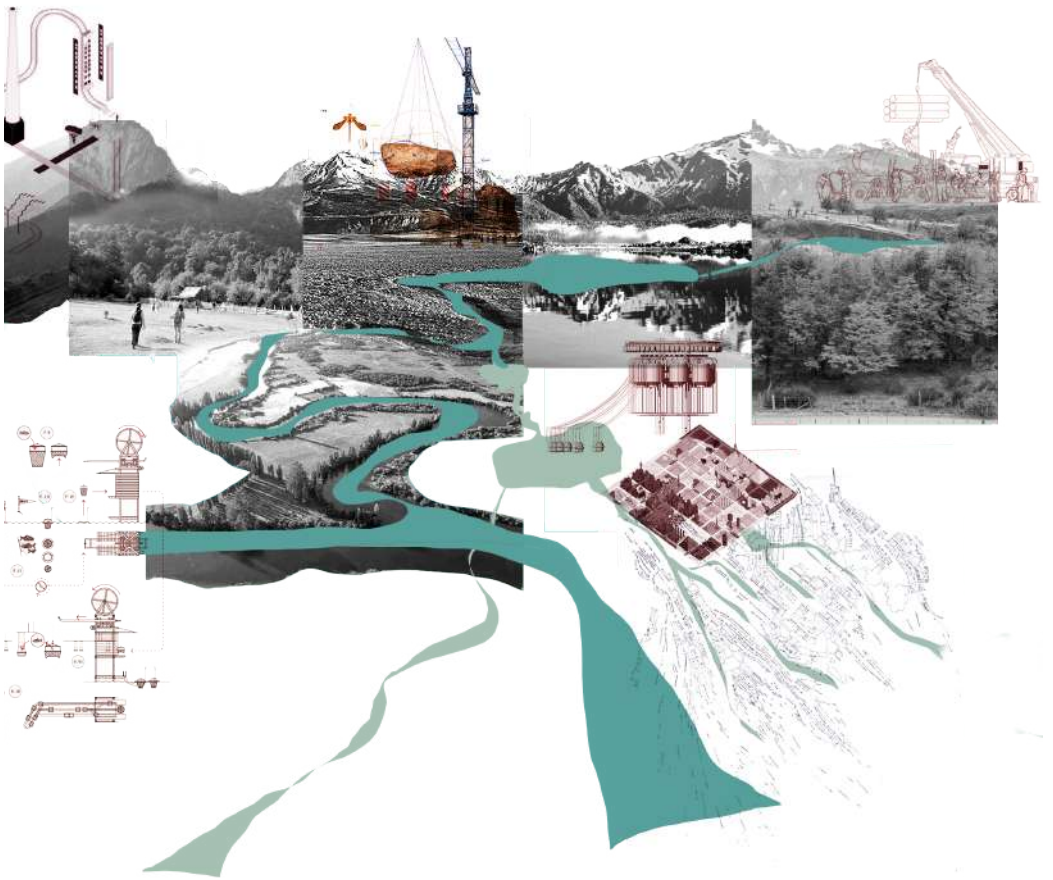
Chapter 1: Territorial Ocupation.

Colonial origins and military logics

When addressing the subject of natural disasters in Chile, reference to the occupation of the territory is unavoidable. Since pre-Hispanic times, different human groups decided to inhabit areas with high exposure to natural hazards such as earthquakes, active volcanoes and coastal areas prone to tsunamis. According to 16th century chronicles, these settlements were based on both survival and religious grounds (Petit-Breuilh, 2001). Later, with the arrival of the Spanish conquistadors, this trend continued: port-cities were established in areas of intense geodynamic activity, not out of ignorance of the environment, but because of their proximity to strategic resources such as minerals, water, wood and construction materials (Petit-Breuilh, 2001).

This chapter analyzes, from an urban-territorial perspective, the colonial continuities of extractivism, spatial centralization and ecological limits that configure the contemporary Chilean landscape. It is articulated as a critical discussion based on the contributions of urban political ecology, landscape archaeology, philosophy of matter and polycentric environmental governance, integrating the Chilean case in the context of global ecological crises.

SACRED LANDSCAPE   v/s   OPERATIONAL LANDSCAPE

Original communities

Inca Expansion

Spanish Colonization

Chilean Expansion
Capitalism
neo-colonialism

Population in Chilean Territory

0

900

1200

1470
1541

1810
1884
1950
2024

10

20

0

Indigenous
Spanish/Mestizo
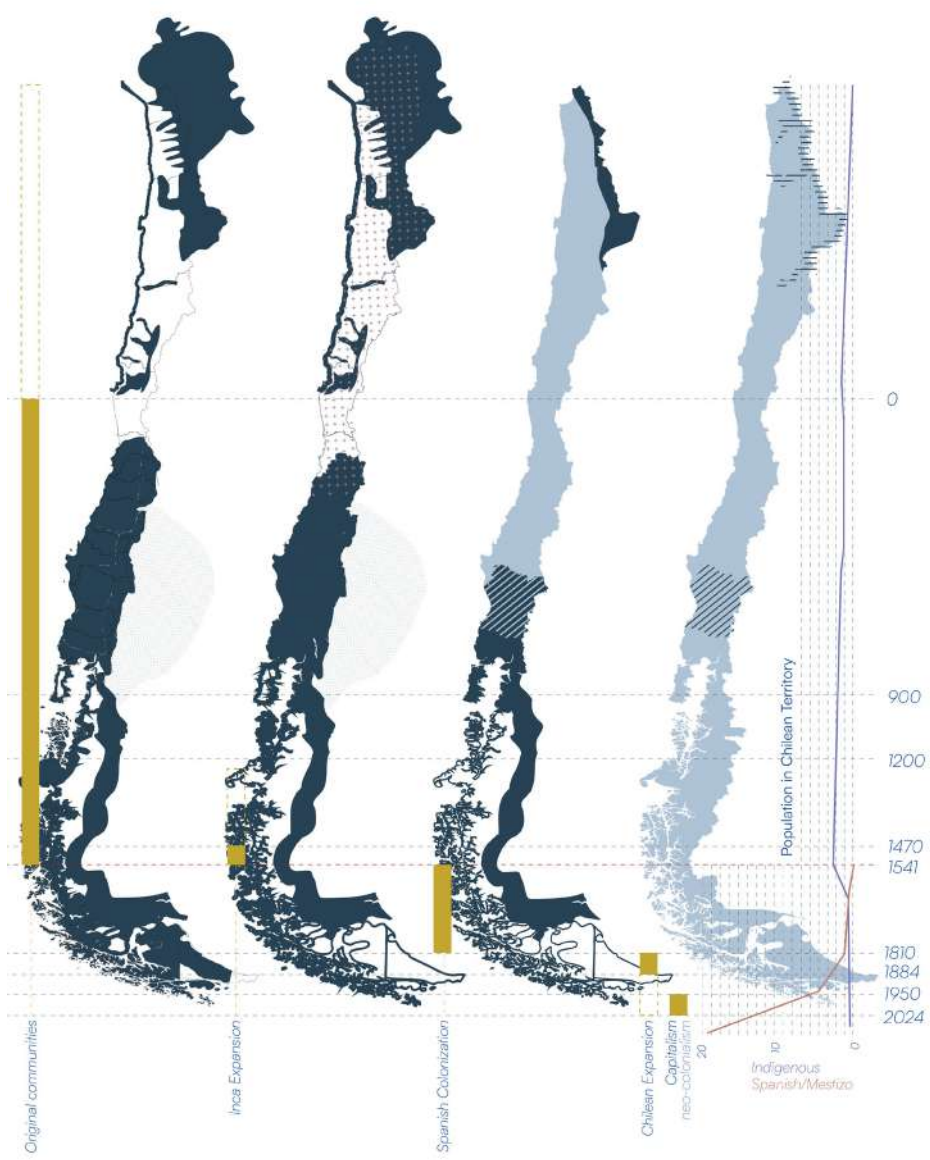
Image: Territorial occupation trough the years

● Indigenous territory
● Spanish territory
⊙ Inca Expansion
  Transculturality

8

1.1. Territorial occupation model in Chile: colonial origins and military logics

Colonialism in Chile can be analyzed in two main stages: Spanish colonialism, which began with the arrival of the conquistadors in the 16th century, and the American colonial phase, consolidated in the second half of the 20th century with the imposition of a capitalist model. Both processes established territorial and urban planning systems disconnected from the ecosystemic and cultural dynamics of the territory, contributing to the exploitation and degradation of natural resources and the dispossession of Indigenous communities. The configuration of the Chilean landscape is deeply tied to a history of colonial extractivism that has evolved into a form of late capitalism in which territory is reduced to mere resources (Moore, 2016). This history is also marked by the imposition of technologies and property systems, which establishes the conditions for the expansion of monocultures, megaprojects and forced displacements (Nabhan, 1997)

1.2. Spanish urban foundations: military, commercial and evangelistic objectives.

Spanish urban foundations in America, particularly in the Kingdom of Chile, should be understood from a triple perspective: military, commercial and evangelistic. The cities were established for strategic and military purposes, prioritizing trade with the Crown over local social or ecological dynamics. This model replicated an order that was alien to the territory, subordinating the landscape to an extractive imperial rationality. Instead of responding to endogenous processes or ancestral knowledge of ecological dynamics, cities were designed as centers of control, administration and exploitation, consolidating a fracture between society and nature that persists to this day in contemporary territorial
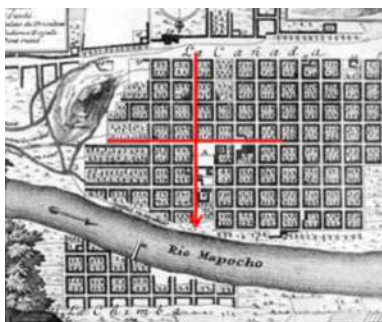
Image (above): First maps of Santiago.

Image (right): Cronological foundation of cities

1712

1540
San Pedro
de Atacama

1544
San Bartolome de
La Serena

1569
Valparaiso

1541
Santiago de la
Nueva Extremadura

1552
Villarrica

1552
Santa María la
Blanca de Valdivia

1567
Santiago de Castro

organization. This vision is supported by a bibliographic analysis that reveals how cities functioned as nodes of territorial control, axes of economic articulation and centers of missionary (religious) action.

A clear example is the foundation of Santiago in 1541, strategically located between two branches of the Mapocho River and guarded by the Huelén Hill (today's Santa Lucía Hill), from the top of which a wide perimeter could be watched over in case of possible threats. This hill, in addition to its strategic value, had a deep spiritual significance for the native peoples of the Aconcagua area, since it had been a ritual center and human occupation long before the arrival of the Spaniards. The foundation of "Santiago de Nueva Extremadura" took place precisely in this site , which had a special importance for the cultures that inhabited the Mapocho valley for centuries (Stehberg et al., 2021).

During the first six decades of occupation, colonial urbanization was conditioned by indigenous resistance, particularly in the south. The Arauco War pitted the Spanish colonists against the Mapuche, forcing the settlers to join militias and found fortress cities. The insurrection of 1598, after the Spanish defeat at Curalaba, meant the abandonment of all settlements south of the Biobío, which transformed this river into the definitive frontier between the colonial world and the indigenous territory. (Santiago Colonial, n. d.).

Some cities, such as Chillán, Concepcion and Valdivia, had a military rather than an urban role. According to Núñez (2010), their main function was to ensure communications to the south. Ugarte Palma (1996) points out that many 16th and 17th century settlements were precarious and their viability depended on their strategic usefulness rather than on economic or demographic factors.
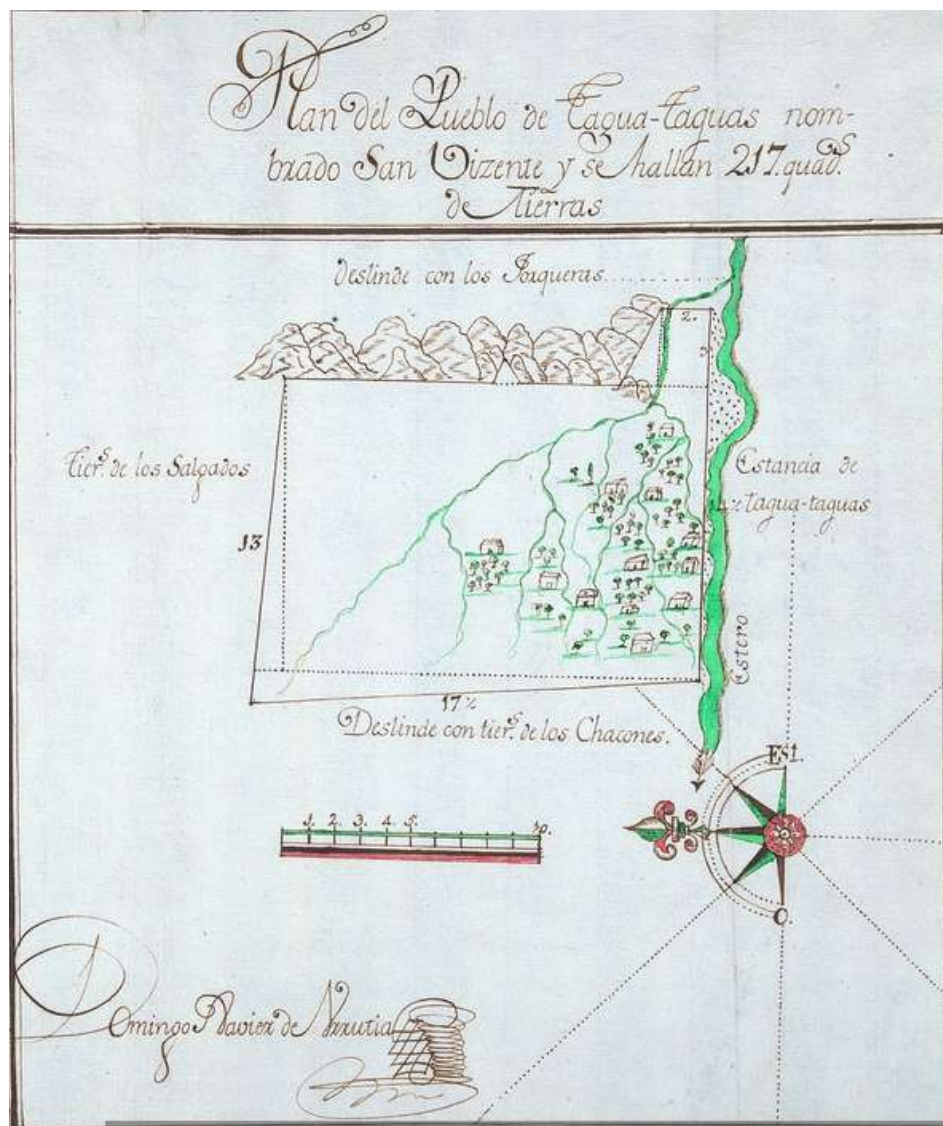
Image: First maps of
cities in CHile
 Domingo Javier de
Urrutia, Memoria
Chilena

Although economic development was slow and conditioned by conflicts and natural disasters, the cities were fundamental as centers of production and exchange. With the arrival of the Bourbons to the Spanish throne in the 18th century, the colonial urban model was revitalized. Santiago began to show signs of economic stability and urban growth only in the 17th century, when it developed hydraulic infrastructure such as tajamares and aqueducts, and allowed productive activities to take root in its surroundings (Santiago Colonial, n. d.)

The monarchy promoted the creation of new population centers, such as Talca, in order to strengthen administrative control and increase tax collection in the central (agricultural) zone of Chile. These foundations were located in areas of economic potential or on key trade routes, such as San Felipe and Los Andes (Santiago Colonial, n. d.), which transformed Santiago into the economic center of the Kingdom, shifting the axis of development towards the central valley, especially after the failure of settlements in the south.

At the end of the colonial period, Bourbon territorial policy configured a network of cities arranged longitudinally between the southern Atacama Desert and the Mapuche frontier, separated by a day's journey, with branches to the interior basins. The only exception to this planning was the port of Valparaíso, which arose spontaneously, but came to play a central role in the kingdom's foreign trade. (Santiago Colonial, memoria chilena, n.d.).
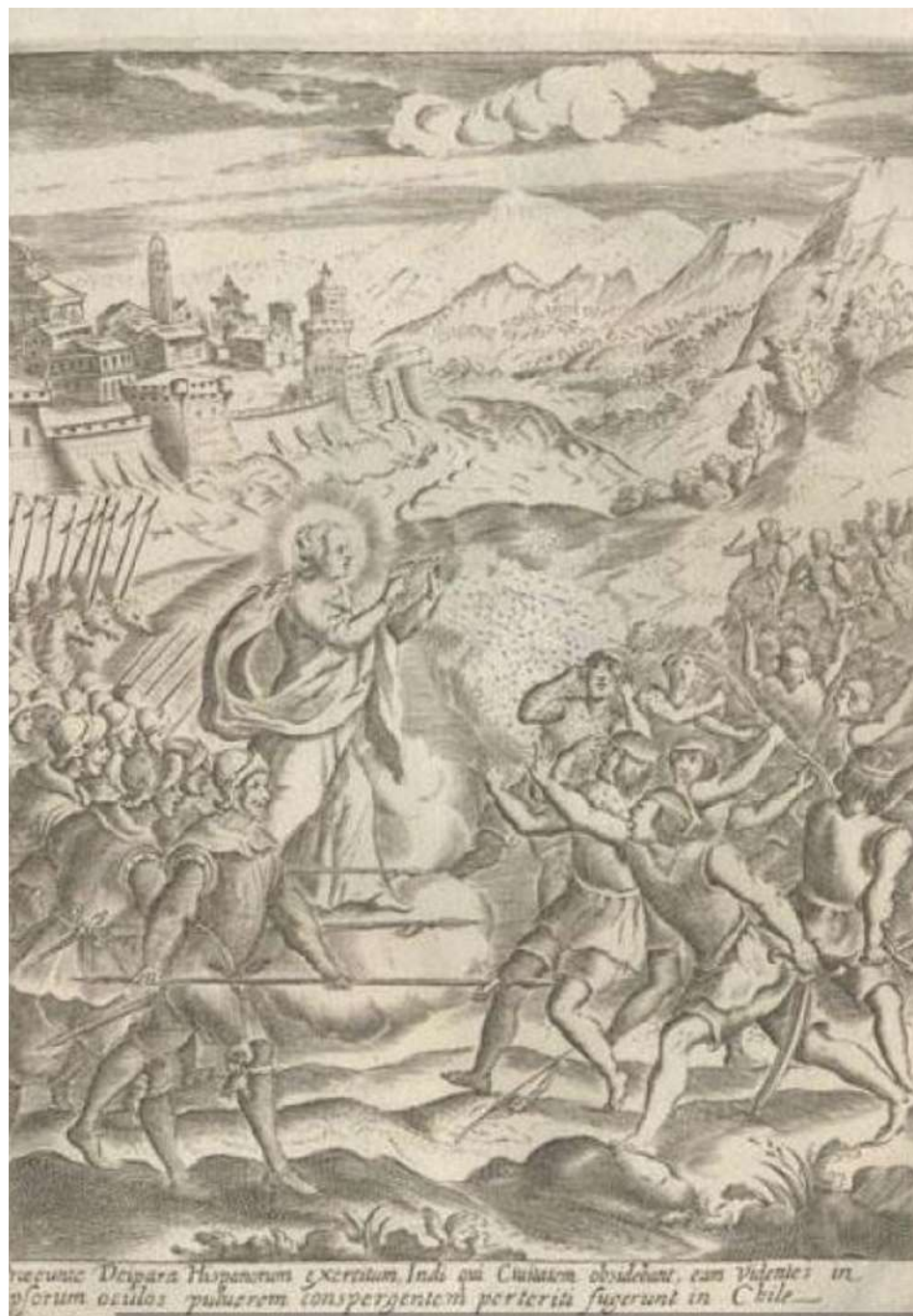
...raegunie Deipara Hispanorum exercitum, Indi qui Ciuitatem obsidebant, eam Videntes in
...psorum oculos puluerem conspergentem perteriti fugerunt in Chile.

1.3. Indian Villages

From the beginning of the Spanish advance into the indigenous territories of Chile, the existence of various forms of indigenous settlements was mentioned, which were generically referred to by the conquerors as Indian villages.

These settlements were a way of controlling the indigenous population, facilitating surveillance and preventing rebellions. In fact, the Toledo model that inspired the Tasa de Gamboa (1580) was conceived to have the indigenous people organized in stable nuclei, close to urban centers, from where they could be recruited as a labor force and evangelized (Pueblos de Indios En Chile (S. XVI- XVIII), n. d.). During the first fifty years of Spanish domination, the conquistadors occupied the entire central Chilean valley as far as the Chiloé archipelago, subjecting the native population to servitude through the encomienda system and founding cities that served as focal centers of political and military power. The Indian villages were instrumentalized as labor reserves, as the Indians were forced to work in "haciendas", "obrajes" and "estancias", often far from their original territories. The land grants and the encomienda facilitated this forced transfer, and although there were norms to assign land to the Indians, these were frequently ignored or absorbed by the colonists (Pueblos de Indios En Chile (S. XVI-XVIII), n. d.).

Another essential objective was indigenous evangelization. The cities not only represented the Spanish political order, but also a Christian civilizing project. The urban checkerboard responded to a symbolic logic: order, rationality and vigilance, as opposed to the chaos of the indigenous world or the countryside. As Saenz (2013) points out in his text "El Damero en discusión", the urban grid was an expression of moral clarity and facilitated the control of the social

Image: Indigenous evangelization
Encounter of two worlds
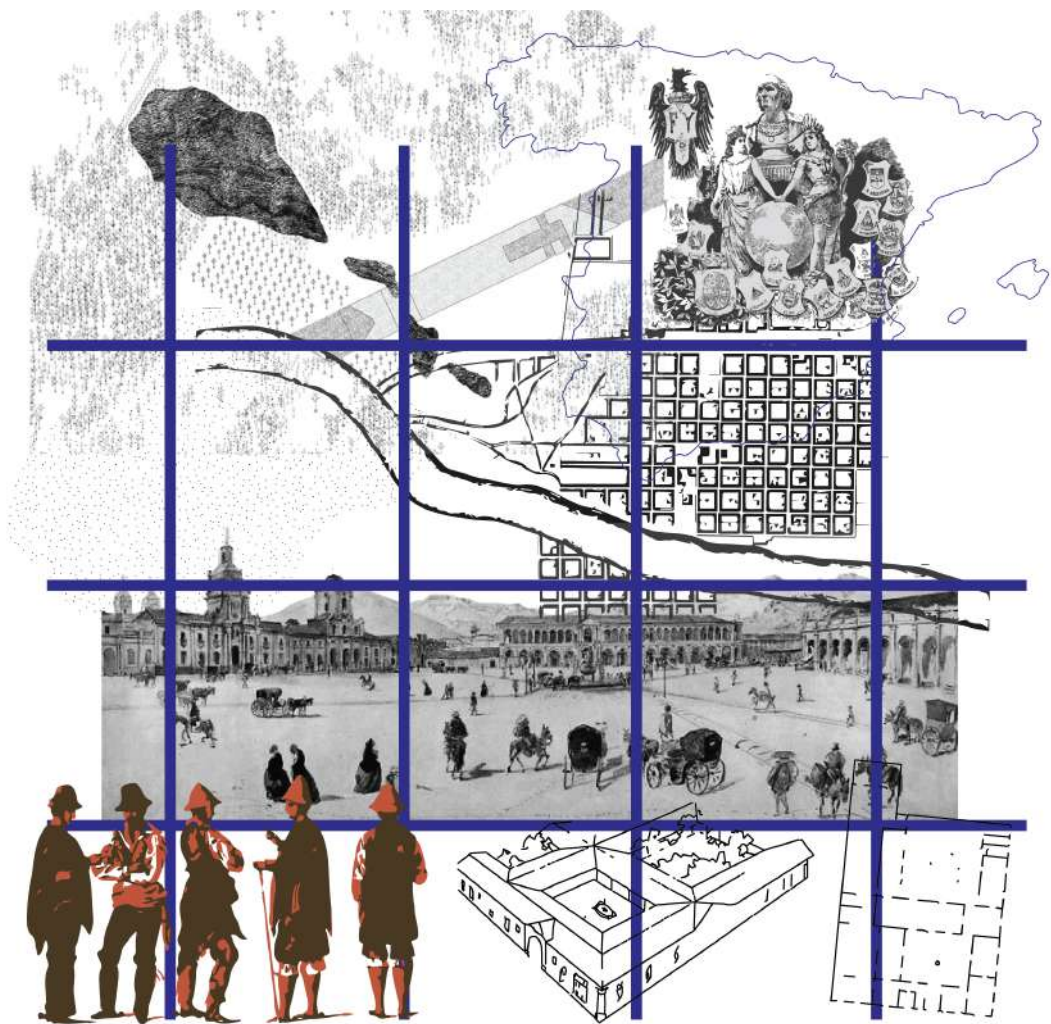
Image: Imaginary of
the grid in colonial
Chile.
Own elaboration

and religious behavior of the population.

The most important urban centers were the convents and churches. Santiago, for example, had a significant concentration of ecclesiastical institutions - Cathedral, convents of San Francisco, Santo Domingo, La Merced, among others - reflecting the centrality of evangelization as an urban function (Amunátegui, 1937). This network of religious institutions was crucial for the spiritual integration of the indigenous into the new colonial order, although often with limited results.

1.4. Imposition of the checkerboard as an urban form

The grid or checkerboard layout has been one of the most powerful references of the discourse of order and power of the Spanish colonial process in Latin America, whose center is represented by the Plaza de Armas in Chile. This layout has been associated with various city projects, under specific discourses, meanings and contexts (Sennett, 1997; Kostof, 1991), and represents the imaginary of discipline, order and control of Spanish power over the conquered territory (Sáenz, 2015).

In the Chilean cities founded by the Spaniards, the grid pattern was applied in different areas: villas, cities and Indian towns during the 17th and 18th centuries. The urban model promoted by the Bourbons claimed the grid design as a symbol of clarity, uniformity and social order. This regular geometric layout was aligned with the ideals and imaginary of the enlightened city, by facilitating both the circulation of people and goods and surveillance over the population (Sáenz, 2015). In this context, urban design not only fulfilled a practical function, but also a symbolic one, reflecting the intention to impose authority over the inhabited space: the control and rationalization of the territory.

Chapter 2.

Capitalist neocolonialism in Chile

The colonial urban layout implemented in Chile ignored the pre-existing geography, ecosystems and territorial memories, resulting in rigid and decontextualized cities from north to south, homologated despite their geographical, climatic and cultural contexts. The grids and administrative structures imposed replicated European models without considering climates, mountain ranges or local water systems, nor did they recognize indigenous ways of living, which were much more adapted to natural cycles. This disarticulation has produced a way of designing urban infrastructure that is fragile in the face of natural disasters and lacks territorial resilience, as it is based on patterns that do not dialogue with the realities of the Chilean landscape. As stated by Troncoso Meléndez (1999), landscapes - including the urban landscape- should be understood as spaces constructed symbolically, socially and materially by the societies that inhabit them, which directly interpellates the colonial logics of domination.

The development model adopted by Chile in recent decades has been deeply influenced by a neoliberal logic that reproduces the dynamics of capitalist neocolonialism, where capital accumulation is based on the intensive exploitation of territories and bodies, exacerbating social, economic and cultural inequalities. Mining, agribusiness and forestry reproduce logics of dispossession and accumulation that marginalize rural and indigenous communities. Urban expansion responds to the demand of these sectors, disarticulating territories and turning land into merchandise. This model intensifies territorial and ecological inequality, stripping the territory of its social and cultural value. This phenomenon is expressed particularly acutely in three dimensions: neoliberal urbanism, extractivism and the territorial uprooting of marginalized communities.

Legend (column headers, left to right):
- URBAN AND INDUSTRIAL
- AGRICULTURE
- MEDOWS AND THRUBS
- FOREST/FORESTRY
- WETLANDS
- AREAS DEVOID OF VEGETATION
- SNOW AND GLACIARS
- WATER BODIES

x-axis: 20% · 40% · 60% · 80% · 100%

54% corrisponds to operational and productive land
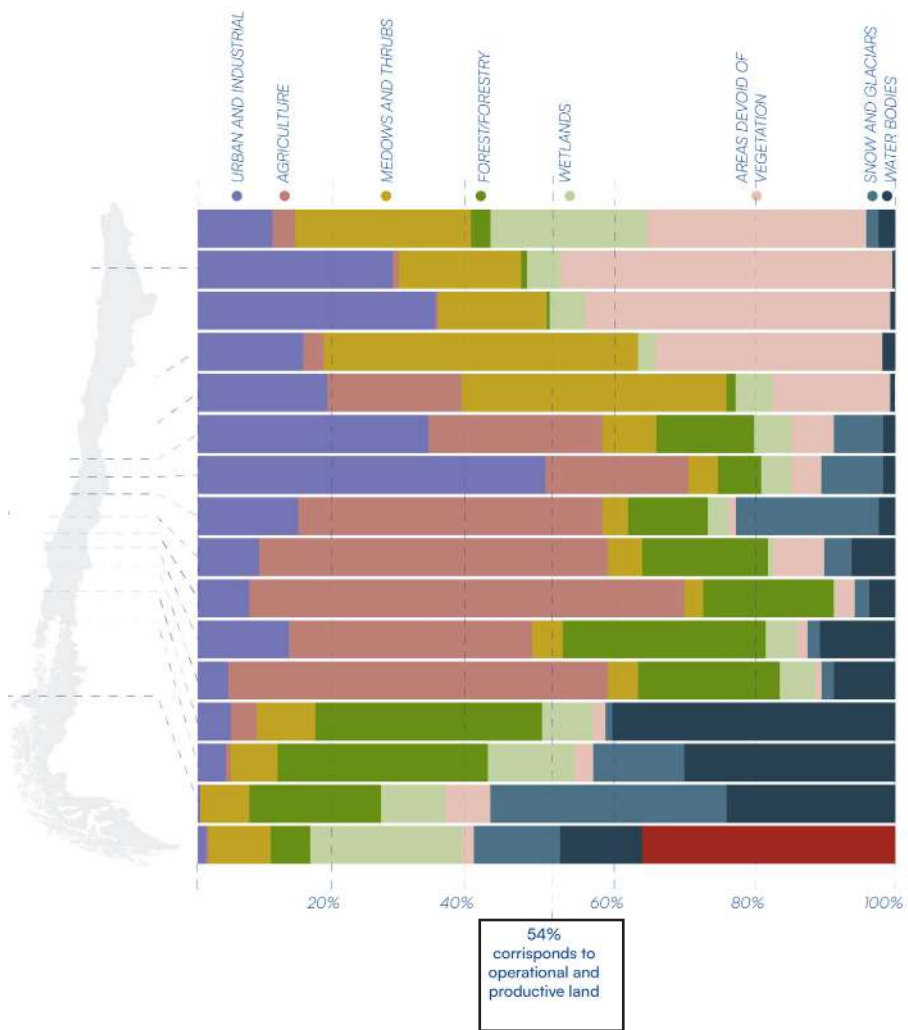
Image: Land Use in Percentage per region (2021).
Own elaboration based on data from Nationa Institute of Statistics (INE)

2.1. From colonial occupation to neoliberal urbanization: configurations of risk in the Chilean territory

The occupation of Chilean territory has historically been determined more by economic, strategic or cultural factors than by geological or climatic safety criteria. For centuries, the lack of knowledge about the origin and behavior of natural processes (such as earthquakes, eruptions or floods) made it difficult to adopt preventive measures. Until well into the 18th century, the occurrence of disasters was attributed to divine punishment or the actions of the devil, as evidenced by religious exorcism rituals documented in colonial times (Petit-Breuilh, 2001).

It was not until the 20th century, with the advance of scientific knowledge -particularly since the theory of plate tectonics in 1966- that the dynamics of these phenomena began to be better understood. This knowledge has allowed a greater capacity for risk prediction and mitigation, although still insufficient in the face of accelerated urban growth, lack of planning and overexploitation of natural resources (Beltrán and Rózpide, cited in Petit-Breuilh, 2001).

Since the end of the 19th century, territorial occupation has been combined with a process of intensive exploitation of natural resources. Initially focused on gold, silver and mercury mining, this activity expanded to the native forests of southern Chile, contributing to a progressive alteration of the natural environment (Petit-Breuilh, 2001; Romero, 1985). In the last decades of the 20th century, the neoliberal model promoted in many Latin American countries has deepened this environmental imbalance, favoring unsustainable practices such as the deforestation of watersheds, erosion and desertification of agricultural soils, or the inadequate use of urban space (García, 1985; Herzer, 1990).

Image: Structural models of Urban development.
Source (right): Alberts 1974: 15
Source (down): Federal Ministry of Spatial Planning, Construction and Urban Design 1996: 37 (edited)
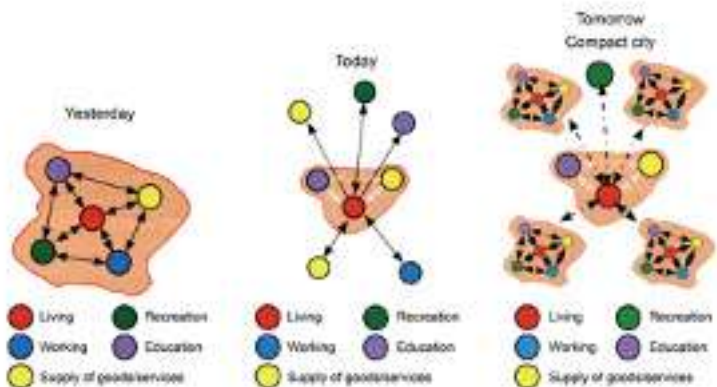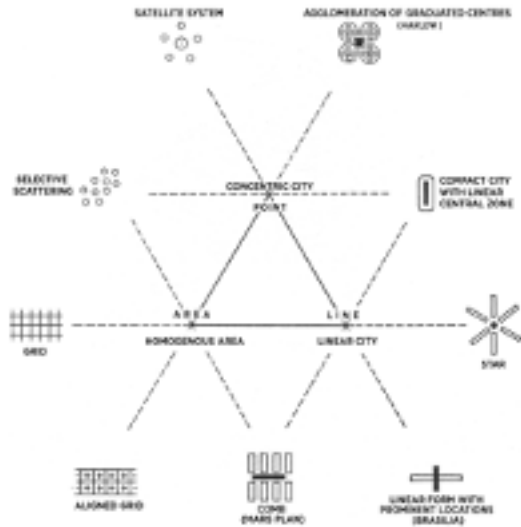
Added to this is the rural-urban migration phenomenon that, since the mid-20th century, has generated uncontrolled growth of cities without adequate territorial planning. With the migration from the countryside to the city since the 1960s, we have become urban in both space and living environment, and we have done so in a process of infinite horizontal expansion (Tzaninis et al., 2020). This has led to the occupation of high-risk areas: ravines, flood zones, unstable slopes, landslides and volcanic areas (Romero, 1985; Calvo García-Tornel, 1989). In cities such as Santiago de Chile, economic precariousness forces vulnerable sectors to settle on unsuitable land, thus increasing the potential impact of future disasters (García, 1985; Bronfman et al., 2021b).

In addition, the lack of education, together with the loss of territorial memory and the scarce awareness of natural hazards, deepens the inequality and vulnerability gaps in the face of disasters in social sectors located in risk areas, particularly among migrants, who are often unaware of the characteristics of the territory they inhabit. This limits the capacity to anticipate and respond, but has also contributed to the adoption of resigned or reckless attitudes, where popular sectors tend to interpret disasters as inevitable phenomena or divine punishments, instead of promoting a preventive culture based on knowledge and collective action (Petit-Breuilh, 2001). Above all, this generates distrust in administrative and political systems, which further undermines social cohesion and the creation of coherent disaster management plans.

In this context, territorial memory -understood as the accumulated knowledge, experiences and lessons learned about the territory and its natural dynamics- is key to the formulation of effective public policies on risk management. However, this memory has historically been undervalued, fragmented or even suppressed, both by urban modernization processes and by extractivist dynamics that disconnect communities from

Legend:
POPULATION DENSITY
- City
- 150,1-447 inhab/km2
- 40,1-150 inhab/km2
- 10,1-40 inhab/km2
- 0-10 inhab/km2

- Greater Santiago
  6.591.009 inhab
- Greater Concepcion
  1.123.207 inhab
- Greater Valparaiso
  989.536 inhab

- 100.000 - 499.000 inhab.
- 50.000 - 99.999 inhab.
- 10.000 -49.999 inhab.

Territorialization 2024

1. Santiago de Chile
2. Concepción
3. Valparaiso
4. Puerto Montt
5. Rancagua
6. La Serena
7. Temuco
8. Talca
9 Antofagasta
10. Iquique

Image: Population Density in Chile. Own elaboration

their geographical and symbolic environment (Salazar et al., 2022). In order to build truly transformative public policies, it is necessary to incorporate broad time scales that go beyond short-term frameworks. Experiences such as that of Japan -which after the 2011 tsunami reactivated centuries-old community knowledge and practices- demonstrate the importance of considering territorial memory as a central input in planning, not only for risk, but for all territorial planning.

Finally, as discussed in "Book 2"* natural disasters are rarely purely "natural". Most of the time, their consequences are closely related to human factors: bad political decisions, economic interests, negligence, lack of foresight or absence of adequate mitigation plans. Examples of this are the tragedy of the earthquake and tsunami in Constitucion (2010) or the 1989 drought in south-central Chile (Petit-Breuilh, 2001; Romero, 1985) or the multiple mega-fires in the central zone in the last 10 years.
*Go to book 2 - chapter 3

2.2 . Neoliberal urbanism and socio-spatial inequality

As stated before, Neoliberal urbanism in Chile has consolidated a model of territorial intervention that deepens socio- spatial inequality, promoting a fragmented vision of the territory and transferring the responsibility for solving urban problems to local communities. This approach is rooted in an instrumental conception of the neighborhood, strongly influenced by the functionalist tradition of the Chicago School, where the community space is conceived as an autonomous unit, capable of generating or resolving its own social conflicts according to its "internal efficiency" (Letelier Troncoso, 2025). It is defined as an approach to urban development that includes

Image: *What do we consider sacred and important in our cities now?*

Río Mapocho

Plaza de Armas

Torre Entel

Estadio Nacional

Parque Metropolitano

Costanera Center

Estación Mapocho

Palacio de La Moneda

Templo Bahá'í

Parque O'Higgins
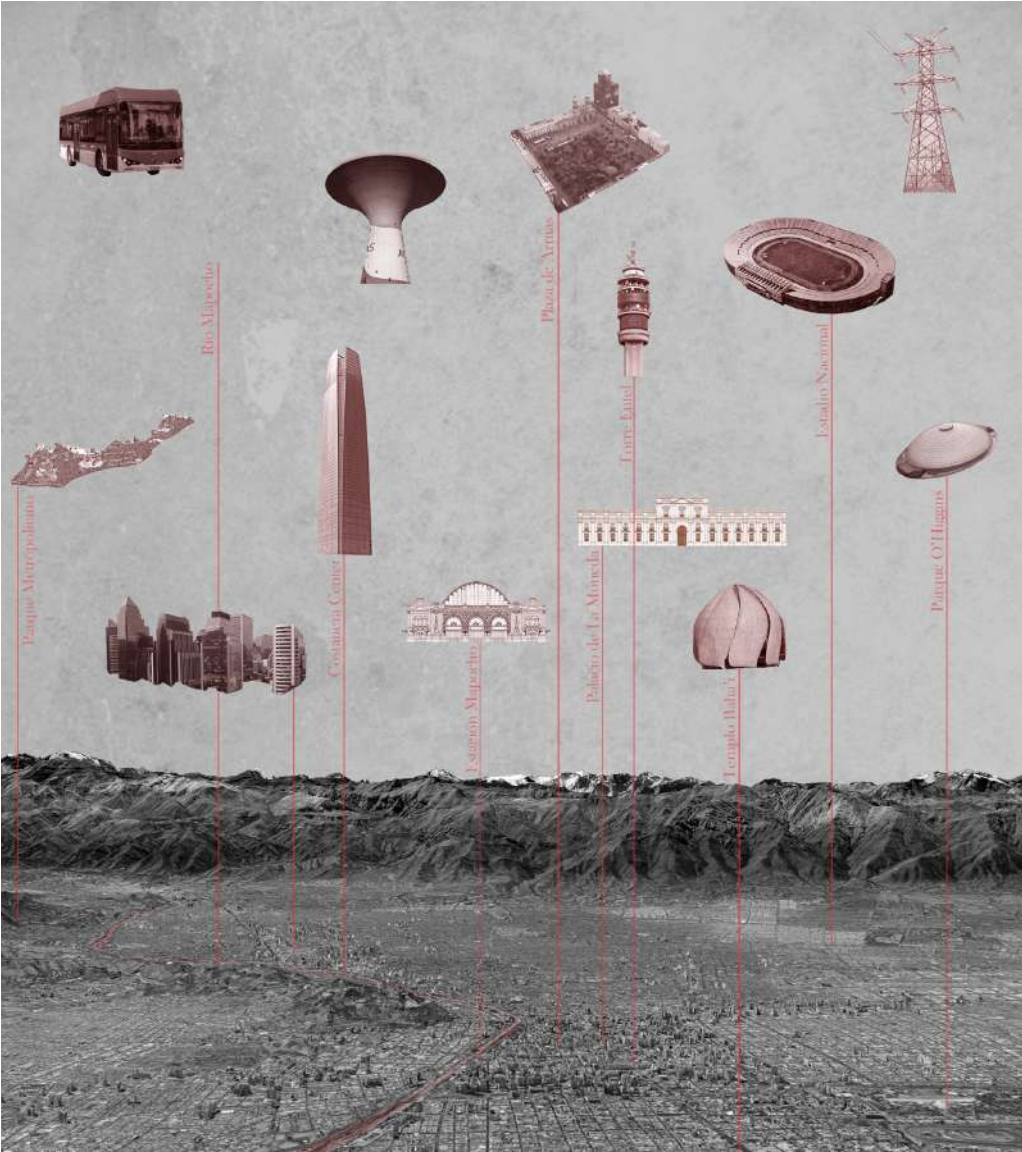
privatizations of public infrastructure, deregulations, and reem- term of state by private participation, along with the privatization of public spaces (Brites, 2017; Coy, 2006; Cereceda Otarola et al., 2025).

As the Chicago School points out: *"Poverty, disease, and crime have often been called social diseases. They may be said to measure the extent to which the community has been able to provide an environment in which the people in it can live."*((Park & Burgess, 1925)

This conception has been uncritically adopted by public policies since the 1980s, consolidating itself as part of the "new localism", in which the neighborhood acquires increasing relevance by seeking solutions to social and economic problems through the transfer of responsibility to local areas, thus reducing the State's active role in planning to that of a 'neighborhood mediator' (Letelier Troncoso, 2025). "*the neighborhood in its neo-ecological conception began to be used as a new scale of urban governance*", where communities are conceived as "*self-produced units"*, thus shifting structural responsibilities to the local level and depoliticizing the urban discussion.

This sounds good in theory, but in practice, the governance ata that time did not allow this "new localism" to florish.According to Letelier Troncoso (2025), this policy has been accompanied by a regulatory framework that reproduces four main logics that perpetuate socio-spatial exclusion: heteronomy, containment, bureaucratization and depoliticization * .

- **Heteronomy**, as a first element, limits the autonomy of community organizations by subordinating them to the institutional frameworks of the State. The organizations do not emerge as an autonomous expression of the social, but as a "link in the state apparatus", which obliges them to replicate the rules

of the system instead of transforming their environment.

- **Containment** refers to the reduction of community space to a closed territorial unit, which inhibits articulation with larger scales of organization and collective reflection. The neighborhood becomes a self-sufficient capsule disconnected from the rest of the urban fabric, resulting in a "hyper-localism" that prevents the identification of the structural causes of the problems it faces.

- **Bureaucratization** reinforces this logic by subjecting community practices to rigid forms of institutional functioning. Thus, organizations are forced to operate under criteria of control, efficiency and standardization, weakening heterogeneity and dissent, essential elements for the exercise of democracy in the neighborhood space.

- Finally, **depoliticization** constitutes perhaps the most profound effect of this neoliberal urbanism: by conceiving problems as strictly local phenomena, the structural and political dimension of urban inequality is denied. According to Letelier Troncoso (2025), this has generated a "double opacity" that makes invisible both the citizen as a political subject and the human being in its existential complexity.

These elements are part of an institutional framework inherited from the dictatorship, which included the suppression of popular participation, the elimination of constitutional recognition of community organizations, and the subsequent implementation of mechanisms such as competitive funds that encouraged competition instead of collaboration (Letelier Troncoso, 2025). Housing went from being a right to a commodified

Image: Photocollage depiction of fragmented urbanism and economic influence-
Source: La Tercera
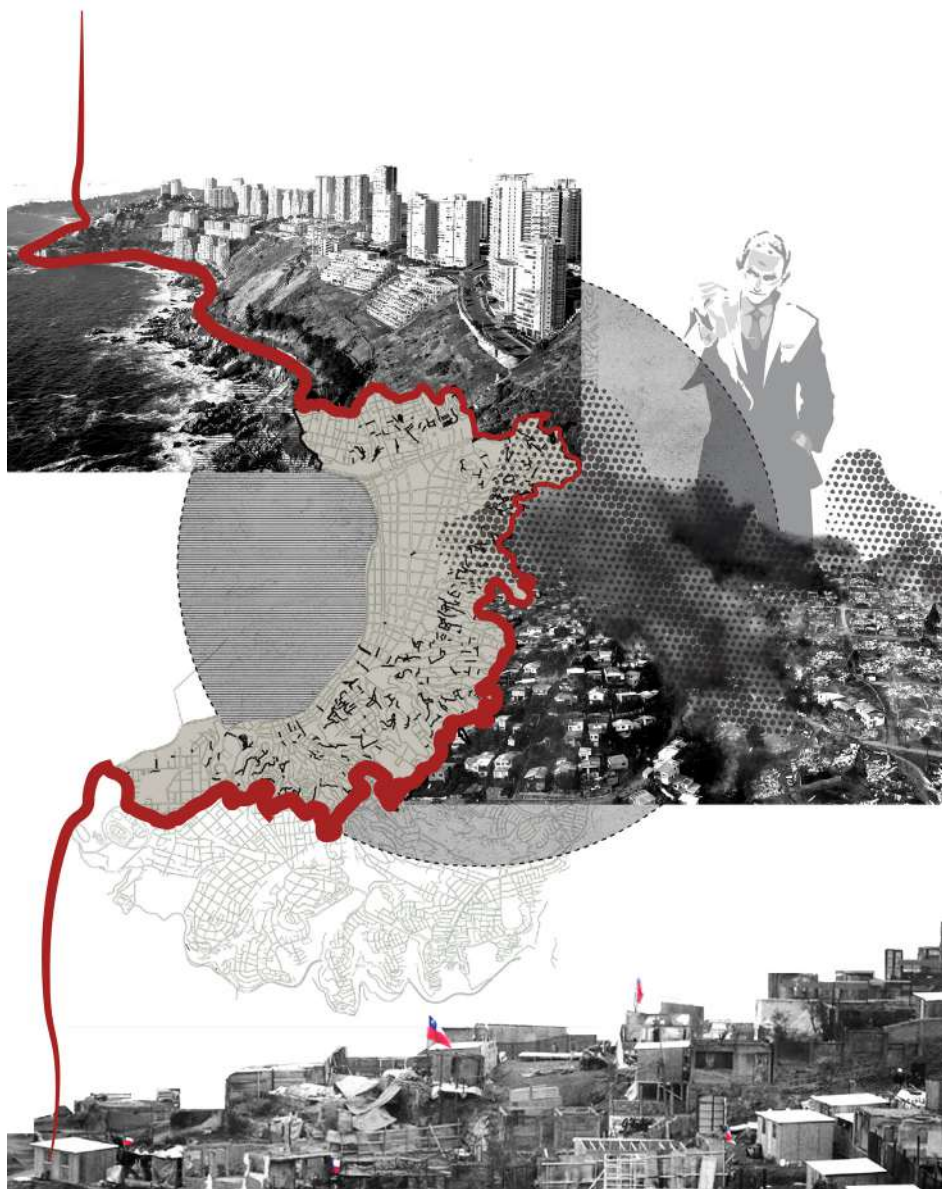
individual good, and urban intervention was reduced to a technical management of the housing deficit, without addressing the socio-spatial conditions that generate vulnerability.

In short, neoliberal urbanism in Chile has contributed to unequal urbanization, where the neighborhood is no longer a space for solidarity and organization, but a functional unit within a system that externalizes social costs while restricting the capacity for community-based transformation.

Chilean cities, particularly Santiago, have an exclusionary and fragmented urban structure that is a consequence of this political and economic phenomenon. Urban renewal policies in Chile are articulated through public-private alliances , promoting real estate valorization and the expulsion of popular sectors (Cereceda Otarola et al., 2025). This dynamic, which various studies qualify as gentrification (Janoshka & Sequera, 2014; Hidalgo, 2014; Janoshka, 2016), reinforces the logic of neoliberal accumulation, trough urbanization.

The policies of "requalification" of space operate through market mechanisms and coordinated state actions that prioritize economic growth over territorial equity (Matus Madrid & Ganter, 2020). The more urbanized we become, the more suburban our lifestyle becomes. This urban model is rooted in what Harvey (1994) conceptualizes as accumulation by dispossession, and has been described as "urban entrepreneurialism" by the same author (Harvey, 2013), where the State does not withdraw, but redefines its functions to favor private accumulation.

In urban areas, this fragmentation is expressed in what Graham and Marvin (2001) conceptualize as "urban archipelagos", where differences in infrastructure and access to basic services reinforce inequalities between rich and poor neighborhoods.

Image: Concon, coast city, 40 years apart.
Source: La Tercera

This phenomenon has intensified after critical events such as the 2010 earthquake, where the reconstruction processes were managed under the same logic of housing subsidies that already ruled in normal times, ignoring the specific needs of the affected communities and prioritizing real estate projects in areas with high market value (Irarraval & Marchant, 2015; Letelier & Irarrazabal, 2015). This strategy has been criticized for its lack of flexibility and for excluding local knowledge and demands (Imilan & Gonzalez, 2013; Letelier, 2015).

Likewise, Chile's neoliberal urbanism has generated infrastructural and spatial fragmentation. According to Graham and Marvin (2001), this produces "urban archipelagos" with extreme inequalities in access to basic services. In the Chilean case, it is expressed in the development of infrastructures that do not consider the conditions of reduced mobility, impacting the organization of time and space of daily life (Jiron & Mansilla, 2013; 2014) or the basic infrastructural and mobility difference between the richest and poorest neighborhoods. This fragmentation contributes to reinforce socio-territorial exclusions that especially affect the most precarious sectors.

Taken together, these elements allow us to understand that neoliberal urbanism in Chile is not only an urban phenomenon, but is deeply connected to a broader model of territorialization of capital, which includes both urban gentrification and rural extractivism. Both processes configure forms of dispossession that prevent communities from fully exercising their right to the city or territory, deepening socio-spatial inequality and limiting the possibilities of regenerating the social from below (Letelier Troncoso, 2025).

*See Appendix of latin American urban theories

2.3. Neoliberalism y extractivism

Understanding neoliberal urbanism in Chile requires recognizing how a model of urban intervention has been consolidated based on a series of reforms aimed at economic liberalization and privatization of public services and natural common goods of the territory (Sierra & Pinto, 2022). Under a commercial logic -fostering extractivism- neoliberal policies implemented by the military dictatorship (1973-1989) were created, where the deregulation of markets; the precariousness of labor relations; the privatization of natural resources; and the opening to foreign capital stand out (Gaudichaud, 2015; Harvey, 2007). This process is accompanied by a new international division of labor, which reaffirmed the role of the Latin American region in the world economy as a supplier of raw materials (Machado, 2013; Sierra & Pinto, 2022

To explain extractivism and capitalist neocolonialism in Chile, it is essential to understand how these processes are structurally articulated with the neoliberal economic model in force since the military dictatorship. Extractivism in Chile has not only endured, but has undergone reconfigurations that have intensified its presence in the national territory (Sierra & Pinto, 2022).

In the first place, extractivism is the structural pillar of Chilean neoliberal capitalism, articulated around the intensive exploitation of natural resources such as copper, cellulose, fruit and salmon. This primary-export economy was consolidated after the "export boom" initiated in 1986 -after the economic crisis experienced the decade before- where the country grew at an average annual rate of 7% during a decade (Sierra & Pinto, 2022). This period -which corresponds to the period of military

dictatorship (1973-1989)- saw the unprecedented

intensification of copper mining, not only because of the rise in international prices, but also because of the attraction of transnational capital facilitated by key legislative reforms, such as the Water Code (1981) and the Mining Concessions Law (1982) (Sierra & Pinto, 2022).

This model has been conceptualized by Gudynas (2015) as an extractivism characterized by three fundamental features: high volume, extraction intensity and export destination of more than 50% of the extracted resources. These conditions are clearly verified in the Chilean case, whose economy has specialized in natural resource-intensive activities, such as mining and monoculture (Martínez-Alier & Walter, 2016; Pengue, 2017; Azamar & Ponce, 2015).

From a critical perspective, extractivism in Chile should also be understood as a contemporary form of neocolonialism (Acosta, 2016), by reproducing a logic of plunder and accumulation by dispossession that has historically accompanied global capitalism. Machado (2015) conceptualizes this pattern as a geographical order that divides the world between zones of plunder and zones of accumulation -associated with the Global South and Global North respectively (Acosta,2016)-, and that constitutes the very basis of the "civilization of capital". That is, extractivism articulates a structural relationship between peripheral territories destined for extraction and centers of capital accumulation, consolidating a global geoeconomic hierarchy (Machado, 2015:15, cited in Sierra & Pinto, 2022:158).

This dynamic not only reproduces unequal economic relations, but also implies territorial, cultural and ecological devastation, which reproduces models of colonial conquest under the name of development and economic growth (Acosta, 2011; 2016; Sierra & Pinto, 2022). On the other hand, the expansion of extractivism has generated a growing eco-territorial conflict. Since

Industrial Agriculture
Mining
Mine Tailings
Forest plantations
Livestock
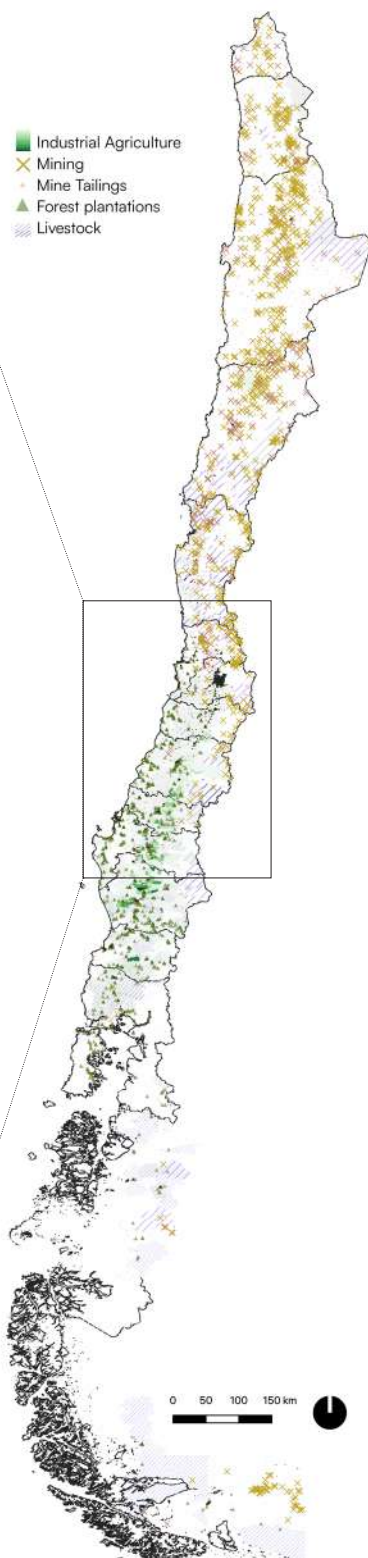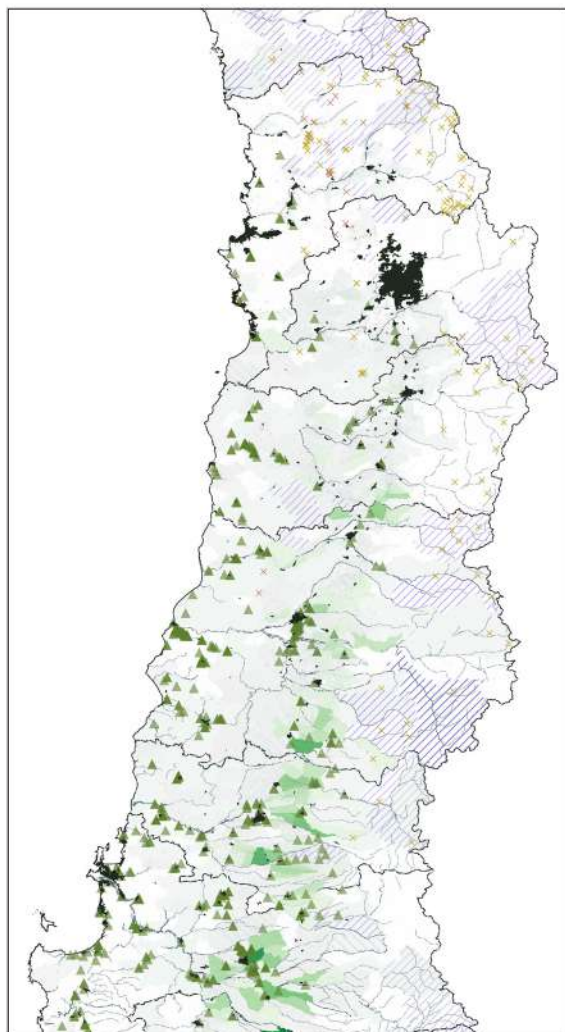
Image: Land Use in Chile.
Own elaboration

0   50   100   150 km

the 2000s, numerous resistances have emerged in response to the socio-environmental impacts of large-scale mining, salmon farming or hydroelectric dams. These resistances not only denounce ecological damage, but also make visible the transformations imposed on community livelihoods and territories. In this sense, the concept of "ecoterritorial turn" proposed by Svampa (2012) allows us to understand how social struggles redefine territory as a space of political and ecological dispute (Sierra & Pinto, 2022).

Finally, the persistence of extractivism in the face of the loss of legitimacy of the neoliberal model - especially after the social revolt of 2011 and 2018- has led to a normative refinement and a reengineering of accumulation strategies, which seek to sustain the extractivist agenda in the face of an increasingly politicized society. This strategy is manifested both in new public policies and in devices of social demobilization and institutional co-optation (Sierra & Pinto, 2022).

2.4. Territorial dislocation and structural violence

In the Chilean context, the advance of extractivism and neoliberal urbanism has provoked a systematic process of territorial denaturalization, which translates into multiple forms of structural violence. This violence is not only physical or visible; rather, it manifests itself through daily mechanisms of exclusion, dispossession and displacement that directly affect the social fabric, ways of life and the habitability of urban and rural territories. But it also manifests itself in the way we relate to nature and natural resources.

The Chilean economic model has promoted an extractive rationality that demands the "cleaning" of space for its exploitation, physically and symbolically excluding those populations considered obstacles to economic development. This is evident in urban areas, through gentrification processes, and in rural

and ancestral territories, where monocultures, mining and other extractive ventures have displaced entire communities (Harvey, 2013; Janoshka, 2016; Carrasco Purull, 2024).

The expansion of these projects not only implies the appropriation of natural resources, but also the degradation of ecosystems and the erosion of cultural practices and human and non-human forms of community life. In southern Chile, for example, forestry plantations have replaced native ecosystems and profoundly altered the cosmologies and territories of Mapuche and peasant communities. This logic responds to what Jason W. Moore calls the Capitalocene, an era in which capital subsumes nature under the logics of capital (Moore, 2016; Carrasco Purull, 2024)

Who owns the land? This structural violence also has a profound territorial dimension, linked to the ways in which the State and the market configure access to and use of land. The high concentration of land ownership in the hands of large industries has consolidated an instrumental vision of territory, where land is seen as a resource for accumulation rather than as a common good. This logic clashes directly with indigenous conceptions of territory as a spiritual, ecological and cultural link. For these peoples, land is a living, non-exchangeable entity that sustains identity, knowledge and subsistence. This tension reflects a continuity of territorial colonization, where the logics of profitability subsume all non-market value under an extractive worldview (Moore, 2016).

This territorial transformation is also urban. Gentrification has been a clear tool and consequence of neoliberal urbanism, which under policies of renovation and revaluation of urban space, displaces populations from their original places. This occurs with the active impulse of the State, acting as a promoter of urban entrepreneurialism, which prioritizes economic

competitiveness through public- private partnerships (Harvey, 2013; Janoshka & Sequera, 2014; Hidalgo, 2014; Janoshka, 2016).

This phenomenon translates into structural violence that not only dispossesses people of their homes or territories, but also fragments their social and community ties, weakening their capacity for territorial resistance (Janoshka, 2016). We have fostered a model that has left us with landless indigenous people, landless farmers and, at the same time, peripheralization of people, sites and histories. Regardles the site, location and scales, urban projects and infrastructures-whether they supply or support urban life-are interconnected within a web of socio-ecological processes. However, even if things are close to each other, it does not mean that they are connected (Keil, 2018a).

At all scales -urban, rural and governance- there has been a profound uprooting between people, nature and other beings, as a result of a development model focused on profitability, which fragments the social fabric and degrades ecosystems. After events such as the 2010 earthquake, reconstruction processes prioritized real estate speculation over community needs (Imilan & González, 2013; Letelier, 2015), while monocultures transformed rural landscapes into simple links in global value chains, erasing local knowledge and natural habitats (Moore, 2016). This neoliberal logic has also fragmented daily life and weakened the associative fabric (Jirón & Mansilla, 2013, 2014; Letelier Troncoso, 2025), in a context of high centralization and institutional capture of land use planning by real estate interests (Galilea, 2020; Jordan et al., 2018; Jirón & Mansilla, 2013). The "urbanization of nature" reinforces this disconnection, by imposing technocratic rationalities that make diverse and relational forms of inhabiting invisible

Progress

Civilization

Comfort

Mr. Architect
you can build here

Chile fue el país de la región con mayores
pérdidas económicas por desastres naturales
este año

En cuatro meses,
el 2015 se convirtió
en el año con más
desastres naturales

Estudio identifica alto riesgo
de desastre en campamento
en caso de ocurrir un aluvión

Las inundaciones y aluviones en Chile se
multiplicaron por más de 30 en medio siglo

"ES UNA PENA QUE CHILE NOS AÍSLE"
EL DOLOR DE VIVIR LA SEGREGACIÓN
URBANA: LA OTRA DESIGUALDAD

Científico: "El aumento de los desastres climáticos
evidencian que debemos seguir investigando las
amenazas naturales en Chile"

Santiago es la ciudad
con mayor exposición
a desastres naturales

Image 16: Photo-collage of urbanism processes in Chile and the climate crises hidden underneath. Own elaboration

(Tzaninis et al., 2020).

However, space should not be understood as a neutral backdrop or an inventory of available resources. It is, above all, a cultural construct that is transformed through social practices. As Ingold argues, humans do not interact with their environment instinctively, but inhabit it through cultural codes-which are passed on verbally and nonverbally-that shape meaningful relationships (Ingold, 1987). Along these lines, Heidegger argues that the spatiality of the world arises from the mundane nature of existence, that is, from the way in which human beings live and give meaning to their everyday environment (Heidegger, 1997 [1927]: 94).

Therefore, territorial uprooting in Chile is not a contingent or natural phenomenon, but a structural expression of a development model based on the logic of dispossession. This violence not only displaces bodies, but also erases memories, breaks ties and transforms the territory into a functional space for capital, devoid of history, identity and spirituality.

Chile's current economic model of consumption and operational landscapes complicates environmental challenges even more. As a nation heavily reliant on extractive industries such as mining, forestry, and agriculture, Chile's economy is deeply entwined with resource exploitation. This model has significant social and environmental costs, including deforestation, water pollution and scarcity,

Chapter 3:

(UN) SUSTAINABLE CONSUMPTION.

In recent decades, the concept of sustainable consumption has emerged as a critical framework for addressing the environmental impacts of human activity. Grounded in the principles of reducing resource use, waste, and environmental degradation, sustainable consumption aims to balance economic growth with ecological preservation (Jackson, 2005; Thøgersen, 2014).

This concept has been framed within influential frameworks such as the United Nations' Sustainable Development Goal 12, which emphasizes responsible consumption and production patterns to achieve sustainability (United Nations, 2015). However, this paradigm is constrained by several limitations, both theoretical and practical. One major critique is its reliance on individual behavioural change rather than systemic transformation. For instance, while consumers are encouraged to adopt environmentally friendly habits—such as reducing energy use, recycling, or purchasing sustainable products— these actions are often insufficient to counteract the broader structural drivers of environmental degradation, including industrial-scale resource extraction and global supply chains.

Another significant limitation is the commodification of sustainability itself. Many initiatives aimed at promoting sustainable consumption, such as eco- labeling or green certifications, are integrated into market systems that prioritize profit over genuine ecological balance. This commodification can lead to "greenwashing," where products are marketed as environmentally friendly without meaningful adherence to sustainability principles. For example, multinational corporations have been criticized for promoting products with eco-

HIDROELÉCTRICA   **GAS NATURAL**   **GASOLINA**   **COMBUSTIBLE PARA AVIONES**

FUENTES DE ENERGÍA

RED ELÉCTRICA REGIONAL

REFINERÍA

CONVERTIDORES

RESIDENCIAL   **COMERCIAL**   **VEHÍCULOS PRIVADOS**   **TRANSPORTE AÉREO**

DEMANDAS DE ENERGÍA

CONVERTIDORES

CALOR RESIDUAL AL AIRE   **CALOR RESIDUAL AL AGUA**
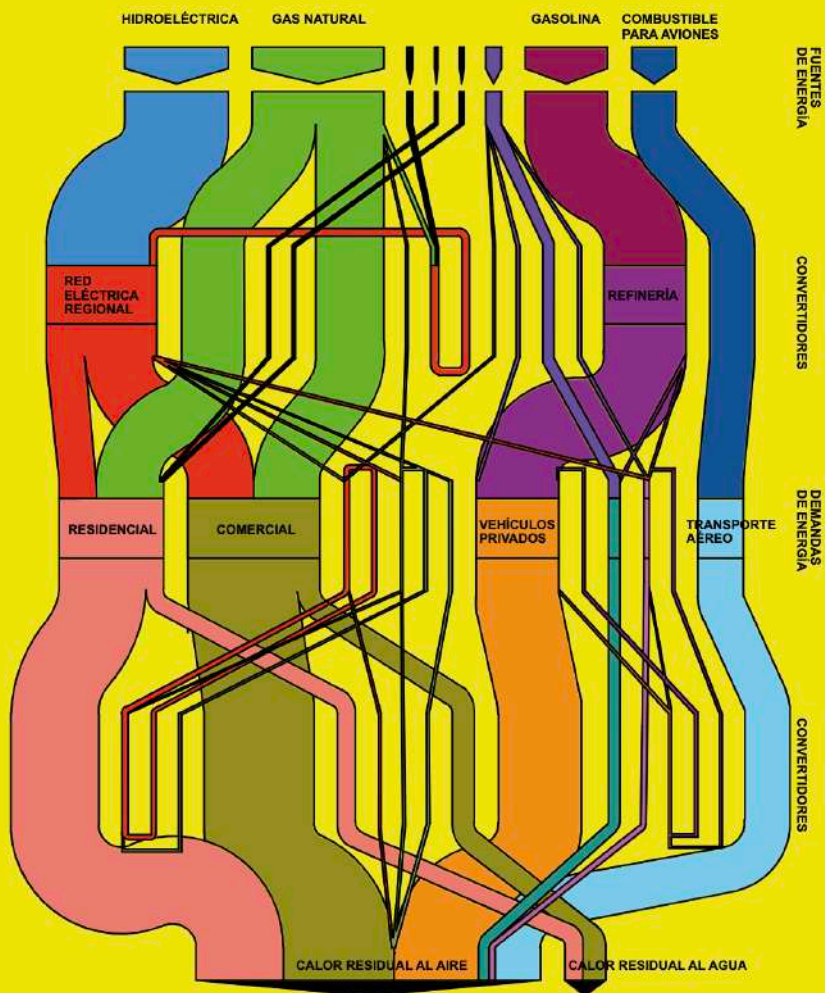
Diagrama Metaflow.
Metaflow Diagram.
© Sam Ebelier, *Urban Metabolism:*
A Real World Model for Visualizing
and Co-Creating Healthy Cities.
Redibujado por/ Redrawn by:
Gonzalo Carrasco.

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labels that lack transparency or rigorous standards, such as apparel brands claiming to use sustainable materials while relying on exploitative labor practices or energy- intensive production methods (Delmas & Burbano, 2011). Similarly, in the food industry, terms like "natural" and "green" are often used ambiguously, misleading consumers into believing they are supporting environmentally conscious choices without substantive evidence to back such claims (Delmas & Burbano, 2011; Carrasco Purull, 2024). Moreover, the focus on consumption often overlooks production, which is deeply rooted in capitalist systems that incentivize overproduction and the externalization of environmental costs. By treating ecosystems as stocks of resources to be managed or consumed more efficiently, sustainable consumption frameworks may inadvertently reinforce the very systems they seek to reform (Carrasco Purull, 2024).

The global inequality in resource consumption further complicates this issue. High-income countries consume disproportionately more resources than low- and middle-income countries, yet sustainability discourses often impose uniform solutions that disregard these disparities. For example, carbon offset schemes or sustainable certifications may place undue burdens on developing nations while allowing wealthier countries to maintain unsustainable consumption patterns. This imbalance underscores the need to rethink sustainability beyond market- based solutions, recognizing the interconnectedness of social, economic, and ecological systems.

Sustainable development must start from the radical recognition that the Earth imposes biological, ecosystemic and physical limits to human activities (Galli, Halle, & Grunewald, 2015; Costanza & Daly, 1992; Sterner et al., 2019). Far from being a goal to be achieved, the "One Planet" principle constitutes the

inescapable framework within which our ways of life, production, and territorial organization must be thought of (Ward & Dubos, 1972). However, this framework has been systematically ignored by development models that continue to drive ecological overload (Wackernagel & Beyers, 2019; Rockström et al., 2009; Steffen et al., 2015).

Chile, a paradigmatic example of this contradiction, has built its economy on an urban-extractive metabolism that ignores ecological limits and deepens territorial inequality. The concentration of land in the hands of forestry, mining and agro-export industries has reduced the territory to a productive input, colonized by capital (Moore, 2016), displacing local knowledge, cultures and ecological practices. This pattern is reproduced in cities, whose expansion over areas of natural risk, without planning or resilient infrastructure, reinforces a logic of structural vulnerability (Galilea, 2020).

Moreover, the dominant focus on monetising ecological impacts—seen in environmental accounting frameworks and carbon markets— limits the scope of resilient and truly context-based change (Wackernagel & Beyers, 2019). Since the signing of the Kyoto Protocol, the landscape of global climate policy has been constantly in flux. This landscape has grown more complex since then, particularly following the 2015 United Nations Conference of the Parties in Paris (Kellner, Petrovics, Huitema. 2024). The implementation of capitalist production and consumption systems has led to interpreting their ecological impacts primarily through monetary frameworks, a practice known as environmental accounting. (Carrasco Purull, 2024; Nancy, 2015) Within this perspective, the loss of wetlands, glaciers, or species extinction is reduced to a monetary value, framing nature within the same economic rationalization processes that treat entire ecosystems as inventories of natural resources— measured, quantified, and consumed—without

addressing the underlying economic-political systems that define the Capitalocene (Moore, 2016). Such approaches prioritize sustainability metrics over addressing the root causes of vulnerability, perpetuating socio- environmental inequalities

Adressing Urban Unsustainability

To address current unsustainability, action is needed from different territorial levels (Amundsen et al., 2018; Bruckner et al., 2015; Ingeborgrud, 2018; Rees, 1992). Local governments have a key role, although limited by their scale and decision-making capacity (Bulkeley, 2015; da Cruz & Marques, 2014; Moreno Pires et al., 2014; Ostrom, 2012; Moreno Pires & Fidélis, 2015).

Faced with this current situation of unsustainability, it is urgent to rethink the role of the urban planner, the territory and architecture in the construction of sustainable futures and from different territorial levels (Amundsen et al., 2018; Bruckner et al., 2015; Ingeborgrud, 2018; Rees, 1992). Modern architecture, focused on functional efficiency and standardization, has shown its limits when facing the challenges of climate change and ecological justice (Carrasco Purull, 2025). It is not only a matter of solving technical problems, but of imagining possible worlds where habitability is in harmony with the cycles of life. Utopian exercises such as those of Sottsass (1980) challenge productivist logics and invite us to explore architectures that favor freedom, wellbeing and regeneration.

The boundary, traditionally understood as a separation, can be redefined as an ecological device. Examples such as the Murs à pêches in Montreuil or the Giardini Panteschi in Sicily show how architectural borders can create microclimates, favor biodiversity and act as resilient infrastructure (Carrasco Purull, 2025). This vision allows us to think of a more situated architecture, which acts in reciprocity with the environment, questioning the forms of ownership, land use and

centralized planning.

Chile urgently needs a territorial transformation that recognizes its ecological and cultural diversity. This implies dismantling the historical centralism that has generated a "peripheralization of risk" in the most vulnerable regions and adopting polycentric governance that articulates technical knowledge with traditional ecological knowledge (Ostrom, 2012; Ingeborgrud, 2018). The practices of native peoples, such as sustainable forest management by Lafkenche communities, nomadic systems or water sacredness, offer valuable lessons for a climate adaptation rooted in the territory.

Architecture and urbanism, then, should not be limited to "mitigating impacts", but can be a tool to reconfigure our relationship with the planet. Following Barad (2007), matter and meaning are intertwined: to design spaces is also to design worlds, ways of life and modes of existence. In this context, rethinking urban metabolism -as proposed by Wolman (1965)- requires not only improving energy and waste flows, but also revising the social, economic and symbolic logics that sustain the current urbanization model.

Only from a profound transformation of our ways of inhabiting, consuming and organizing the territory will it be possible to imagine a future where prosperity does not depend on unlimited exploitation, but on regeneration, ecological justice and respect for the limits of the planet.

Image: where do we look for answers? To business as usual or to our ancestors, the mountains and the territory .
Own elaboration

Conclusion.

We are Landscape

Chile is at a critical juncture where a profound territorial transformation is urgently needed. But this transformation cannot be reduced to administrative decentralization or technocratic improvements to urban flows. It requires a new way of thinking and feeling the territory. The landscape can no longer be treated as a passive backdrop or as a warehouse of extractable resources. It must be recognized as a living entity, shaped by memories, knowledge systems, and ecological relations that have long been ignored or marginalized.

As this chapter has argued, the centralized, functionalist planning model has produced a "peripheralization of risk" (Ingeborgrud, 2018), where the most vulnerable regions — due to social, geographic, or historical factors — bear the brunt of climate change, natural disasters, and structural disinvestment (Jordan et al., 2018; Letelier & Irazábal, 2015). This territorial injustice is not incidental but the result of extractivist and technocratic logics that treat land as a means, not as a relational space.

In contrast, other forms of territoriality are emerging, rooted in the traditional ecological knowledge of Indigenous peoples. The practices of the Lafkenche, for instance, go beyond sustainable forest or water management: they embody a worldview in which the territory is a web of relationships among humans, climates, soils, and spirits (Watson, 2019; Nabhan, 2020). This challenges the instrumental view of landscape and proposes an ecology grounded in respect and reciprocity.

As Barad (2007) argues, matter and meaning are

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entangled: to design spaces is also to design worlds. This places a responsibility on architecture and urbanism, which must go beyond "impact mitigation" and actively engage in the construction of new forms of living — regenerative, inclusive, and situated. The Chilean urban metabolism — highly dependent on fossil inputs and producing vast waste — cannot be transformed without revisiting its symbolic, economic, and political foundations (Wolman, 1965; Wackernagel & Beyers, 2019).

But this transformation cannot come from technical fixes alone. It also demands a narrative restoration (Nabhan, 1997): re-telling our relationships with territory through affective, situated, and plural perspectives. To become landscape, as many territorial movements propose, means recovering a sensitivity eroded by centuries of colonization, forced modernization, and top-down planning.

Ultimately, landscape is not external to us. We are landscape. In our bodies, memories, and ways of life dwell the diverted rivers, the flattened hills, the forgotten rituals, and the surviving resistances. Embracing this condition is not romantic — it is deeply political. It means recognizing that every territorial wound is also a social one. And that any real possibility for climate adaptation begins with restoring, caring for, and collectively reimagining the worlds we inhabit.

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BECOMING INDIGNEOUS TO PLACE

Reimagining Urban Futures through Ancestral Knowledge and Territorial Resilience in Chile

BOOK 4
Sacred Landscape
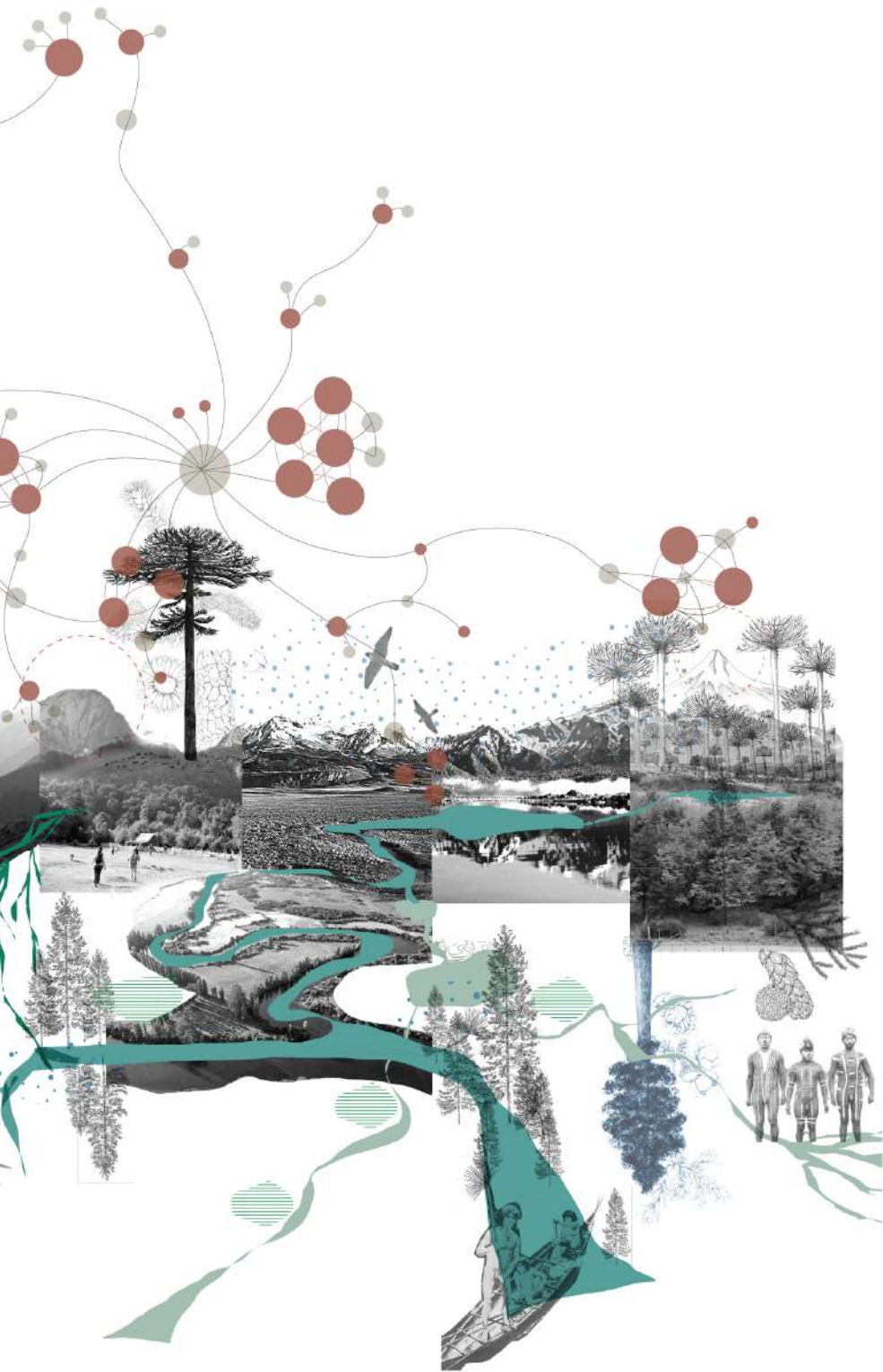
Introduction.

How do we become indigenous in a territory like Chile?

Not in the ethnic or essentialist sense, but from the profound possibility of inhabiting a place through forms of knowledge that recognise the indissoluble link between body, territory, community and cosmos. The current Chilean territory - traversed by mountain ranges, volcanoes, deserts and rivers - has been inhabited, cultivated, narrated and signified by generations long before the constitution of the nation-state. What we understand today as Chile is woven by multiple languages, memories, ways of life and cosmologies. The territory is not neutral: it has been colonised, exploited and mapped, but it has also resisted, it has kept memory. From there, it is worth asking: **what does it mean to think, design and inhabit from this place?** Are we perhaps the first generation to forget, or the seventh to begin to remember?

This chapter is based on the need to reconstruct a view that does not conceive indigenous knowledge as a vestige of the past, but as an active present and a possible horizon. It focuses, in particular, on the relational and cosmological technologies of two fundamental cultural matrices for this territory: the Andean and the Mapuche.

The modern notion of technology, understood as a set of neutral and universal tools, is limited by the epistemic diversity of the world. The philosopher Yuk Hui (2017) proposes the concept of cosmotechnics to refer to the multiple technologies rooted in different cosmologies. From this perspective, every technique is traversed by a worldview and an ethical order. There is no such thing as "the" technology, but rather technical forms

POPULATION DENSITY

■ City
■ 150,1-447 inhab/km2
■ 40,1-150 inhab/km2
■ 10,1-40 inhab/km2
■ 0-10 inhab/km2

Greater Santiago
6,591,009 inhab.

Greater Concepcion
1,022,207 inhab.

Greater Valparaíso
989,536 inhab.

100,000 - 499,000 inhab.
50,000 - 99,999 inhab.
10,000-49,999 inhab.
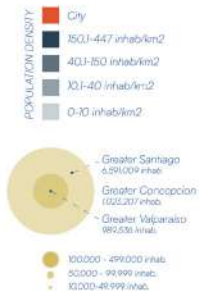
Population Distribution 2024

Population Distribution 1540

Aymaras
Atacameños
Changos
Diaguitas
Chiquillanes
Picunches
Mapuches
Pehuenches
Huilliches
Puelches
Poyas
Cuncos
Chonos
Aonikenk
Kaweskar
Selknam
Yaganes
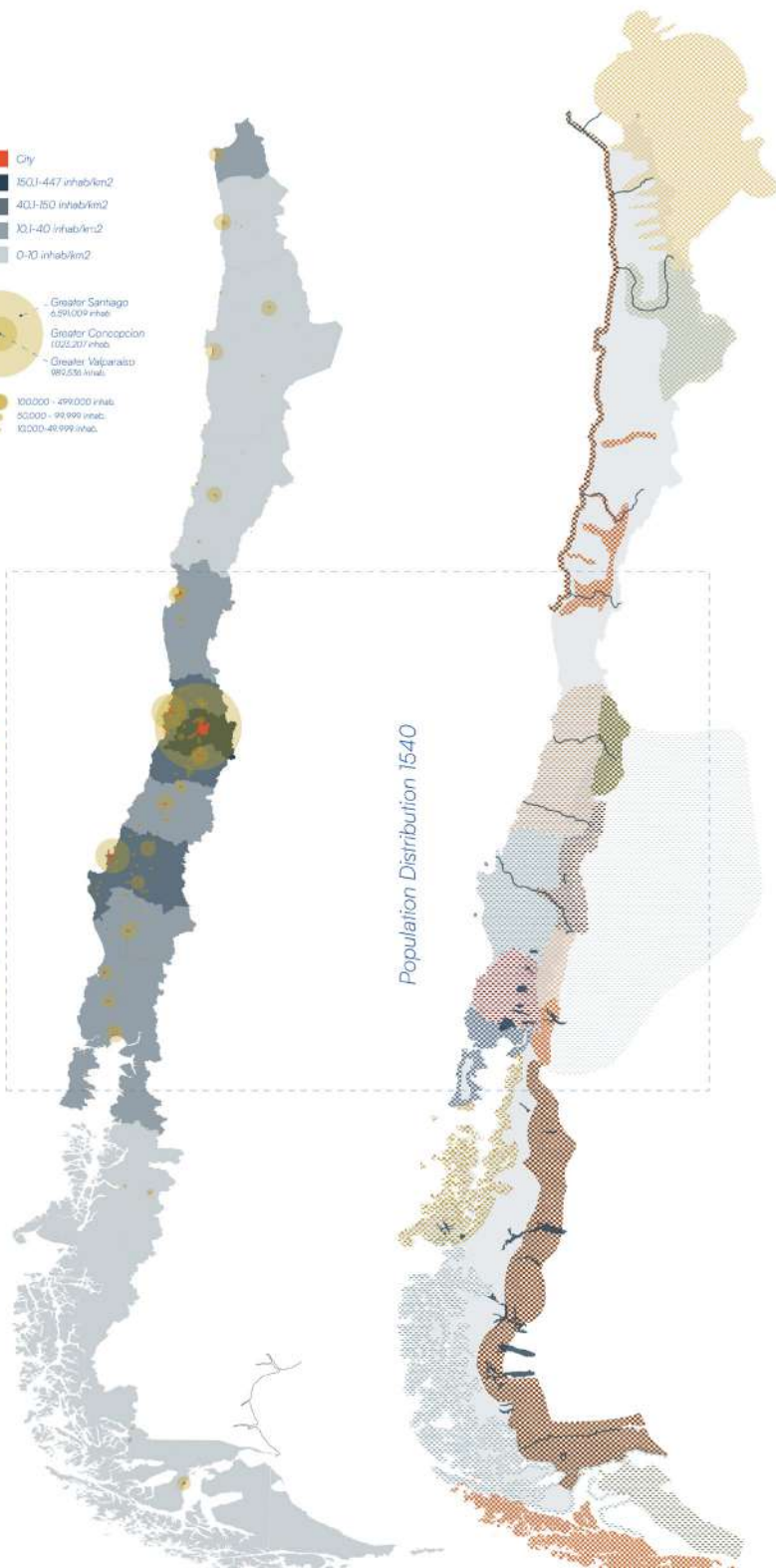
inseparable from the spiritual, social and territorial frameworks that generate them. This poses a break with the Eurocentric and functionalist vision, opening up space for a situated understanding of the technical.

In this sense, the technologies developed by the native peoples of Chilean territory cannot be dissociated from their ways of life. As Núñez, Riquelme, Salazar, Maturana and Morales (2020) point out, in these cultures there is no separation between nature and culture, individual and community, or technique and spirituality. Indigenous technologies - irrigation systems, agricultural terraces, seasonal calendars, ceremonial instruments - are not just pragmatic responses, but embodied practices of relational knowledge. They are technopoetic ways of life, where song, ritual and cultivation exist as a single gesture (Iwaniszewski, 2007).

These practices can be understood as **technologies of reciprocity**, material expressions of living cosmologies. In the Andes, for example, sowing cycles are guided by astronomical observations, agricultural rituals and structures such as ceques, which organise space according to a sacred order. These technical forms are underpinned by the principle of ayni-giving and receiving-as a fundamental ethic (Rengifo, 2009). In the Mapuche south, the notion of itrofill mogen ('all life without exception') shapes an ethic of care based on the interdependence between humans, natural elements and spirits. Decisions about planting, harvesting or moving are made in dialogue with the cycles of the sky, the messages of water and the reading of natural signs.

Inhabiting a territory like Chile - seismic, volcanic, diverse, historically exploited - requires more than infrastructure: it requires climatic memory, geological listening, ethics of care. Indigenous knowledge is not folklore; it is technical and situated knowledge. The colonisers understood this: that is why they not only occupied lands and bodies, but also sought

SCALE REFERENCE

0   50 100 km

to appropriate knowledge, seeds, techniques and languages. Colonisation was, at the same time, an epistemic occupation.

What does it mean to design without listening to the stories that explain the formation of volcanoes? What does it mean to design without paying attention to the calendars that order the agricultural and spiritual life of the territories? As Iwaniszewski (2007) suggests, myths are not mere fantasies: they are epistemological systems that articulate the geological, the symbolic and the political.

Instead of proposing a closed definition of "indigenous technology", this chapter seeks to open up an imaginary. A weaving of histories, practices, cosmologies and materialities that allows us to think of other ways of relating technically and ethically to the world. It is not a matter of idealising the past, but of imagining possible futures from a "historical-structural heterogeneity" (Quijano, 2000), where diverse knowledge and multiple ways of inhabiting coexist.

To become indigenous, in this context, is to become attentive, ethical, relational. It is to accept that there is no single path, no single technology, no single legitimate way of understanding life. Perhaps, as this question that runs through the chapter suggests, **we are not facing the end of memory, but the beginning of its reactivation.**

I have focused my study area in the two main indigenous cultures in Chile:
Andean (yellow)
Mapuche (blue)

• Which represent also two different geographical landscapes and water systems:
Arreic Basins (white)
Endoreic and exorheic Basins (yellow)

• From the Andes to the Coast: three main ecological floors
Mountain
Valley Coast

Chapter 1.

Cosmovisions

Territory as a sacred relationship

The indigenous Andean and Mapuche worldviews configure a radically relational and vital understanding of the world, where territory is not merely a geographical space or an exploitable resource, but a living being, with agency, history, affectivity and sacredness. These conceptions are not limited to symbolism or mythology, but structure ways of inhabiting, producing, caring, nurturing and resisting, founding an alternative ontology to modern anthropocentrism. In this framework, concepts such as *mutual nurturing*, *Itro Fill Mogen*, *wak'as* and *gnem* allow us to understand the living and multiple character of the territory, as well as the forms of relationship between humans and non-humans in contexts of interdependence.

1.1. Indigenous Cosmovisions of Pluri-territorial Chile

1.1.1. Andean Cosmovision - Mutual Nurturing: life as an asymmetrical and reciprocal relationship (Crianzas Mutuas)

In the Andean cosmovision, life is sustained on relationships of *mutual nurturing of life* or *uywaña* (in Aymara), which establish dynamic links between humans, animals, plants, mountains, rivers and tutelary spirits (Miranda Pérez, Pazzarelli and Pautasso, 2024). This form of extended sociability is based on the interdependence of all beings and the need to cultivate an ethic of *permission* and *respect* in every bond (Cruz, 2020; De Munter, 2016; Haber, 2007; Lema, 2014; Van Kessel and Condori Cruz, 1992).

Mutual nurturance is not a prescriptive rule, but a

1.- The influence area
looks more like this:
Andean (yellow)
Mapuche (blue)

From my research, I
have discovered that the
"Original Stories", the
Indigenous stories from
Chile, are very similar
to the original stories
of the Indigenous
communities along the
whole continent

• Up until the
Anishinaabe People in
Canada.

• 10.000 km of 'the
same' stories and
knowledge of Respect,
Equilibrium, Reciprocity
and Gratitude

Anishinaabe

10.000 km

Andean cultures

Mapuche

*10.000 km is equivalent
from Lisbon to Beijing

vital grammar: a relational system in which all beings nurture and are nurtured. Thus, humans care for llamas, but they are also grazed by the hills; animals feed the plants they eat; and plants sustain the humans who cultivate them (Miranda Pérez, Pazzarelli and Pautasso, 2024). This web of care is maintained through practices of respect, reciprocity, offerings, consultations and rituals, without which harmony breaks down and life becomes unbalanced.

As Pazzarelli, Miranda and Pautasso (2024) have pointed out, this form of sociability is not without conflict, but it contains a *potential for conjuration*: a capacity to avoid engulfing or colonising relations, maintaining the balance of interdependencies. This potential makes sense in the face of advancing neo-extractivism, where communities demand respect for their territories and spiritualities not as nostalgia, but as a deeply situated cosmopolitical political strategy. Unlike the Western idea of 'domestication' understood as domination or control, mutual nurture does not seek to dominate nature, but to cohabit with it in a reciprocal way, respecting its relative autonomy (Gudynas, 2011). Thus, hills can graze people, plants can nurture animals, or humans can feed water. Pachamama is not a resource: it is a living being that sustains and also demands care, respect and ritual communication.

This cosmopolitical framework implies that relations with the state or extractive companies are not simply economic or legal disputes, but confrontations between ways of life (De la Cadena, 2010; Escobar, 2016). The demands for "prior consultation" or "social licence" put forward by communities are updated forms of a request for permission and respect for territories, spirits and the community itself. This request is, at the same time, a conspiracy against the encompassing logics of extractivist capitalism, a defence of the

WORLD ABOVE

WORLD BELOW

SALLQA
PUNA

YUNGA

CHAUPI

QUECHUA

YUNGA

FOREFATHERS:
ANDEAN PEOPLE WERE
CREATED FROM ROCK
IN A WORLD FULL OF
WATER

WORLD ABOVE

PACHA (EARTH)
flat

WORLD BELOW

YUNGA
SALLQA PUNA
QUECHUA
YUNGA

modes of existence that interweave human and non-human life (Quijano, 2000; Machaca, 2011).

In this context, *asking permission* and *respect* are not symbolic gestures: they are vital conditions for maintaining the link with Pachamama and its inhabitants, to avoid ruptures that can lead to illness, climatic or spiritual imbalances, and even the withdrawal of vital goods (water, crops, luck). Thus, the territory is presented as a living subject with the capacity to relate and respond (Miranda Pérez, Pazzarelli and Pautasso, 2024).

The notion of *mutual nurture* redefines the foundations of urban design by shifting the logic of control and domination over nature towards an ethic of affective, interdependent and non-hierarchical cohabitation. Applied to urban contexts, this perspective implies imagining built environments not as static objects, but as living fabrics in which humans, rivers, soils, trees, animals and memories mutually nurture each other. This decolonising turn profoundly questions *nature-based solutions* as technical tools and proposes instead a politics of situated respect and care.

Andean Cosmovision of Water

In the Andean cosmovision, water has a profound and spiritual meaning, constituting the vital principle that organises and regulates life on Earth. This conception of water is directly linked to the understanding of the cosmos, a finite and closed universe, with a dynamic equilibrium that governs the circulation of water. Water is perceived as a continuous flow that circulates through the earth, rising and falling in a cosmic cycle. From the Andean perspective, the universe is not a space of infinite possibilities of exploitation and expansion, but a limited cosmos where waters move in an orderly fashion between the depths of the earth and the surface (Ibacache et al., 2001).
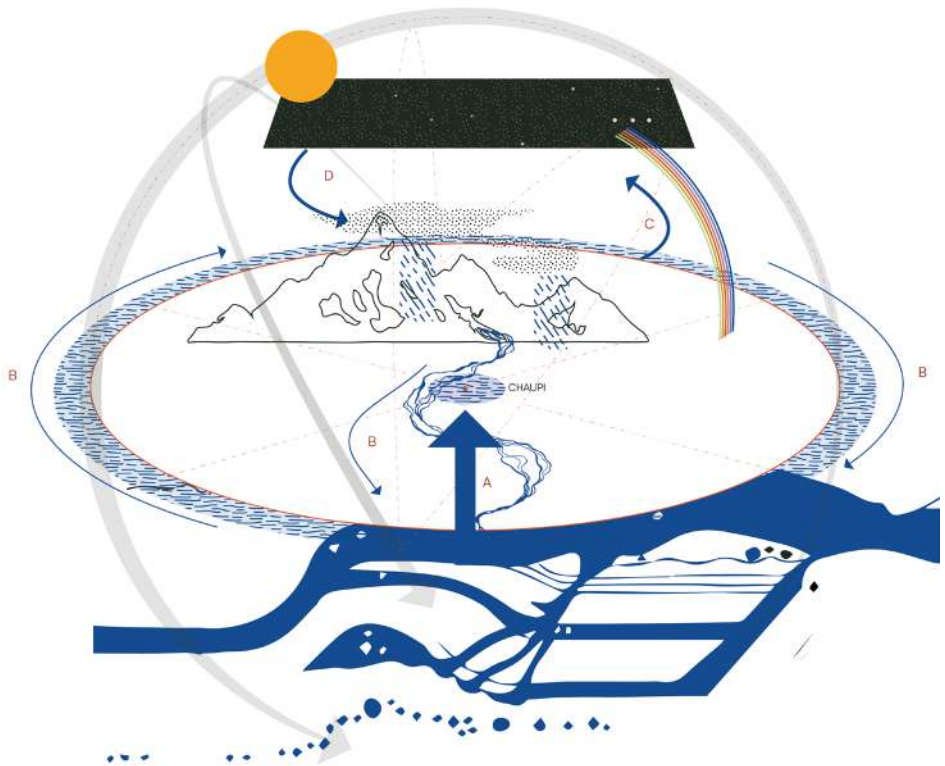
A - WATER FLOWS UP FROM THE CENTER OF THE EARTH
B- WATER THAT FLOWS OUTSIDE,TO THE SEA THAT SURROUNDS
C- RAINBOW ABSORBS WATERS AND TAKES THEM TO THE CELESTIAL RIVER
D- CELESTIAL RIVER DESCHARGES WATERS TROUGH RAIN

This cycle of water circulation is understood through the relationship with the *chaupi* (the centre of the universe), a fundamental observation point in Andean communities. In this central space, , water flows from springs, rivers and lagoons, and is understood as the very essence of life. These water sources are seen as emanations from the depths of the earth, a space symbolically "below" but also "within", reflecting the interconnection between the subterranean world and the surface world. The water balance extends beyond the Earth to the sky, where phenomena such as the Rainbow and the Milky Way (Mayu) play key roles in absorbing cosmic waters and returning them to Earth in the form of rain (Ibacache et al., 2001).

For Andean communities, water is not only a vital resource, but a symbol of spiritual connection with nature and ancestors. The relationship with water is essential to maintain balance, both ecologically and spiritually. This vision has endured over the centuries, being the basis of traditional agricultural practices and forms of social organisation, where irrigation and water management are considered sacred elements that need to be treated with respect.

1.1.2. Mapuche Cosmovision - Itro Fill Mogen: the interdependent wholeness of life

The principle of *Itro Fill Mogen* expresses the Mapuche understanding of the universe as a totality of coexisting lives. In Mapudungun, *itro* can be translated as "all", *fill* as "each one" or "all beings", and *mogen* as "life". Together, they imply that "all life without exception" is part of a living, interconnected web, without fixed hierarchies, where humans, animals, spirits, plants and natural elements cohabit.

It is *a pluriversity* (in contrast to modern *universality*),

Cosmos

Wenu Mapu
World Above

Nag Mapu
Middle
World

Menche Mapu
World Below
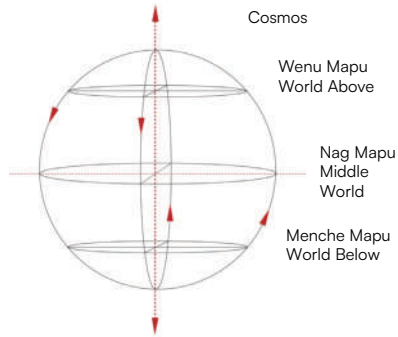
Pikunche
(people of the north)

Pehuenche
(people of the
Andes)
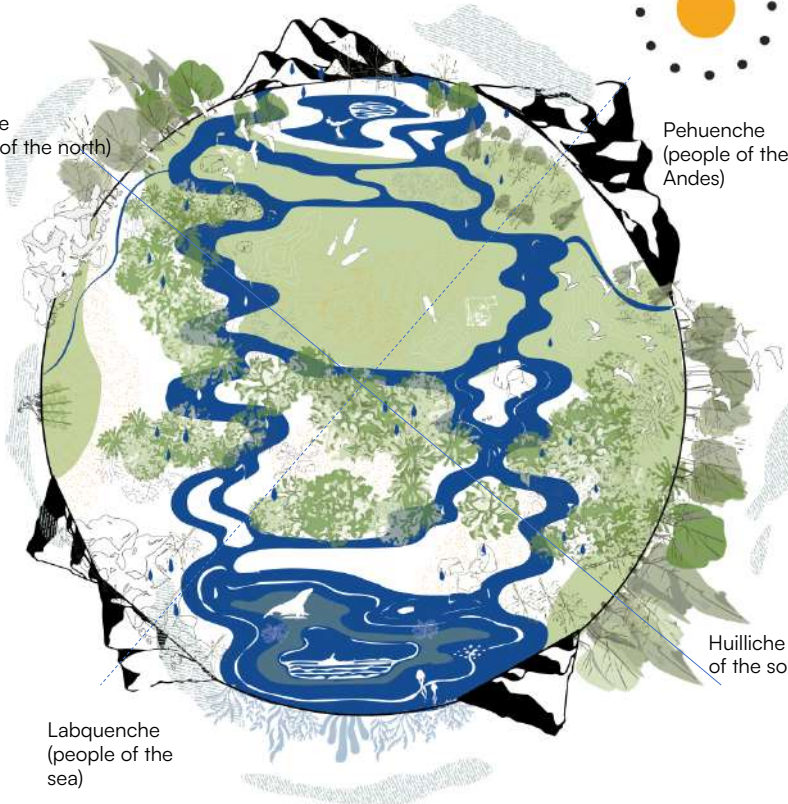
Huilliche (people
of the south)

Labquenche
(people of the
sea)

in which each being has its place and agency, and no life exists autonomously. This conception forces a kind of relationship that recognises difference and relationality, and understands that harm to one affects the whole.

Itro Fill Mogen is not an abstract principle: it organises Mapuche politics, spirituality and daily life. Community decisions are measured by their impact on the totality of lives; processes of territorial resistance are sustained by the right to preserve that balance; ceremonies are forms of dialogue and reciprocity with all beings in the world.

This principle directly challenges the fragmentary logic of modernist capitalism and urbanism, proposing instead an integrative framework where all forms of life - visible and invisible, human and non-human - are considered in decision-making. This vision allows for the dismantling of the functionalist paradigm that separates zones, species and times, proposing instead a pluriversal urbanism that values the continuity between the spiritual, the territorial and the community (the political). Thus, the design of cities could be guided not only by efficiency or sustainability, but by the sacred balance between all the beings that cohabit a territory.

Mapuche Cosmovision of Water

For the Mapuche, water is also a vital element, full of spiritual meanings and of great importance for people's physical and mental health. In the Mapuche language, there are various names for bodies of water, such as *menoko* (marshy place), *wiñoko* (place where a river makes a turn), *trayenko* (flowing water), and *lewfu* (river), among others, which reflect the intimate relationship with specific aquatic ecosystems (Ceballos et al., 2012). Each of these places is associated with an ecological and symbolic function, in that they are
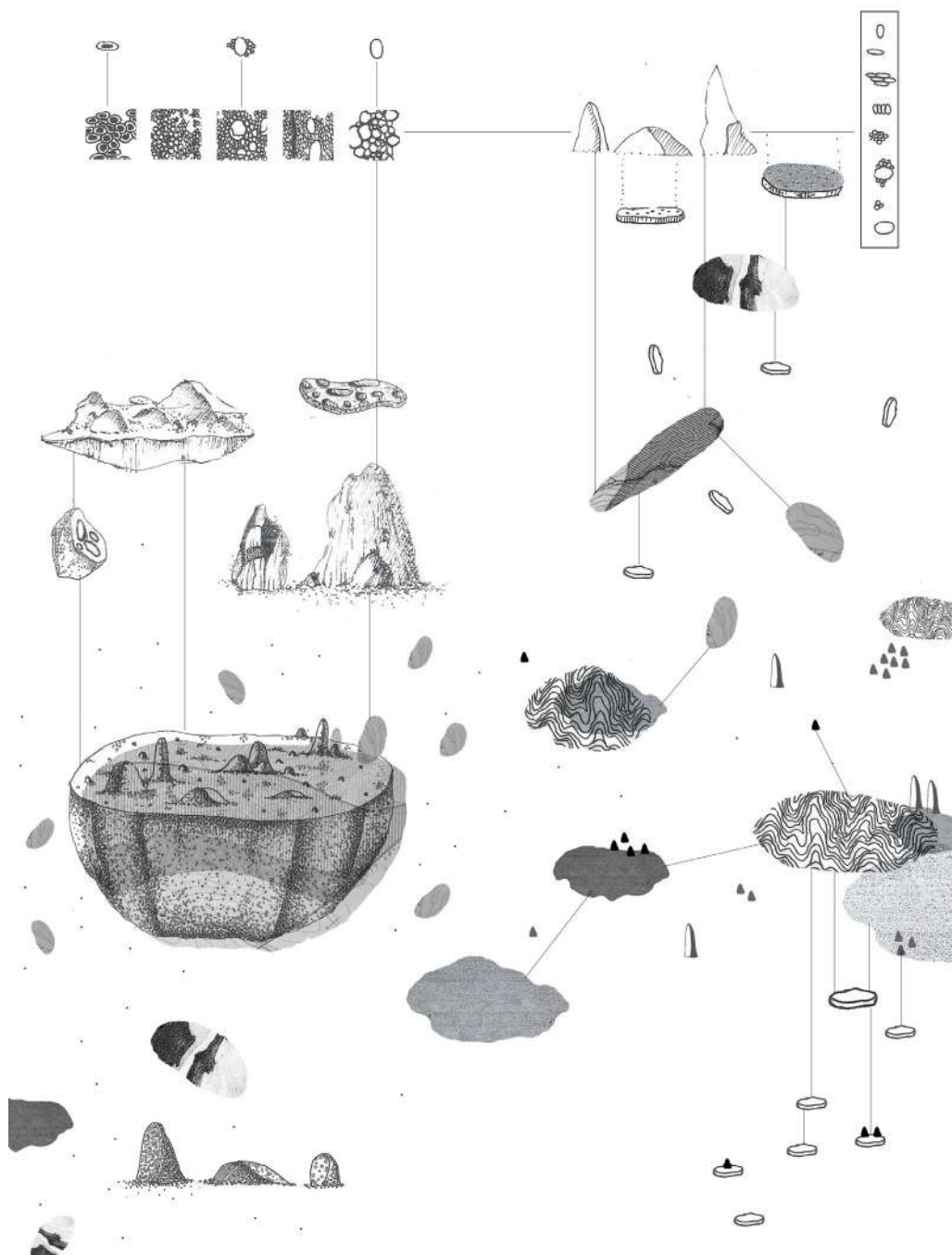
perceived as spiritual spaces inhabited by forces and beings that must be respected.

For the Mapuche, water is part of a broader balance that includes harmony between humans, nature and spirits. Living in balance with water and the natural environment is a condition for social and individual health. When this balance is lost, the community and individuals suffer, which can manifest as illness or conflict (Ibacache et al., 2001). Thus, water is a means of spiritual connection, and the management of water resources responds not only to practical needs, but also to an ethical mandate to respect and preserve nature.

1.1.3. Wak'as y Gnem
Wak'as: living, fragmented entities of the landscape (Andean Cosmovision)

Within the Andean universe, *wak'as* (also called *huacas*) are spiritual entities linked to bodies in the landscape that have historically been misunderstood by the Spanish translation as "sacred" or "sanctuary" (Itier, 2021). However, as Taylor (1999) has shown, the Quechua term *wak'a* designates cleft or duplicate bodies, i.e. bodies that carry a structural difference (a cleft stone, a twin, a petrified ancestor).

Wak'as are, in reality, living presences in the landscape, lithic doubles of ancestors, sites where spirits dwell or manifest themselves (Itier, 2021). They are not idols or sacred objects in the Western sense but relational bodies that mediate between worlds, that can bestow goods or punishments, that guard memory, fertility, and cosmological order.

These entities are not separated from everyday life: they inhabit mountains, rivers, rocks, or stones; and

Image 5: Wakas
Photo by Greta Gonzalez. Fanzine for Morphology I Longinotti (FADU, UBA). Year 2015
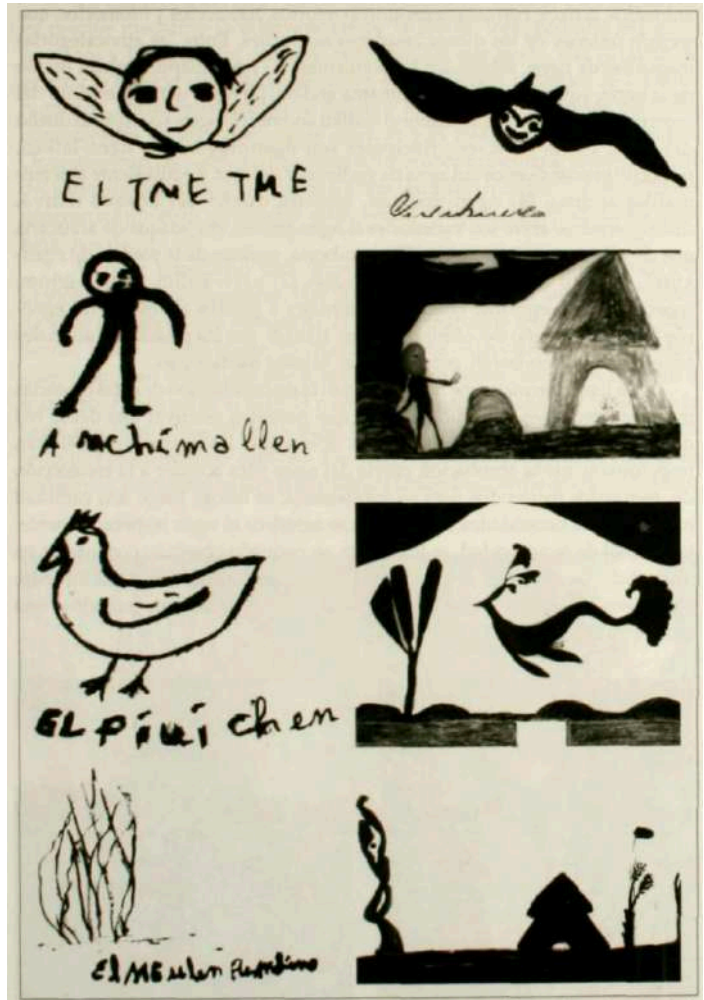
Image: Representation of children and adults from Wekufe, spirits whose appearance brings bad omens to Mapuche communities. Some of them are: TueTue, Anchimallen, Piwuchen, and Meulen.

they are directly linked to the communities (Itier, 2021). Their presence implies responsibilities and protocols: offerings, respect, care for the space they inhabit. Their non-recognition can have negative spiritual and ecological consequences.

In this sense, what if we think of the city not as a homogeneous system, but as a landscape of bodies inhabited by presences? This idea contrasts with the classic Latin urban centre, which is based on the parade ground and the presidential building, and questions the contemporary urban experience, marked by ruins, voids, and material memories silenced by extractivism and real estate speculation. Integrating the logic of *wak'as* into urban thinking implies recognising the agency of non-human elements and their capacity to summon forms of life, affects and rights.

Ngen: guardians and protectors of the natural world (Mapuche Cosmovisión)

The Mapuche cosmovision proposes a similarly relational understanding of territory, under the principle of *Itro Fill Mogen* (see above), in which the *Ngen* (or *Gnem*) are the spiritual guardians who inhabit and protect each space of nature: lakes, rivers, mountains, forests, etc.

Ngen are beings with will, agency and power, who relate to humans on terms of reciprocity, respect and fear. The balance of the environment depends on respect for these beings. For example, if a water Ngen is disturbed, the source may dry up or cause spiritual diseases, such as *perimontun*.

This is not naïve animism, but an ontology in which natural environments are not inert landscapes, but subjects with the capacity for care, anger and

reciprocity. This idea runs through everyday Mapuche life: ceremonies (*ngillatun*), permissions before cutting down a tree or using a water source, and collective sanctions in case of transgression, are evidence of a territorial ethic that underpins the legitimacy of life in common.

Within this framework is the **Az-Mapu**, which represents the set of ethical, spiritual and practical norms that govern the relationship of the Mapuche people with the territory (Millacura, 2025). *Az- Mapu* not only guides human interactions with nature, but also establishes the limits of the use of common goods, including bodies of water, mountains and wetlands, which are conceived as indivisible and sacred. This traditional regulation is key to contemporary biocultural conservation processes in Mapuche territory, especially in marine areas and coastal ecosystems, and evidences the right of indigenous communities to exercise sovereignty and ecological stewardship over their living spaces according to their own value systems (Anbleyth-Evans et al., n.d.).

Conclusion .

Thinking of the city not as a homogeneous and centralised system, but as a landscape inhabited by bodies, presences and relational powers, implies a radical shift in urban thinking. This perspective questions the classical model of the Latin American city centred on the parade ground and the architecture of state power, and confronts the contemporary urban experience marked by ruins, voids and memories silenced by extractivism and real estate speculation. Integrating the logic of the *wak'as*
- living entities of the Andean landscape - and the *gnem* - Mapuche spiritual guardians - offers a profound alternative to modern notions of infrastructure and urban ecology. These non-human beings are not metaphors or natural scenery, but subjects with agency who mediate between worlds and sustain vital relationships. Re-imagining the city from these principles demands an ethics of inhabiting that is based on reciprocity, respect and spiritual stewardship of territory. Thus, urban design ceases to be a technical operation on space and becomes a situated practice of cohabitation and care. Incorporating these cosmologies into urban planning allows us to break with the anthropocentric paradigm of "ecosystem services" and enables indigenous forms of urban ecological sovereignty, embodied in living normative systems such as the *Az Mapu*. This invites us to reimagine the city not as a static, monofunctional infrastructure, but as a relational field of dispersed powers that mediate between worlds.

It should be made clear [...] that for the Mapuche, every phenomenon, event, thing, or object is contained within a greater totality."

(Foerster, 1995, p. 60)

Chapter 2 .
Geomyths

1.2. Geomyths as territorial memory

From a perspective that intertwines urbanism with the ethnography of landscape, this development seeks to reread the so-called "natural disasters" not as isolated or alien events, but as elements deeply intertwined in the cosmologies, practices and territorial dynamics of the native peoples of Chile. In particular, it addresses the experience of the Mapuche and Andean peoples, whose understanding of landscape is not limited to a physical or utilitarian dimension, but incorporates symbolic, affective and ritual meanings. Each geodynamic phenomenon - be it an earthquake, a volcano or a flood - has a mythological correlate, a form of spatial management and a material inscription, revealing a complex understanding of the environment that defies dichotomies between nature and culture, or between catastrophe and knowledge (Boccara & Ayala, 1999; Gutiérrez & González, 2017).

Sea and Mountains:
Kai Kai and Tren Tren as foundational narrative and Mapuche territorial logic.

The story of **Kai Kai and Tren Tren** is not simply a myth native to the Mapuche people: it is a worldview in which landscape, geological cycles and collective memory are deeply intertwined. In this foundational narrative, two mythical serpents - Kai Kai, the water serpent, and Tren Tren, the earth serpent - engage in an eternal struggle between flood and protection, between destruction and protection. This story, transmitted orally for generations, functions as an **epistemology of risk**: it encodes territorial knowledge, settlement dynamics and perceptions of the environment that

29

Query/Mystery ⟵————— *Globalized Western Society (or*
with pretension of Westernization)

Imaginary

(+) Modern
Rational
answer *Scientific*
Civilized
Development/
Growth

(-) Pre Modern
Pasional
Mistic/Mythological
Barbarie

Query/Mystery ←—————————— *Cyclical / non-linear conception of time (Indigenous)*

Imaginary

(+) Life
Land
Complementarity
Reciprocity
Goodness

answer

Renovation
Duality

answer

(-) Death
Oblivion
Unbalance
Evil

Mapuches   *Aymaras*

Treng-Treng   Pachamama
Land*   *Land+water*
                   Duality
              (complemented)

Kai-Kai   Manqhapacha
Water*   *Underground Land*
              Destructive forces.
            Chaos maintenance.
                   Duality
              (complemented)

KAI KAI v/s TREN TREN

A story that tells the memory of tsunamis and earthquakes, but at the same time, of geological composition and the creation of mountain ranges
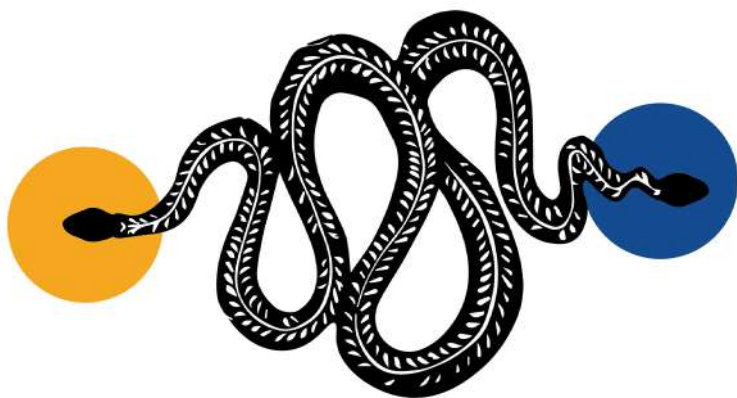
have allowed Mapuche communities to coexist with a seismic and unpredictable territory (Foerster, 2019).

In the story, Kai Kai makes the waters rise to punish humans, while Tren Tren, to protect them, raises mountains to serve as shelter. This metaphor of conflict between water and land has a deep resonance in southern Chile, where earthquakes, tsunamis and floods are part of the geological and social history. What is remarkable is that this ancestral wisdom is not only symbolic, but has empirical correlates. A recent geological study showed that what the Mapuche called **"Tren Tren mountains"** are indeed elevations that have risen after telluric events, while the **"Kai Kai mountains"** have descended or been eroded (Bastías Curivil, 2024). This observation reveals a sophisticated indigenous understanding of the landscape as a dynamic system, marked by tectonic and climatic transformations.

This territorial logic has historically guided the choice of places to live, sow and bury the dead. For example, **Mapuche cemeteries tend to be located on high ground**, not only for sanitary reasons, but also because they are considered safe from the return of water (Aukanaw, 1985; Salazar, 2025).
Likewise, ancient settlements in coastal areas tend to be located on natural hills or terraces, anticipating the effects of possible tsunamis through a symbolic and experiential reading of the territory. This anticipatory practice reveals a form of **relational urbanism**, where spaces are not planned solely on the basis of technical criteria, but on the basis of a living memory of the landscape and its cyclical behaviour.

The richness of this story is also reflected in its poetic and ritual dimension. It is believed, for example, that the three-peaked hills are unsinkable by nature, and even capable of **rising into the sky** if the water covers

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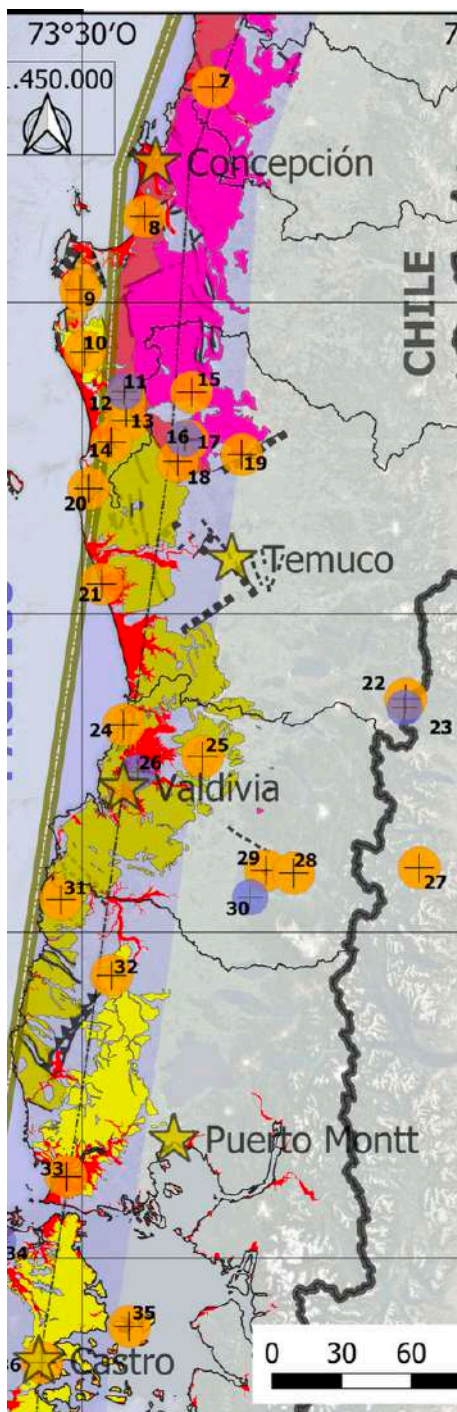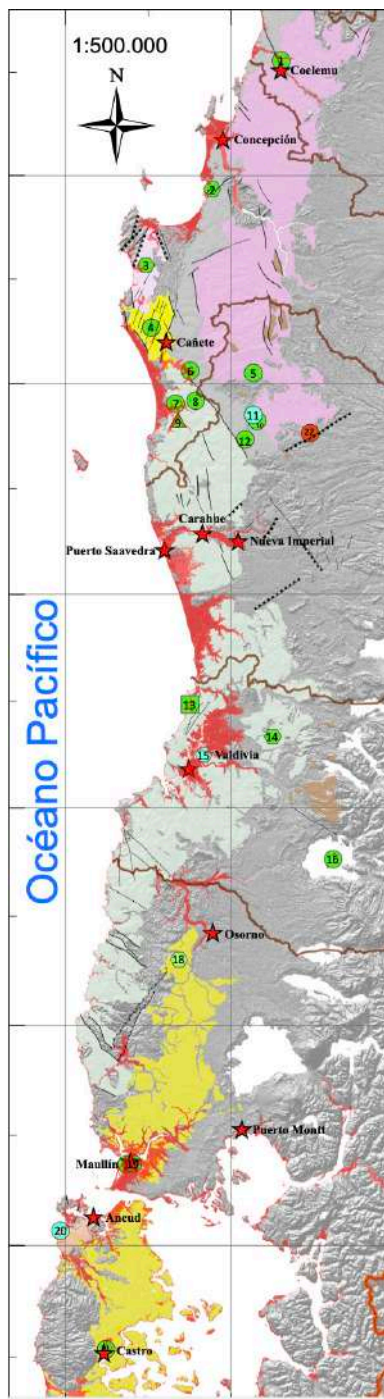
the land again. Hence the custom of carrying wooden plates or bowls to protect themselves from the sun if the hill rises too high (Millacura, 2025).

From an urban and territorial perspective, this story poses a profound critique of the way contemporary cities manage risk. While modern urbanism tends to treat disaster as an exception, Mapuche thought integrates it as a **constituent part of the life cycle of the territory.** In this way, the cosmogony of Kai Kai and Tren Tren not only recounts the origins of the Mapuche world, but also offers keys to rethinking planning in a country like Chile, where the constant threat of natural disasters demands a sensitive and adaptive coexistence with the environment.

El Niño and La Niña currents:
cosmoclimatic cycles and settlement logic

For Andean peoples, El Niño and La Niña phenomena are not mere meteorological expressions, but signs of imbalance in the relationship between humans and nature. According to the Andean cosmovision, when the *ayni* (reciprocity) is broken, the environment responds with excess or scarcity, such as heavy rains, droughts or changes in sea temperature (Gutiérrez & González, 2017). These signals translate into concrete land-use decisions: during El Niño, oases and streams are exploited due to increased water, while during La Niña, priority is given to grazing or storage, following orally transmitted agro-climatic calendars (Flores-Aqueveque, 2023).

In urban and territorial planning, these cycles reveal an adaptive rationality that differs from modern urbanism. Instead of assuming a stable climate, indigenous peoples construct strategies that respond to climatic variability. This logic is particularly visible in the Norte

Grande of Chile, where palaeoclimatic studies show that around 9700 years BP, coastal waters were warmer, suggesting more intense El Niño episodes. This change altered the availability of freshwater and marine resources, which impacted the location of human settlements (Salazar et al., 2022).

Indigenous occupation of territory, Salazar stresses, was never static. On the contrary, it has been marked by an **ethos of mobility**, especially in arid areas where life depended on watering holes. During periods of weakened El Niño (such as between 12,000 and 5,500 years ago), communities tended to cluster near scarce water sources. When El Niño reactivates, around 5,500 years ago, water tables recharge and dispersal becomes viable again. This pattern demonstrates that the **main decisions of territorial movement** in indigenous populations responded to three key factors: natural disasters, climatic changes, and inter-community relations. (salazar, 2025)

Archaeological evidence in now dry ravines shows that the rainfall regime was more favourable, allowing the development of coastal communities. In addition, the presence of equatorial species in faunal remains suggests changes in ocean currents that affected subsistence patterns. This shows that our cities should promote flexible and resilient ways of living in the face of climate crisis, adapting the occupation of space and reorganising their livelihoods according to available resources and water. Landscape, climate and ecosystems are not static, and neither should our cities be.

Floods:
toponymy and hydro-social memory

Floods, in the Mapuche cosmovision, are not

anomalies but cycles that refer to the story of Kai Kai and Tren Tren. The Mapuzungun language retains warnings in the form of toponymy: names such as Lefún ("swampy") or Aukinko ("place of water") function as semiotic marks of warning (Foerster, 2019; González, 2015). In recent events, such as the floods in Arauco in 2024, many of the affected places bore names that alluded to previous hydrological conditions (González, 2024). Settlement practices also reflect this awareness: houses on stilts, raised walkways and cemeteries in the highest point (as they were there most precios valuables) are material practices that condense a hydro-spiritual memory. These forms, read from the perspective of urbanism, can enrich the criteria of location, avoiding the repetition of vulnerabilities made invisible by cultural dispossession.

What was critical was not food, but water, which is why the sites of large shelly pits or dumps historically coincide with periods of lower intensity of El Niño, when water sources were concentrated. Unlike in the Andean world, where agriculture implied a structured organisation, many coastal and southern communities did not need to develop complex agricultural systems because natural abundance was sufficient for survival. (Salazar, Almonacid, Millacura, 2025)

Spaces defined by water

In Indigenous Mapuche and Andean worldviews, territory is not named arbitrarily—it is named through the presence of water (**ko** in Mapudungun, puri in Atacama language) and its many forms. These names are not decorative or symbolic; they are embodied knowledge, the result of millennia of ecological observation and cultural continuity.

These names reflect an ecological intelligence: spaces

are defined by the presence of water—not the other way around. This is crucial in a time of flooding, drought, and climate uncertainty, as it centers the hydrological and ecological cycles of the territory itself.

In contrast, colonial place-names—Catholic saints, military heroes—erase this vital relationship between language and ecosystem. These imposed names name from ideology, not from lived knowledge. A name like *Chayakü* already signals a flood-prone confluence. Similarly, in the Andean world, ecological "floors" (*pisos ecológicos*) name altitudinal zones based on water cycles and agricultural viability.

To name with care is to care for the land.

Earthquakes and Tsunamis:
Seismic Memory, Spatial Mobility and Ritual Architecture

In the Andean cosmovision, the earth (Pachamama) is not an inert substrate but a living being with spiritual agency. Seismic movements are interpreted as signs of imbalance or a need for reciprocity (Arnold, 1992). This vision is articulated with practical strategies: in the face of telluric events, communities have developed a strategic mobility known as "vertical nomadism" (Murra, 1975), adjusting the location of dwellings and fields according to environmental signals. In the Atacama Desert, archaeological research reveals that after a major earthquake and tsunami more than 3500 years ago, coastal populations abandoned their settlements and relocated to higher ground, rebuilding them through ritual practices (Salazar et al., 2022). These actions not only respond to the logic of survival, but to an ethic of territorial reconfiguration in the face of geological trauma.

The case documented by Salazar et al. (2022) after the mega-earthquake and tsunami that occurred 3,800 years ago in the Norte Grande of Chile reveals how a

catastrophic event provoked not only a migration to higher ground, but also the symbolic reconsecration of these new spaces through ritual practices, like placing their cementeries in higher ground, since it's the most valuable possesion they have. This territorial reconfiguration cannot be understood solely from a technical logic, but as a way of inhabiting the world that articulates experience, history and cosmology.

As Salazar points out, knowledge about how to cope with natural hazards is not automatic, but must be learned, practised and constantly cultivated. When this knowledge is lost, communities face disasters without sufficient tools, which increases their vulnerability.
For this reason, integrating territorial memory into risk planning and reduction is key. It is not enough to project policies from recent historical events; it is necessary to consider broader time scales that reveal the recurrence of extreme events and social responses to them. Incorporating these lessons into the present can strengthen resilience to future disasters.

Volcanoes:
tutelary deities, ritual visibility and sacred planning

Volcanoes in the Andean and Mapuche cosmovision are not geological accidents, but spiritual entities. In the Andean world they are *apus* or *achachilas*, male tutelary deities (Van den Berghe & Flores Ochoa, 1968), while in the Mapuche world they are understood as *gen*, guardian spirits of the place and grandfathers (Foerster, 2019; Millacura, 2025). This relationship determines the location of ritual spaces oriented towards volcanoes, such as the *ngillatun* in the Mapuche case. In the Andean sphere, the *capacocha* rituals on top of volcanoes are the ultimate expression of this vertical relationship with the landscape (Reinhard, 2006). Indigenous territorial planning not

only avoids volcanic cones, but incorporates them as visual and spiritual references, integrating their eruptive cycles as part of a cosmological logic of dialogue with the environment.

1.3. Palaeoclimate: historical cycles and territorial cosmology

Paleoclimatology, understood as the study of past climate through indirect records or climate *proxies*, has become a fundamental tool for understanding the environmental changes that have shaped the South American territory. Given that modern meteorological instruments have only been in existence for about 500 to 600 years, knowledge of past climate depends on indirect evidence such as lake sediments, tree rings, organic remains, or fossilised pollen (Villalba et al., 2024). These records not only reveal past climatic conditions, but also provide critical inputs for projecting future scenarios, especially in a context of climate crisis and accelerated urbanisation.

One of the clearest examples is the analysis of tree growth rings. These rings reflect variations in temperature and humidity, allowing the detection of historical patterns of droughts or extreme events. Such information is key for urban planners and land managers, as it allows the identification of water risk zones, potential aquifer recharge areas or historically resilient territories (Flores-Aqueveque, 2024). From this perspective, the felling of native forests not only implies the loss of biodiversity, but also the elimination of natural archives of climate memory. Thus, trees are not only resources, but also witnesses to the cycles that structure habitation (Villalba et al., 2024).

Another type of *proxy* is the location of submerged archaeological remains, which allows estimation

of shorelines and water levels at different times. Understanding these dynamics is essential for coastal and river planning: many historical settlement decisions - from villages to cities - have been structured around the availability and mobility of water (Salazar, cited in Latercera, 2023). This relationship shows how territorial planning cannot be separated from an in-depth reading of the landscape, where water, more than a resource, acts as an axis of spatial structuring.

However, palaeoclimatology faces important challenges. One of these is the difficulty of standardising data, as different *proxies* can give seemingly contradictory results. For example, two trees from the same site may show rings with different thicknesses, raising questions as to which one best represents past conditions . According to Dr. Flores-Aqueveque (2024), the only way to resolve these contradictions is to increase the number and diversity of records, and to cross multiple disciplines.

Furthermore, paleoclimatic research in South America is geographically unbalanced. Vast regions - such as the north of the continent, the Amazon and parts of Patagonia - are virtually unstudied, with an average of only one record per 121,000 km² (Villalba et al., 2024). This prevents the construction of reliable continental-scale climate models, which weakens adaptation strategies in local contexts. Furthermore, methodological fragmentation between disciplines persists, hindering a holistic and cooperative view of climate as an integrated system.

Despite these limitations, South America has unparalleled potential for the study of global climate. It is the only continent that extends from the tropics to the sub-Antarctic zones, and its complex orography allows us to understand interactions between local and hemispheric factors. In this sense, Chile - with

its ecological diversity, its longitudinal mountain range and its vulnerability to extreme events such as droughts, fires or floods - becomes a key natural laboratory for designing resilient urban planning models.

In the Andean world, major cycles of climate change are interpreted as *pachakutik*, moments of cosmic transformation (Flores-Aqueveque, 2023). Changes in blooms, animal migrations or the behaviour of rivers are signs that announce the beginning of a new cycle. These readings have been translated into spatial reconfigurations: abandonment of agricultural terraces, migration to higher altitudes, changes in agricultural rituals. Urban planning can recover this long-term reading of the territory by integrating indigenous palaeoclimatic knowledge into its forms of planning.

Conclusion

Mapuche and Andean peoples do not understand natural disasters as destructive events per se, but as expressions of a relational network between humans, spirits and natural elements. This relationship is inscribed in their cosmologies, but also in concrete dynamics such as the ritual selection of sites, funerary practice or the reading of the language of the landscape. For urban planning, embracing these perspectives means shifting from viewing the territory as a controllable object to understanding it as a living subject that demands listening and respect.

Bringing palaeoclimatology into public policy and design enriches this approach. It helps anticipate future scenarios and recovers long-forgotten memories of the land. In today's context of unregulated expansion and real estate extractivism, looking to the paleoclimate becomes a political and ethical act—an expression of

FUTURE

PRESENT

PAST
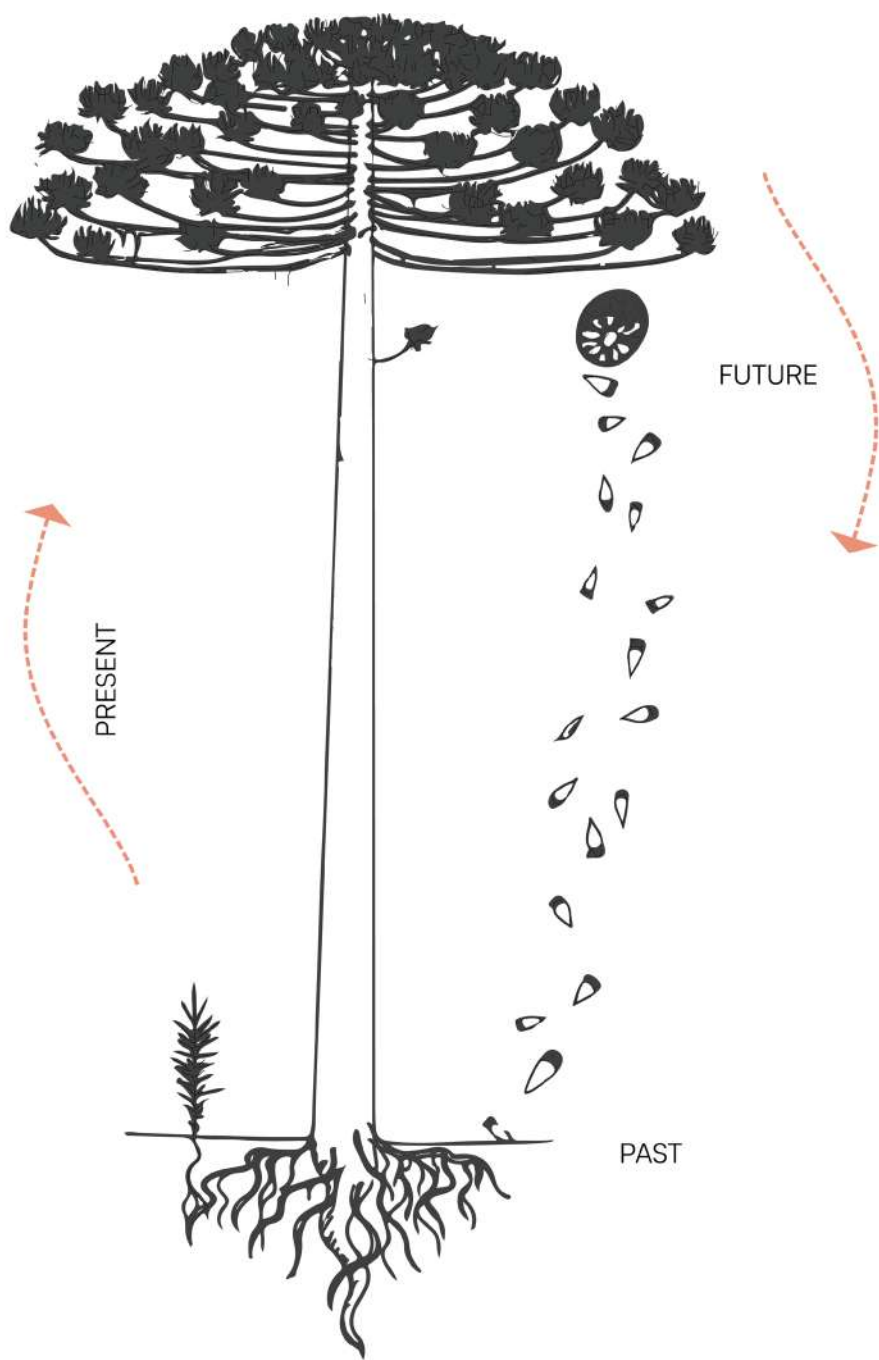
care for the land and recognition of its long-standing rhythms. Just as gnem and wak'as call for reciprocal practices with the environment, palaeoclimatic records offer guidance for more sensitive, sustainable, and just forms of inhabiting.

Yet, as Diego Salazar notes, these ways of knowing have been eroded by extractive industries and migration, disrupting cultural continuity. Modern planning suffers from this loss, relying on shallow historical records and overlooking deeper temporal risks. The massive 9.5 magnitude earthquake and tsunami that struck the desert coast 3,800 years ago—and indigenous strategies in response to El Niño—reveal how ancient populations actively interpreted territorial signals and made settlement decisions based on climate patterns.

These lessons can inspire a more grounded urbanism—one that honors local knowledge and embraces long-term ecological and cultural understanding.

1.3. Sacred time and temporal simultaneity

In the Mapuche, Andean and many indigenous worldviews, time does not follow the chronological linearity that characterises modern Western thought. Rather, it is manifested as a simultaneity of past, present and future. As Millacura (2025) points out, native peoples "are much more linked to the past and present. The future did not exist", in the sense of an abstract and differentiated projection. Instead, the future emerges from the present, linked to territory, memory and natural cycles.

This cyclical and qualitative understanding of time contrasts radically with the Western conception, based on a uniform quantitative progression, organised by calendars and clocks (Grebe, 1987). In Mapuche

culture, for example, time is structured through the observation of natural and astral cycles, and its sacredness is activated at specific moments such as *epewün* (dawn) and *epepun* (dusk), which mark the beginning and end of ritual and productive activities (Grebe, 1987).

In this view, past, present and future are not separate compartments but interrelated dimensions. This perspective is also in line with contemporary theories on "anthropological futures", such as those of Pink et al. (2017), who argue that the future is an alterity of the present, rather than a distant destination. Thus, in the socio-technical imaginaries described by Jasanoff (2015), the future is constructed from shared understandings of the present and of desirable or sustainable ways of life, which dialogues with indigenous ways of life as a practice of resistance and critical anticipation.

For indigenous peoples, collapse is not a disaster, but an opportunity to restore the lost equilibrium. As Alminocid (2025) argues, from the Mapuche perspective, collapse is the most imminent thing, but it is not lived in fear: "for them, collapse is an opportunity".

Milton Almonacid argues that Western thought builds a retaining wall in the face of the collapse , as it cannot imagine the death of the human being or of the ego - masculine, white, modern - that sustains it. In contrast, Mapuche thought assumes collapse as imminent, and sees it not as an end, but as transformation. For there to be life, there must be death; for there to be abundance, there must be balance. This view aligns with other non-Western philosophies, such as ying-yang or quantum thinking, which understand the world as an interrelated rather than fragmented system.

Likewise, the so-called "chaos" is not conceived as disorder, but as part of a broader and more dynamic equilibrium. In this sense, indigenous peoples do not recognise chaos as a rupture, but as part of the flow of life (Alminocid, 2025).

This way of conceiving time as coexistence, chaos as balance and abundance as sufficiency can offer fundamental keys to imagine more resilient urban futures, capable of reconnecting with the cycles of life and sustaining themselves from other ways of inhabiting and caring for the world.

1.4. Women as a political being

In the Indigenous worldviews described by Valdez (2006), the figure of the woman has not been an appendage to power, but one of its centers. Far from colonial frameworks that reduced politics to the state or the masculine, in many Indigenous communities women embody a power that is deeply territorial, spiritual, and organizational. This logic is also expressed in territorial alliances: Claudio Millacura (2025) stresses that women were responsible for establishing links between communities through marriage, so that spatial organization depended on these female alliances. By marrying into other communities, women wove— literally and symbolically—the social and political fabric of the territory.

Their role is structural, not complementary. Through their relationship with the land, medicine, memory, and social weaving, women not only sustain everyday life: they transform it.

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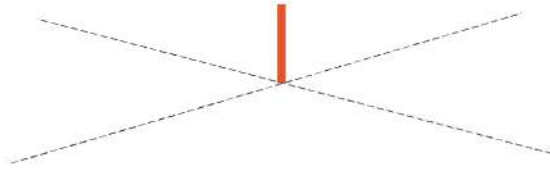
Rehue
Machi
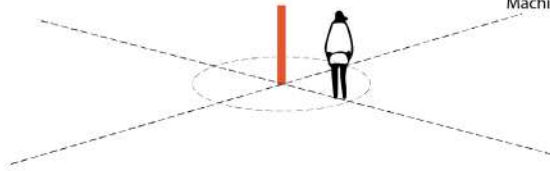
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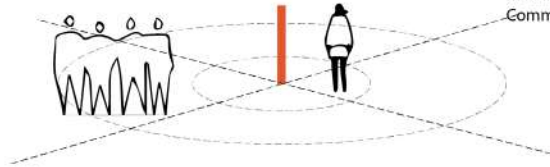
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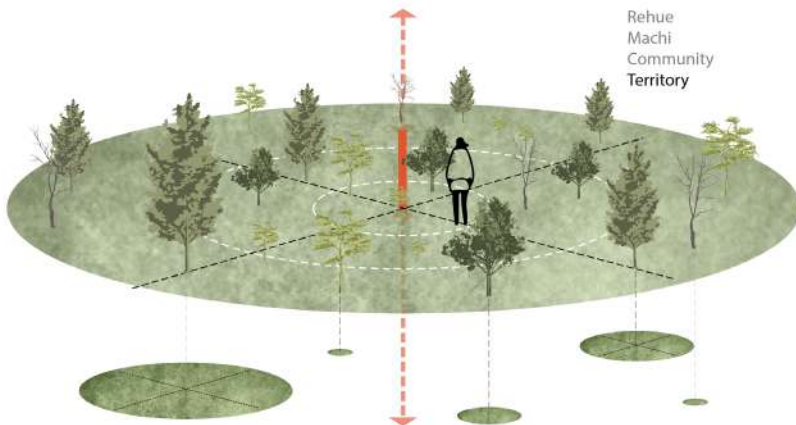
- *Mapuche Women: Power, Medicine, and Territory*

In the Mapuche world, women occupy key positions within the political architecture of the people. Far from being peripheral figures, many of them are weavers of intercommunal alliances, guardians of *itrofil mongen* (the diversity of life), and managers of the balance between the human, the natural, and the spiritual.

The figure of the **machi** is perhaps the most visible expression of this feminine centrality. Healer, counselor, spiritual leader, and often political mediator, the machi embodies a form of power that does not separate the sacred from the political. Through her medicinal and ceremonial practices—such as the *machitún* or *nguillatun*—the machi cares for both bodies and territories. Her knowledge of forests, waters, and lunar cycles makes her work a deeply situated form of ecological governance (Millacura, 2025).

Moreover, Mapuche women are in charge of chacras and huertas—spaces that are not merely agricultural, but territories of both symbolic and material reproduction. There, not only plants but also life forms, knowledge systems, and practices of resistance take root. Agriculture is not seen as production but as proliferation: a continuous dialogue with the land, where care replaces control.

- *Andean Women: weaving the World*

In the Andean world, the figure of the woman appears woven into the land—both literally and symbolically— through the act of weaving. In contrast to a patriarchal vision of power, the Andean universe articulates the political through a relational duality: the warrior and the weaver. This is not about hierarchies, but about sacred codes of reciprocity.

The **warrior**, a symbol of strength and confrontation, obtains "hair" as a result of ritual violence, which

PRIMERA CALLE
AVACOEVARMI

AVCACAMAIO

is then interwoven by the woman. The **weaver**, a figure of care and continuity, transforms that violence into fertility—into life. Weaving is not merely manual labor, but a political language: it interlaces times, bodies, and memories. Through weaving, Andean women construct territory, articulate community, and reconfigure collective trauma.

This structure is linked to the notion of the **ch'ixi world** (Rivera Cusicanqui), where differences do not dissolve but coexist in productive tension. The **i**ntermediate weave, or *taypi*, is the place where the masculine and the feminine meet and are reconfigured—not as opposites, but as sacred and complementary energies.

Conclusion: towards a Ch'ixi world

The philosophy of the native peoples is not based on exclusion, but on reciprocity, complementarity and co-inhabitation in order to achieve adaptation to the natural balance. In contrast to the Western vision that separates, exploits and fears death, Mapuche and Andean thought invites us to imagine Ch'ixi worlds - as Rivera Cusicanqui proposes - where the contradictory coexist without annulling each other. In this horizon, life and death, the feminine and the masculine, the mobile and the sedentary, intertwine to sustain new forms of inhabiting and resisting.

In the face of a global civilisational crisis, this knowledge is not a nostalgia for the past, but a guide to radical futures. Futures where collapse is not failure, but possibility.

Chapter 3 .
INDIGENOUS TECHNOPRACTICS:
Cultivating, building and caring for the territory

3.1. Cosmotechnics: technology as embodied spirituality (Yuk Hui)

In recent years, the philosopher Yuk Hui (2021) has proposed the concept of **cosmotechnics** to think of technology not as something universal or neutral, but as a situated practice, linking the cosmic and moral order. From this perspective, each society develops its own technologies rooted in its cosmovision. Thus, indigenous technologies differ not only in form or function, but also in their ontology: they are technologies of care, of balance and of the link with the non-human.

This idea is key to understanding **Traditional Ecological Knowledge (TEK)**. More than technical knowledge, TEK is a relational way of life in which cultivating, building and caring for the territory are intertwined with spirituality, community and ancestral memory (García et al., 2024). In this context, technologies such as the Andean agricultural terraces, irrigation canals or Mapuche ploughing systems express a deep ecological understanding and an ethical commitment to the territory.

Julia Watson (2020) stresses that these practices, far from being archaic, represent resilient and sustainable ways of inhabiting, integrating biodiversity, ancestral knowledge and natural cycles. They are, in the words of Hui (2021), living examples of cosmotechnics: embodied technologies that articulate the technical with the sacred.

In a context of climate crisis and ecological collapse, TEK offers not only a memory of resistance, but a

Population Distribution 1540

Aymaras
Atacamenos
Changos
Diaguitas
Chiquitanos
Picunches
Mapuches
Pehuenches
Huilliches
Puelches
Poyas
Cuncos
Chonos
Aonikenk
Kaweskar
Selknam
Yaganes
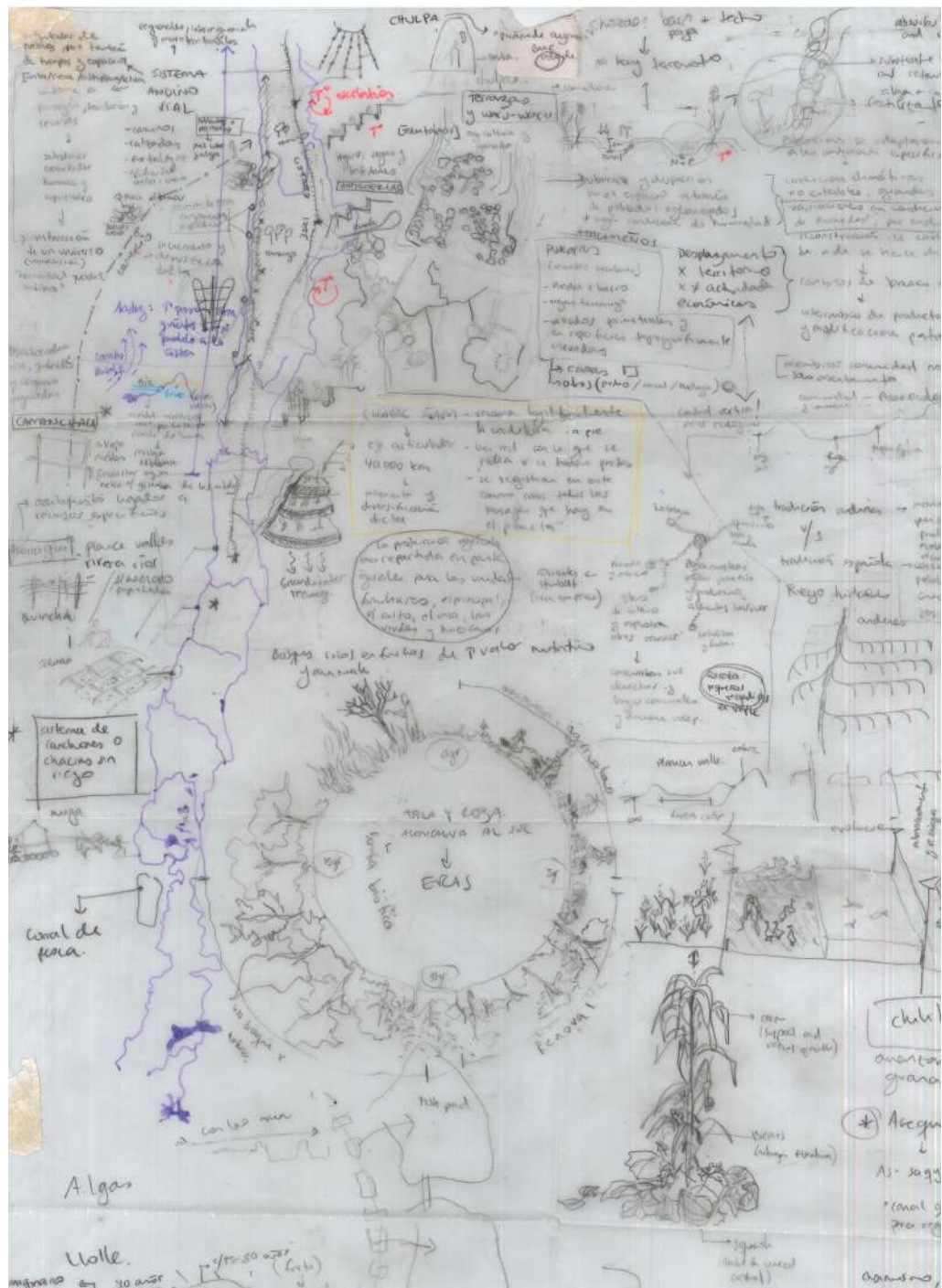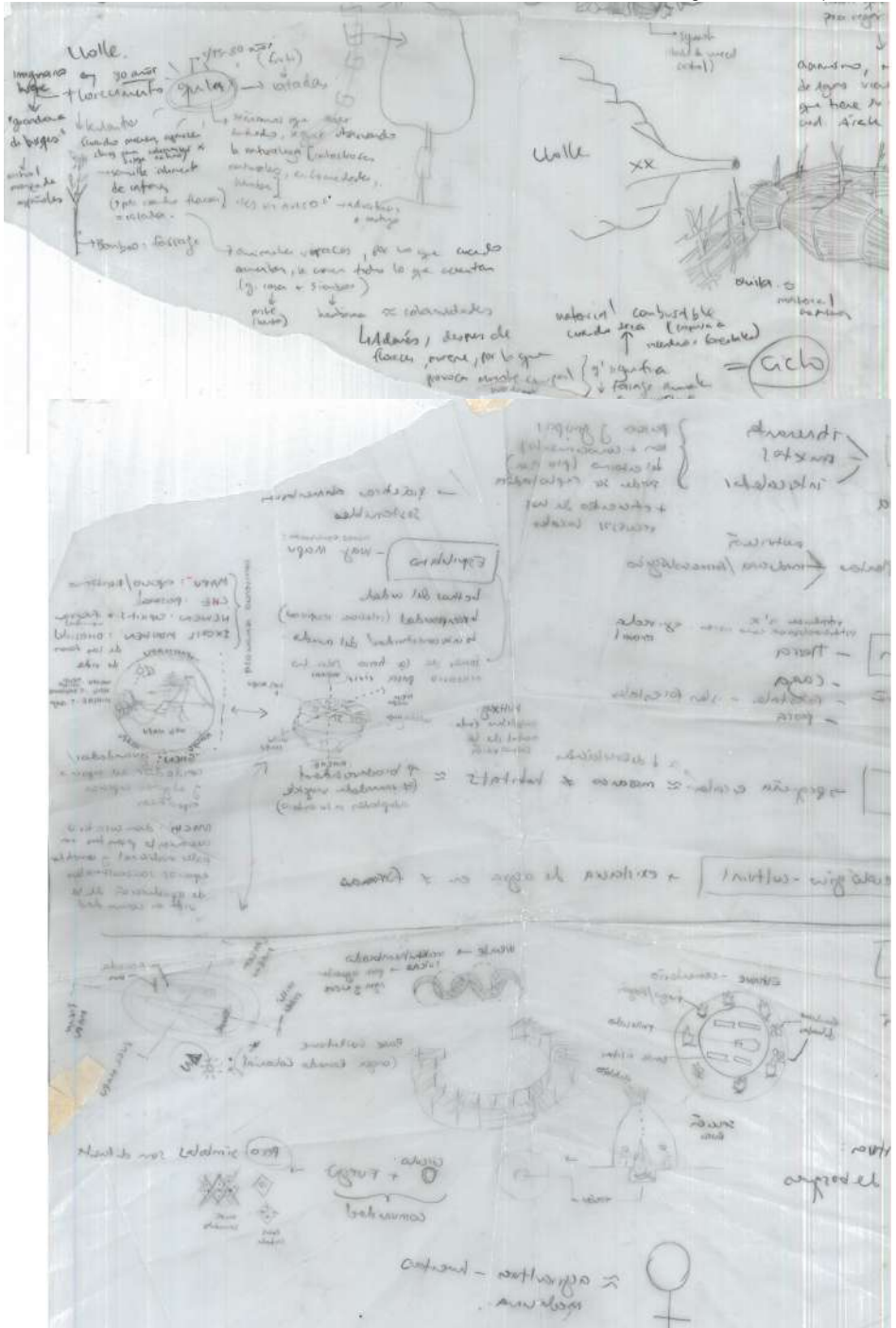
MAP with location of technincs

possible horizon. Thinking of these technologies as cosmotechnics is not a nostalgic exercise, but a radical way of imagining other possible futures: sustainable, just and in harmony with the earth. Lo- TEK orients us towards a different mythology of technology. One that evolves humanism with radical indigenism and "architecture of the heart" (Wade Davis, in the Foreward of Lo-TEK: Design by Radical Indigenism).

Raised beds

River berm

Control gate

Feeder canal

Peripheral canal

Distribution
canal

Collector canal
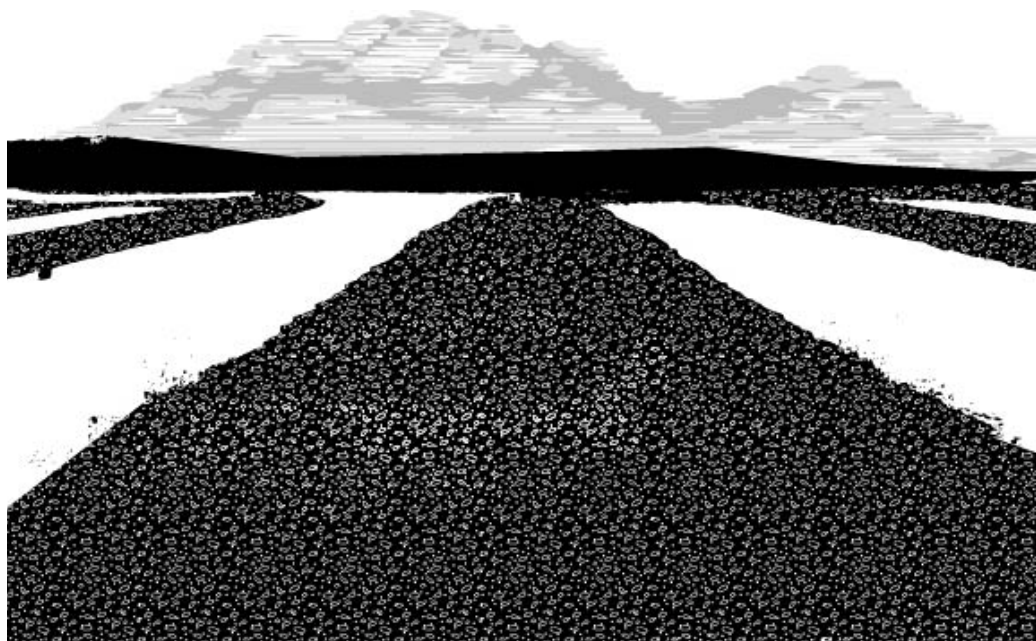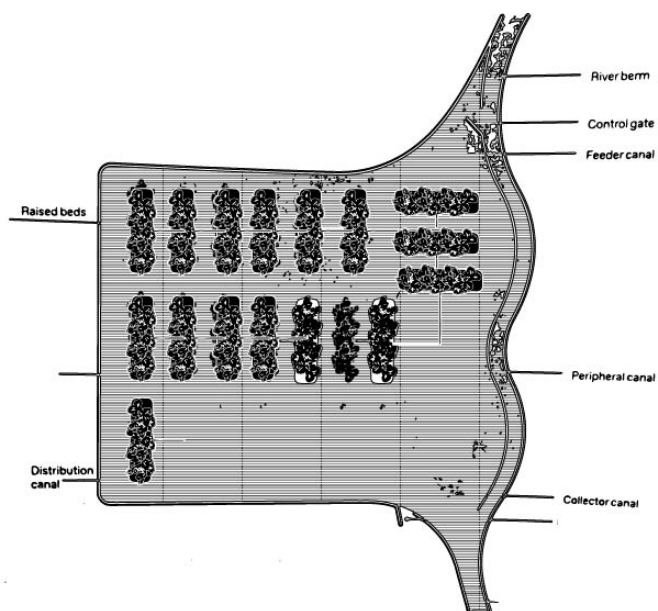
Waru-Waru

Waru-Waru, also called "camellones elevados", are an ancient agricultural technique developed by pre-Hispanic cultures in South America, especially in regions such as the Andean highlands and the wetlands of the Lake Titicaca basin. They consist of raised cultivation platforms, separated by water channels, designed to optimise soil and water use in environments prone to flooding or drought.The construction of camellones involves digging channels and using the excavated soil to form raised platforms. These canals not only drain excess water during the rains, but also retain moisture during the dry seasons, providing a favourable microclimate for crops. In addition, the water in the channels absorbs heat during the day and releases it at night, mitigating the impact of night frosts, a crucial benefit at high altitudes.

This technique also improves soil fertility. Sediment and organic matter accumulated in the channels can be reincorporated into the platforms, enriching the soil without the need for artificial fertilisers. Studies have shown that ridges can double or triple yields compared to non-raised fields.

Although many camellones were abandoned after European colonisation, recent archaeological and agronomic research has highlighted their effectiveness and sustainability. The rehabilitation of these systems in local communities has shown promising results, offering a viable agroecological alternative to conventional agricultural practices.

SLOPE CONTROL AND EROSION REDUCTION

WATER INFRASTRUCTURE AND OPTIMIZATION

ANDEAN AGRICULTURAL SYSTEM

Water Distribution through canals

Moisture Retention

Groundwater recharge

WATER INFRASTRUCTURE AND OPTIMIZATION

reservoir

Settlements

reservoir

canal

canal

reservoir

canal for settlements

canal

stream

stream

stream

stream

stream

They cultivated corn, which was the staple of their diet, along with squash, quinoa, kiwicha, beans, chili peppers, and potatoes. They also gathered wild fruits such as algarrobo, chañar, and copao, as well as guanaco wool for making clothing.

Moisture retention

Canal

Fertilized soil

Normal soil

Filling of sand, stones, and gravel

to provide support, containment, and filter water to the next terrace.

100-150 cm

200-300 cm

Andenería / Qochas

Diaguita and Atacameño **andenerías**, also known as andenes or agricultural terraces, are an example of pre-Hispanic agricultural engineering adapted to mountainous and arid environments. These structures made it possible to expand cultivable areas, prevent soil erosion and improve drainage, thus maintaining the fertility of land on steep slopes (Castro Rojas, 2012).

The terraces follow the contour of the land, i.e. they are built respecting the natural topography of the slopes. This makes it possible to reduce erosion, retain water better and distribute it more efficiently along the crops. The system was complemented by a network of canals and qochas (reservoirs), constructed with great precision. The structure of these canals includes side walls made of cylindrical stones, while the roof is formed with flat, elongated stones, about 40 to 45 cm long and 25 cm wide. The base was generally not lined, but left with a natural floor. This design favoured the flow of water, avoiding losses due to excessive filtration and adapting to the slope of the land.

Qochas, are artificial depressions to capture and store rainwater, vital in arid areas, and allow productive wetlands to be maintained throughout the year.
These techniques reveal an advanced understanding of hydraulic engineering, As the Qhapaq Ñan system points out, these elements are not only functional, but symbolic and ritual, reinforcing the articulation between community, cosmos and territory (Cusicanqui, 2018: 61-62). Thus, water is not only a resource, but an energy that is channelled and distributed in balance with the environment.

Pucara Vilama Norte

0   25   50m

Pucara Quitor

0   25   50m
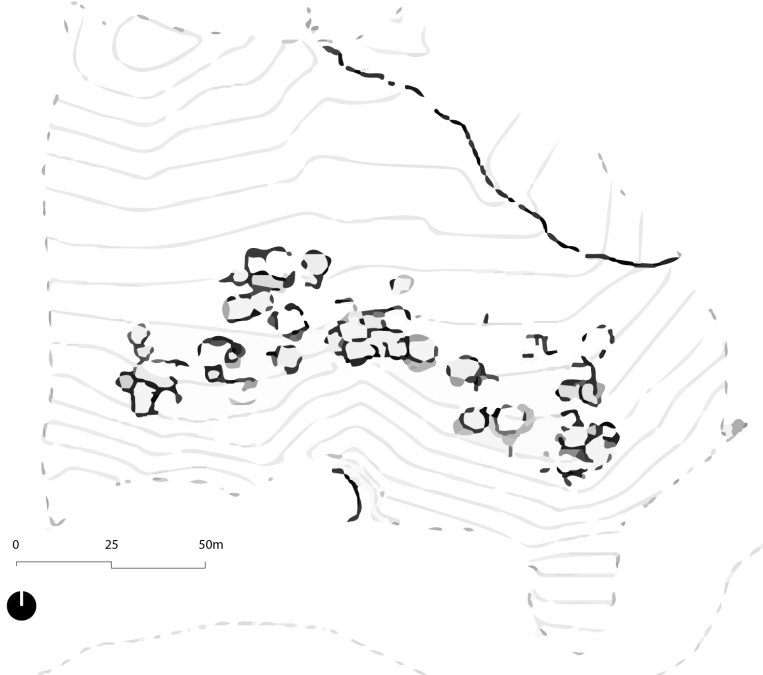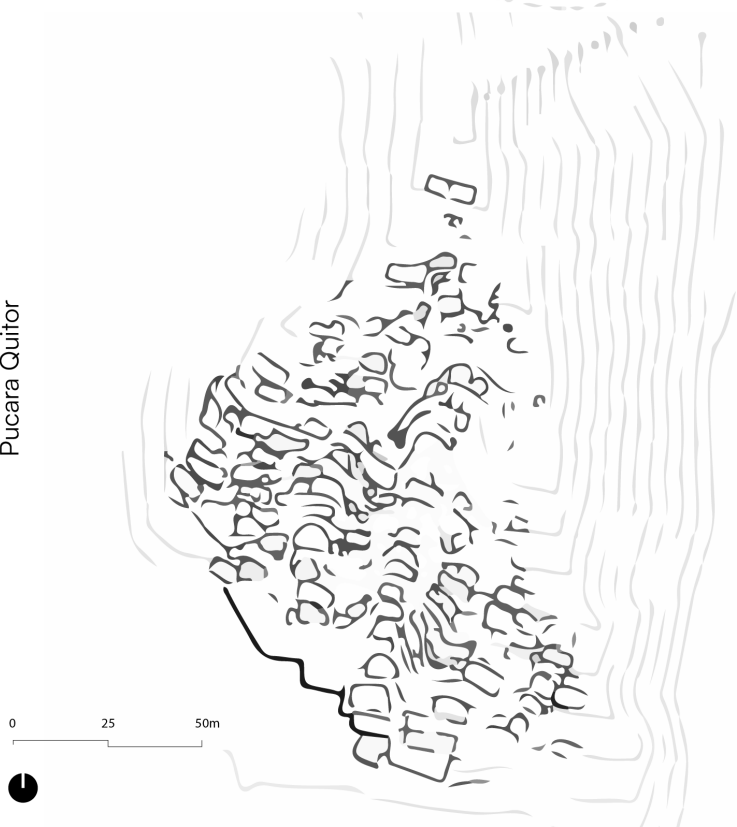
Chullpas, Pukaras, Tambos

Chullpas are funerary towers built in stone by pre-Inca cultures (such as the Aymaras) and later adopted by the Incas. They were used to bury noble ancestors, reinforcing lineage and the link with the dead as guardians of the territory (Castro Rojas, 2012). These structures are strategically located on heights or roads, which symbolically connects them with the vigilance of the Qhapaq Ñan and the world of the spirits.

The **Pukaras** were defensive fortresses, located on hills or high places. They fulfilled military but also symbolic functions, as control and observation points. In the context of the Qhapaq Ñan, they functioned as territorial nodes that enabled resistance or political domination over border regions to be articulated.

The **Tambos** were logistical structures distributed along the Qhapaq Ñan. They served as shelters, food depots (collcas) and administrative centres, facilitating the transit of armies, retinues and pilgrims. They were also spaces for ritual exchange and redistribution of goods, functioning as nodes that reinforced the connection between the centre and periphery of the Tawantinsuyu.
These elements -funerary, defensive and logistical- configure a symbolic and material network that not only articulates the physical space, but also the cosmos, the social and the political, as suggested by the metaphor of the road/dance described by Cusicanqui (2018).

popcorn sweetcorn
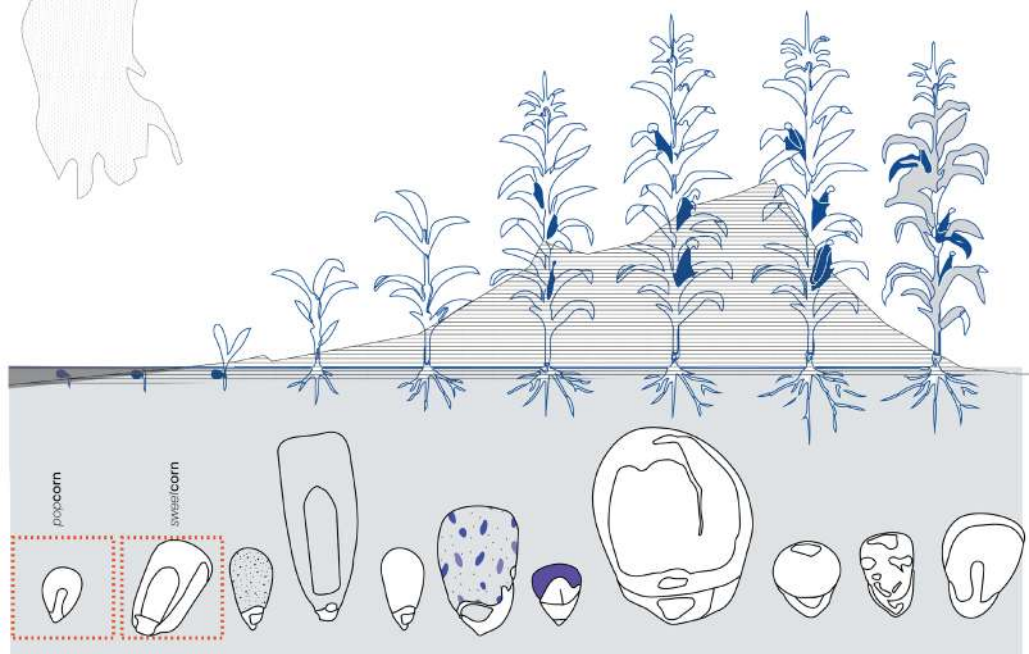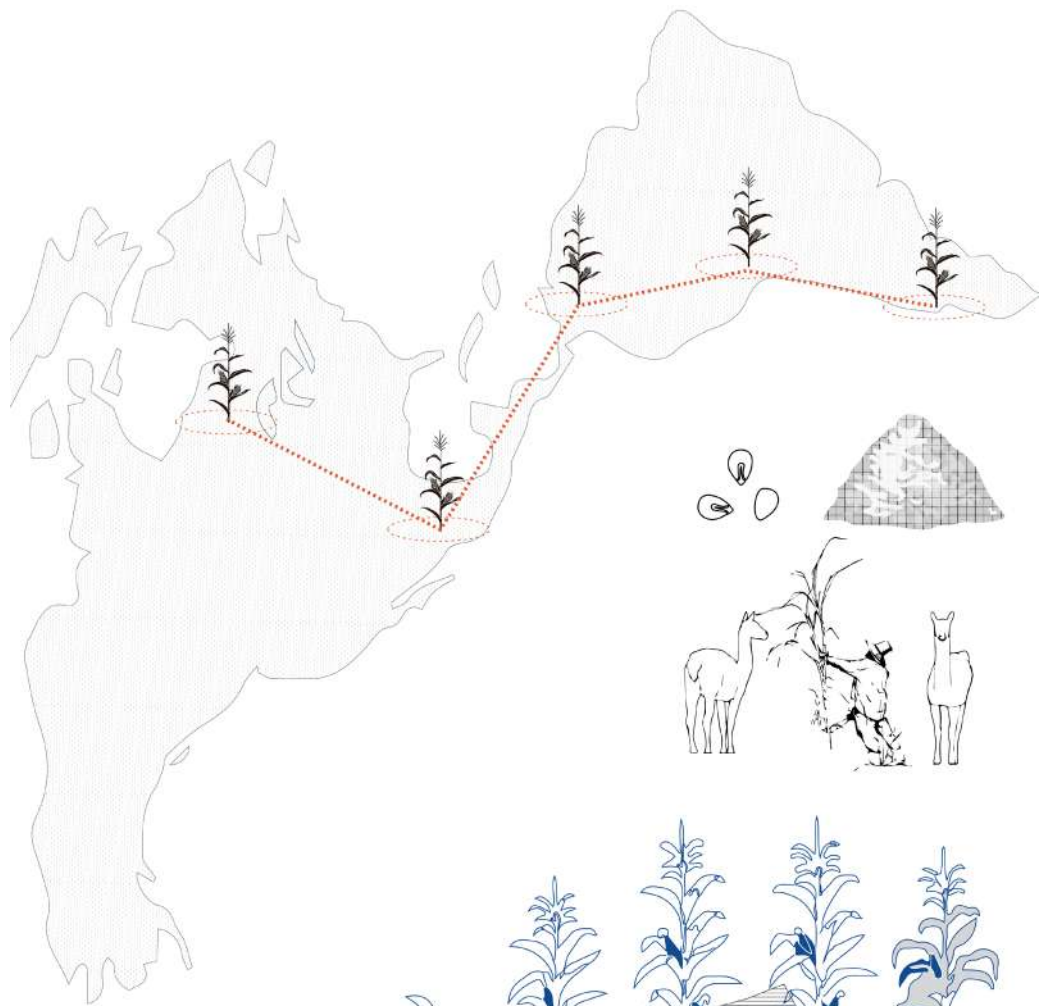
Species and Seed Partnerships: Milpa or Three Sisters

The association of species and seeds is a key characteristic of indigenous agriculture, especially in the Andean region, where the cultivation of **maize, beans** and **squash**, known as **the milpa or the three sisters,** stands out. This traditional agricultural system is a paradigmatic example of how pre- Columbian cultures optimised soil use, based on symbiotic relationships that favour the mutual growth of plants. The maize, as a support for the climbing beans, allows the beans to develop vertically, while the beans enrich the soil with nitrogen. The squash, on the other hand, covers the soil, helping to prevent erosion and conserve moisture. This permacultural system is not only ecologically efficient, but is also reflected on the plate, where the corn provides the carbohydrates, the squash the vitamins and the beans the protein needed for a nutritious diet.

Maize is particularly significant as a unifier of territory and culture. Grown from Canada to Chile, maize is much more than a staple food; it is a sacred seed that connects communities across the continent. Over thousands of years, maize has been adapted to different climates, soils and altitudes without the need to modify territory, reflecting the ancient wisdom of indigenous cultures to work with nature and ensure crop resilience.

On the other hand, **quinoa**, native to the Andes, also represents a deep connection between indigenous communities and the land. Grown from the high Andes to the coast, from Ecuador to Chiloe, quinoa is another example of adaptation and sustainability. Like maize, quinoa is much more than just an agricultural resource. Its cultivation is linked to cultural, nutritional and cleaning practices.

Biopesticide
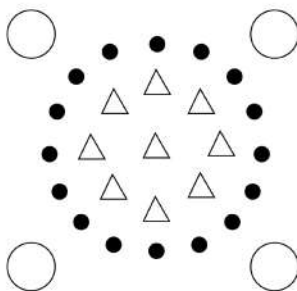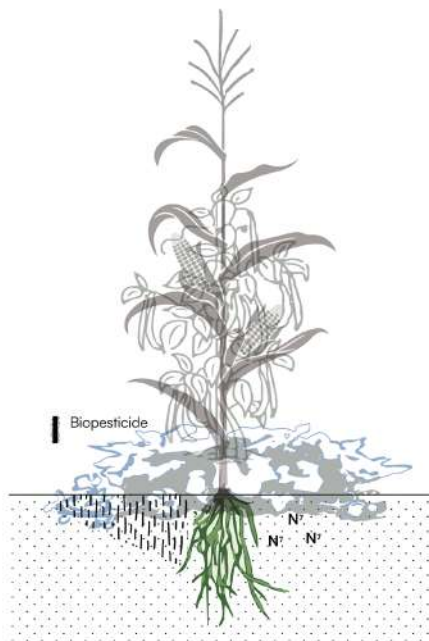
Squash - Fiber & Vitamins

Corn - Carbs & aminoacids

Bean - Protein

The seeds represent a meeting point between indigenous cultures and Western logic, being a clear example of interculturality. While in the western mercantile vision, seeds have been transformed into economic products controlled by large companies, in indigenous communities, such as the Mapuche, they are considered vital elements for ecological and spiritual balance. **Western mercantile logic has transformed seeds into an economic product, focused on commercialisation and control**, which generates a dependence on genetically modified seeds adapted to industrialised agriculture. In contrast, **traditional Mapuche agricultural practices promote the conservation of native seeds**, preserving biodiversity and contributing to the sustainability of ecosystems. For the Mapuche, seeds are much more than a material resource; they are part of an interconnected cycle that includes the land, respect for nature and the transmission of ancestral knowledge from generation to generation, ensuring local adaptation and cultural continuity.

In both cases, maize and quinoa, it is the seed that adapts, not the territory. This approach, which respects the particularities of the local ecosystem and the relationships between species, highlights the indigenous communities' deep understanding of biodiversity and sustainability.

Livestock rotation

Livestock rotation in the Andean system is a vital practice for maintaining soil health and ecological balance. **Chilihueque** is a pasture management system in which animals are allowed to graze indifferent areas at different times of the year, avoiding overexploitation of natural resources. This system also has a symbolic and ritual component, as it is related to the seasons and cosmic cycles (Castro Rojas, 2012).

Kanchas are enclosed spaces where animals are raised and various crops are grown, usually for domestic use. In the livestock rotation, kanchas function as grazing sites at certain times of the year, while at other times they are left to rest in order to avoid overgrazing. This cycle also reflects the interaction between livestock, agriculture and the natural environment, managing resources sustainably.

The diagram is labeled with "0 yrs" at the top, "5 yrs" on the right, "10 yrs" at the bottom, and "15 yrs" on the left.
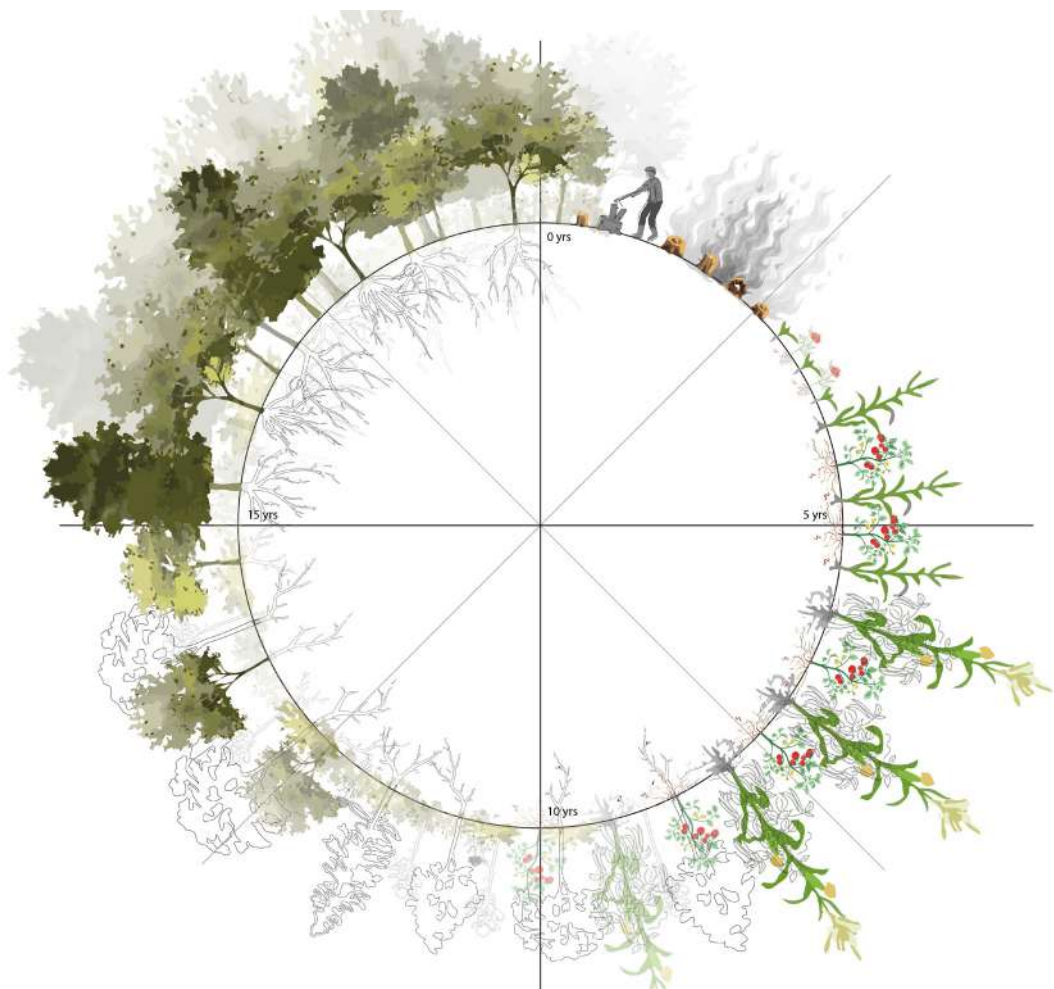
According to Jerónimo de Vivar (1558), the Mapuche were skilful farmers who took advantage of forest clearings and land near watercourses, such as mallines and vegas (de Vivar and Sez-Godoy, 1979).

Non-irrigated farms / Logging and slashing

The historical philosophy of the Mapuche people is based on a balance with nature, to which humans must adapt, and not vice versa (Almonacid, 2024; Millacura, 2025). In this worldview, agriculture was considered a form of artificial reproduction that violated mother earth. Instead of intensive systems, it relied on the "profusion of nature": seeds were scattered during the walks, some germinated, others were eaten by animals, and others simply died. If they thrived, they were harvested; if not, it was also part of the natural cycle (Almonacid, 2025; Millacura, 2025).

The chacras, dependent on seasonal rainfall, were established in forested areas using the slash-and-burn technique, which consisted of cutting down trees and burning their residues to fertilise the soil. This method made it possible to grow maize, potatoes and wheat, while renewing the soil with nutrients from the ashes. However, it required careful management so as not to degrade the ecosystem. The practice was closely related to respect for natural cycles and sacred trees such as the *koyam*, which represented a connection to the spiritual world (Ñanculef, 2004).

Currently, this ancestral wisdom faces threats from the Chilean forestry model, which has replaced native forest with pine and eucalyptus monocultures, affecting biodiversity, water and Mapuche cultural transmission (Mapuche.nl, 2021).
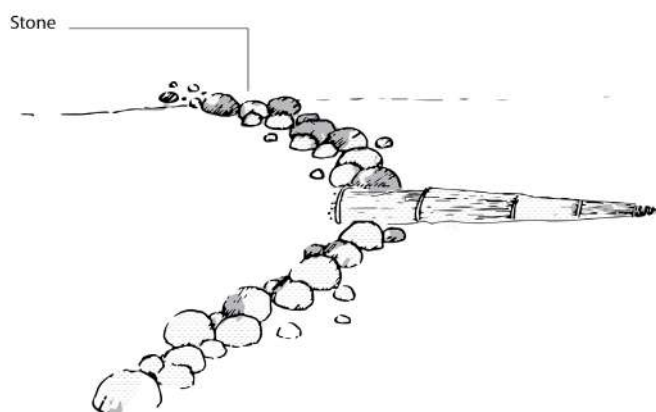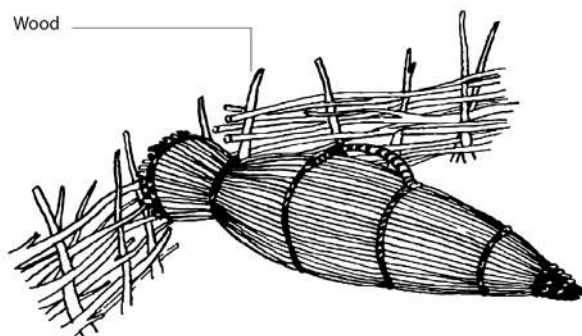
Source of image: redrawn from Álvarez et al., (2013).

Llolle

The llolle is an ancient artisanal fishing technique used in southern Chile, especially in coastal and river areas, which reflects a deep knowledge of the environment. It consisted of corrals built with overlapping stones or intertwined sticks, depending on the type of beach: stone corrals were located on open beaches, while sticks were more common on protected muddy beaches. In addition, pots or elongated "baskets" placed in rivers with a good current were used, allowing fish to be caught passively (Villagrán & Videla, 2018).

These structures, especially those made of vegetable fibres, have almost completely disappeared due to their perishable materiality, while the stone corrals are still visible in the landscape, preserving part of the local memory. The use of these fishing gears began to decline in the mid-20th century, although their memory persists in regions such as La Araucanía, Los Ríos and Los Lagos.

Beyond its food function, fishing has played a central role in the construction of local identities and in the symbolic relationship with water, as reflected in the Mapuche myth of the filoko, the water snake, which gives meaning to the movement of fish and the direction of rivers (Lévi-Strauss, 1968, cited in Villagrán & Videla, 2018).

Chusquea Quila - forest management

Chusquea quila, commonly known as "quila", is a key species in the temperate forest ecosystem of southern Chile, both for its ecological value and its traditional use. Its role in forest management is based on its ability to enrich soils, increase humidity and protect watercourses in ravine areas, thus facilitating the natural regeneration of the forest after its cyclical death (Romero, cited in Cangas & González, 2006). When the quila flowers and dies, large areas are released that allow the colonisation of new trees, generating clearings that are essential for forest dynamics (Romero, 2024).

However, human intervention - such as land-use change and the expansion of invasive alien species - has altered this natural process. Therefore, it is proposed to actively plan for the presence of quila, using it to restore ecosystems, combat invasive species and preserve ecosystem services (Romero, 2024).

Historically, quila has also had significant cultural and utilitarian value for indigenous and rural communities. Its stems were used for spears, roofs and utensils; its leaves and shoots as fodder, and its seeds as food (Cangas & González, 2006; Münnich, 1908). Already in the 19th century, Pissis (1875) described the quila as a "guardian of the forest", highlighting its protective function against wind and fauna.
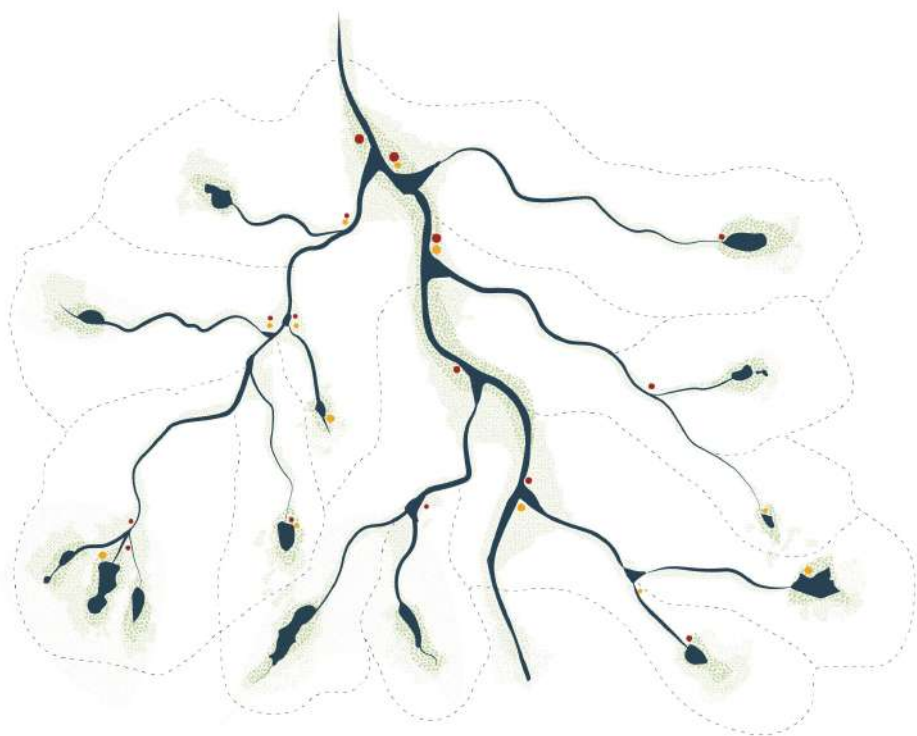
Seaweed harvesting:

In Los Arrayanes, Chile, the lafkenches -mapuches of the sea- keep alive the ancestral tradition of gathering seaweed such as cochayuyo, luche and lualua. They go into the cold waters of the Pacific, braving waves and tides, to manually pluck these seaweeds from the rocks. The cochayuyo, especially valuable for its high iodine content, is dried in the sun and packaged for sale locally or for export to Asia, where it is used in cosmetics and food. Since 2015, an elevator has been facilitating transport from the shore to the cliff, alleviating the arduous physical labour of this sustainable, community- based practice.

Navigators

According to Nicolás Lira, the territory between the Andes Mountains and the Pacific Ocean has a geomorphology dominated by large basins that form a system of discontinuous, interconnected bodies of water, which were fundamental means of communication and mobility in pre-Hispanic times.

These rivers and lakes - more extensive and navigable in the past, before changes in climate and land use - supported an intense and diverse riverside society, as Bengoa recounts (albeit with little academic precision), in which "more than a million people lived along the riverbanks of the Araucanía", practising agriculture, fishing, crafts and river trade. Mapuche navigation, especially in sectors such as Ranco and Puren, was carried out in huampos and dalcas canoes, the latter of which could be dismantled to cross complex areas, and was exclusive to lake or river communities, associated with specific beliefs, such as the rituals prior to setting sail or the legend of the enchanted pellín canoe. Unlike other native peoples of the Atlantic coast, the Mapuche did develop coastal navigation, although always with the coast in sight. This technological and symbolic diversity breaks with the homogenous vision that has been held of the Mapuche and reveals a complex cultural network deeply linked to water.
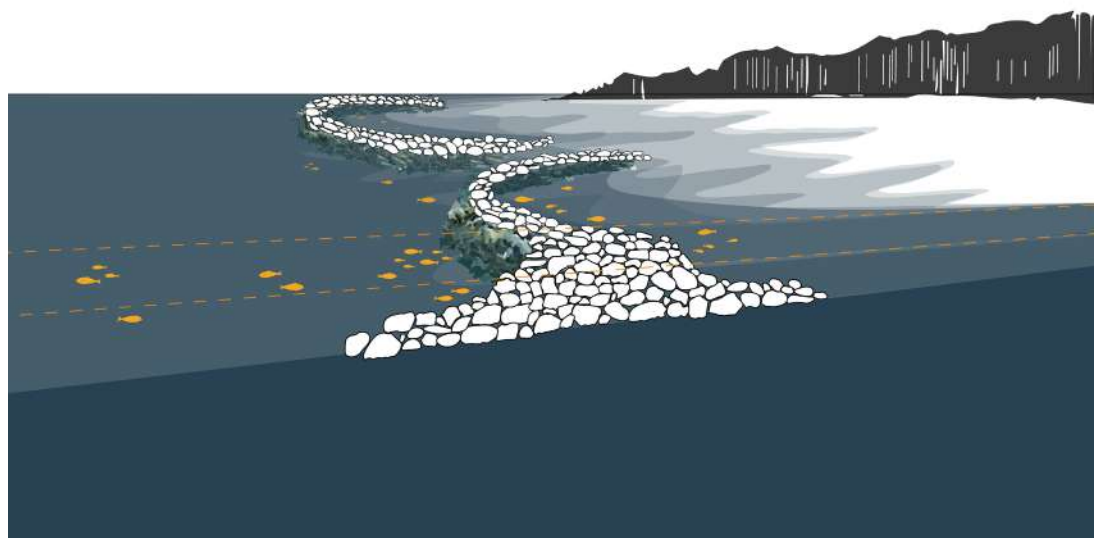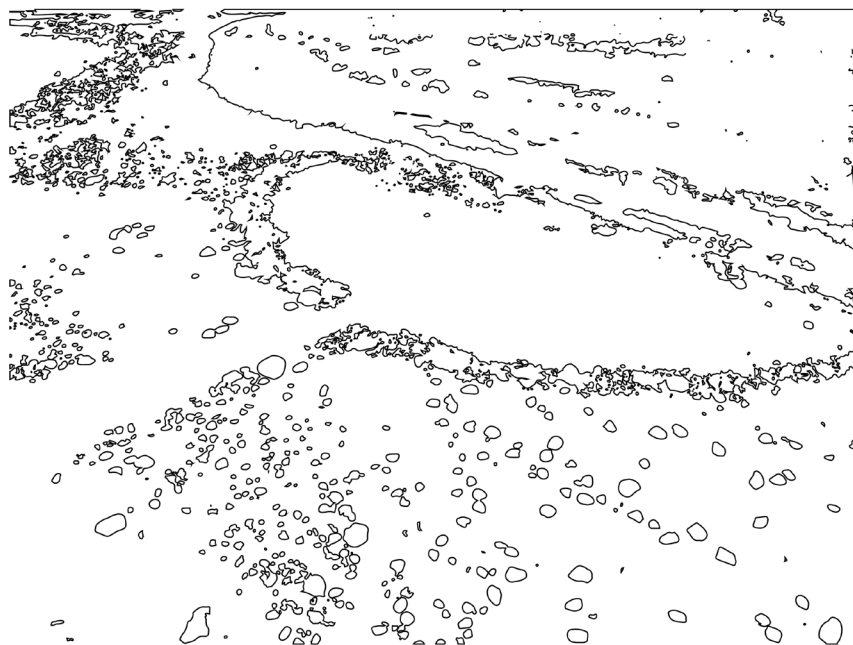
Fishing Pens

Fishing corrals are structures of indigenous and mestizo origin that are widespread in southern Chile - especially in Chiloé and the Patagonian channels - and which historically functioned as intertidal traps built with stones, rods or nets. Their operation depended on the tides: they were submerged at high tide and trapped fish when the water receded. According to the National Monuments Council, the complex of 18 stone corrals declared a Historic Monument in 2005, located between Punta Concura and Alto Lamecura on the island of Chiloé, reflects a long-lasting coastal occupation, linked both to the Williche cosmovision and to a communal ordering of the marine space.

Although in the past they sustained the diet of many families, the traditional use of these structures has diminished due to the overexploitation and industrialisation of the sea. However, they persist as spaces of cultural and ecological value: today they are reused to accumulate red algae such as *Sarcopeltis skottsbergii* or as mini-lagoons ("cholchenes") that preserve shellfish for consumption or smoking. Thus, fishing corrals are not only evidence of traditional ecological knowledge adapted to low-energy environments, but also current testimonies of sustainable and community-based practices that connect past and present in the coastal landscapes of Patagonia (Sepúlveda-Barrientos 2017).

TRAVAXA HAILLI CHACRAIAPVIC

TRAVAXO ZARA TARPV MITAN

TRAVAXA CHACRA MĀTA PISCO

TRAVAXO ZARAP TV TA CAVAIMI

TRAVAXOS ZARAMĀTAORITO TACAR

TRAVAXO ZARAPVCOI ZV VAMĀTA

TRAVAXA ZARACARPAIIACOMVC

TRAVAXO PAPAOCA TARPVIPACHA

TRAVAXA ZARAPAPAHALLMAIMI

TRAVAXO ZARACALLCHALARCVIPA

TRAVAXOS PAPAALLAIMITAPA

TRAVAXA ZARAPAPAADAICVIAIMO

2.2. Rituals as knowledge technologies

In the Andean and Mapuche world, rituals are not simply symbolic practices, but technologies of knowledge that articulate the sacred, the economic, the political and the ecological. For example, the reading of coca leaves and the contemporary cult of the "ñatitas" illustrate a ritual epistemology in which money and vision are intrinsically linked to the forces of the earth. In the festivity of the ñatitas, celebrated in the General Cemetery of La Paz, coins are placed in the eye sockets of human skulls, thus integrating monetary value with its mineral origin and ancestral dimension (Rivera Cusicanqui, 2018). Likewise, in the coca reading, the coin is transformed into a ritual "eye" that connects the present with ancestral memory. This symbolism is also reflected in the sacred use of seeds such as quinoa and corn. Chicha, a drink made from fermented corn, was used in religious ceremonies, but also in diplomatic negotiations, as a mechanism for integration into Tawantinsuyu (Reyna, 2010; Garcilaso de la Vega, [1617] 1976).

Trees, like the Mapuche Rewe, operate as cosmic axes, connecting the natural world with the supernatural and organising ceremonial space (Ñanculef, 2004b). Similarly, Andean stones and huacas are divine entities with their own mytho-histories, whose centralisation in Cuzco was part of the Inca strategy to integrate displaced territories. Offerings, sacrifices and agricultural celebrations - such as the cleaning of irrigation ditches or the minga - record temporal knowledge about natural cycles and express sacred pacts of reciprocity. Thus, rituals materialise and reproduce knowledge systems deeply rooted in land, time and community relations (Saavedra and Salas, 2019)

Images from: Poma De Ayala, Felipe Guaman (1615) "First New Chronicle And Good Government", available at The Royal Library Of Denmark: Site Consulted In February 2025.

The calendar represents the agricultural tasks that Andean people performed during the different months of the
• For each month, the name of the crop is written on the second line of text: corn (zara) or potato. The name is followed by text referring to the tasks for each month.
• the calendar starts in August with the celebration of Pachamama, a fundamental ceremony in Andean communities to thank Mother Earth for the gifts received (rain, air, food), led by the chief or curaca.
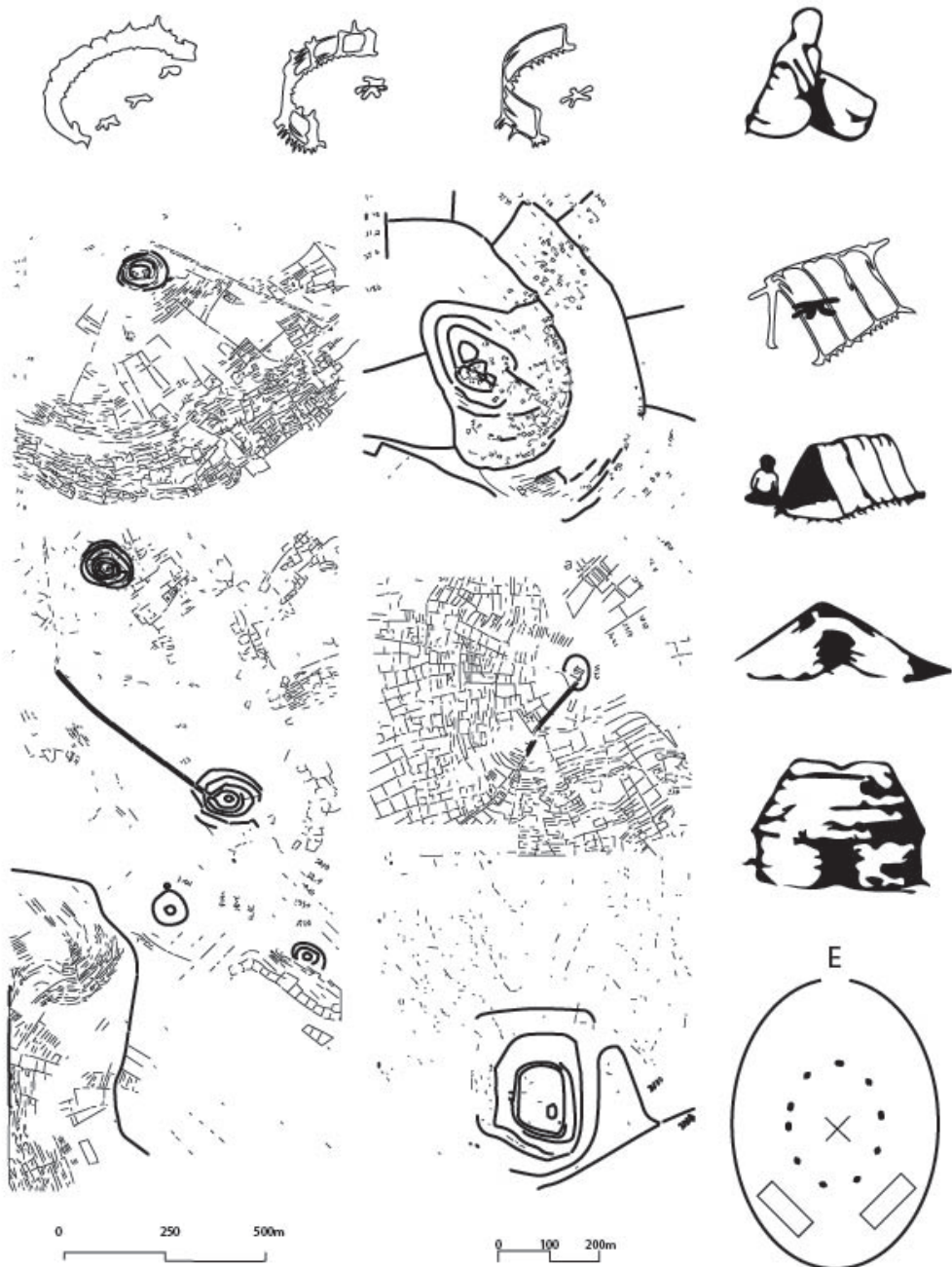
2.3. Circle

Circular architecture in Mapuche and Pehuenche communities represents a way of life deeply rooted in nature and spirituality. The **ruca**, a traditional dwelling built with impermeable materials such as straw and wood, adapts to the environment through its orientation and circular design, which allows smoke to escape from the central fire, which is always kept burning as a symbol of life, purification and protection. This architectural form responds not only to climatic conditions - wind resistance, thermal and structural efficiency - but also to a symbolic principle: the circle represents unity, the continuity of the cycle of life and the connection between human beings, the earth and the cosmos.

Alongside the ruca, spaces such as the **eltuwe** (burial site), the **paliwe** (ritual play space) and the **kultrun** (Mapuche sacred drum, also hemispherical in shape) reinforce this circular logic, integrating territory, spirituality and social organisation. Author Robin Wall Kimmerer (2020) observes that many indigenous architectures tend to be small and round, following natural patterns such as nests or burrows, where "there are no corners". These forms are not only efficient in material terms, but also express a philosophy of life under "the teachings of the circle", where everything is connected. Thus, Mapuche circular architecture is not only functional, but deeply **cosmovisional**, expressing a collective way of being in the world.

Chapter 4 .
Dynamics

3.1. Mobility, exchange and sacred roads: territories in transit

*Indigenous territory is not static: it is constructed and cohesive through **movement**, whether ritual, economic or migratory. Pastoral or ceremonial **nomadism** has been a historical strategy of ecological adaptation and spiritual connection.*

3.1.1. Mobility as a territorial ethos

Indigenous occupation of territory has historically been anything but static. Over more than 12,000 years, many indigenous communities have developed a profoundly dynamic and adaptive relationship with the landscape. Rather than settling in a fixed manner, they have cultivated an *ethos* of mobility as a fundamental adaptive strategy in the face of climatic changes, resource availability - especially water - and geographical and social fluctuations.

During the period between 12,000 and 5,500 BC, the variability of the El Niño phenomenon generated profound climatic transformations, especially in arid coastal areas. At times of weakened El Niño, water tables dropped, drastically reducing water availability and causing communities to cluster around scarce water sources. With the return of the El Niño phenomenon and the recharge of the water table around 5,500 years BP, populations resumed territorial dispersal patterns. These processes have been documented through isotopic analysis, palaeoclimatic records and dating that allow us to accurately reconstruct the hydrological cycles and their effects on the occupation of the territory (Sanfuentes, 2025).

Far from a sedentary vision, mobility was key not only for daily survival, but also as a resilience mechanism in

0 50 100 km

the face of catastrophic events, such as the mega-earthquake and tsunami that occurred 3,800 years ago. Communities not only moved, but did so in dialogue with territorial memory, expressed in rituals, myths such as Kai Kai and Tren Tren, and spatial decisions such as the relocation of cemeteries. This collective memory functioned as a risk management system, allowing us to learn from the past in order to act in the present.

However, this knowledge has been seriously eroded by the processes of colonisation, forced migration and the expansion of capitalist logics that fragment the territory and disconnect communities from their historical references. Today, in the face of a public policy that tends to be based on historical records of barely two centuries, it is urgent to integrate broader time scales and recognise ancestral knowledge as a valid and vital source for sustainable territorial planning.

In this framework, resiliency should not be understood solely as a technical capacity anchored in material infrastructures, but as a cultural, symbolic and ecological system that allows the territory to be inhabited harmoniously and consciously. Mobility, far from representing precariousness or instability, is thus configured as an organising principle of the territory and as a sophisticated way of reading and responding to the cycles of nature.

3.1.2. Exchange - Ecological Floors:

The articulation of territory in the Andes cannot be understood outside its profound symbolic, productive and ritual dimension. Two fundamental devices allow us to understand this complexity: on the one hand, the model of "vertical control of a maximum of ecological floors" proposed by Murra (1975), which illustrates
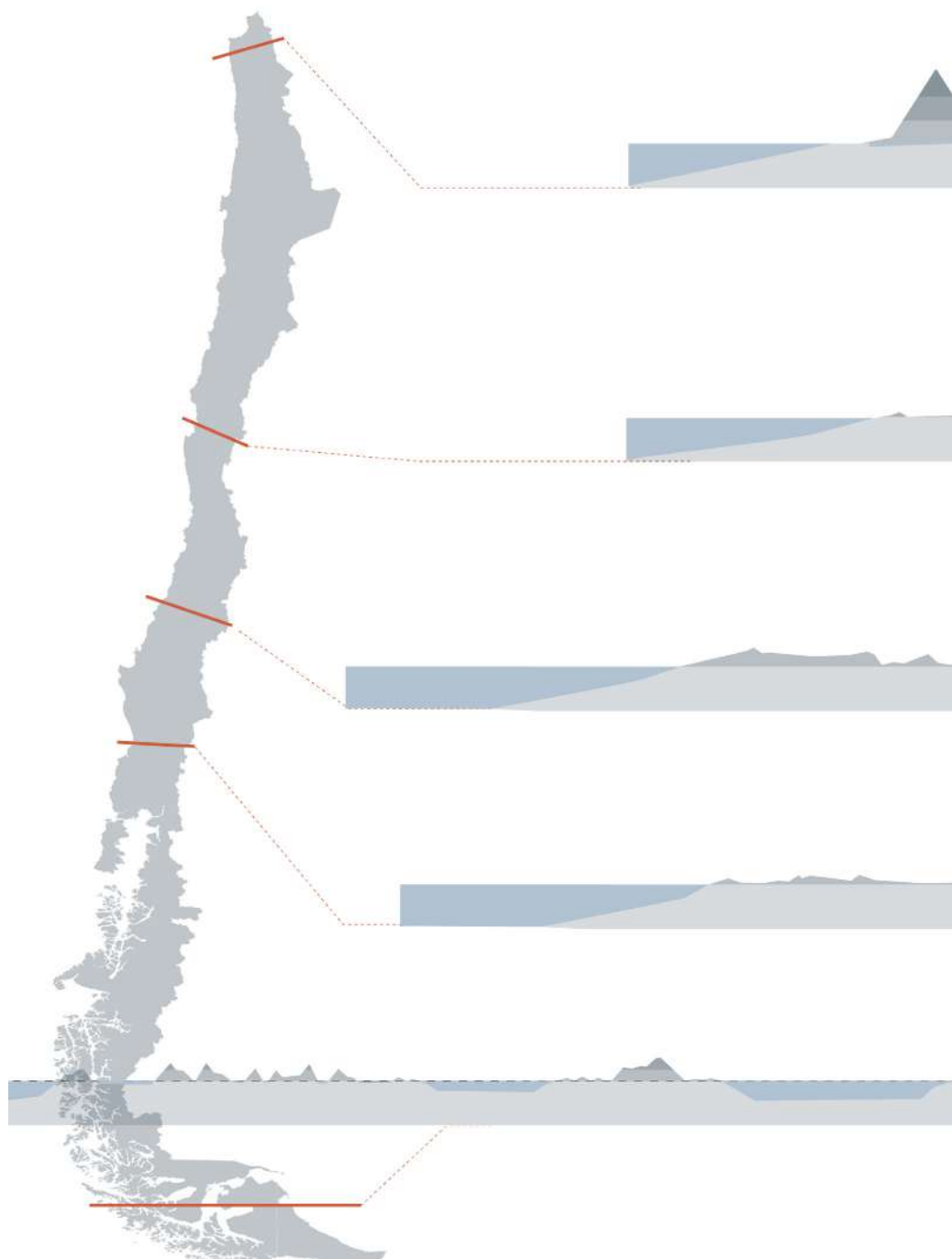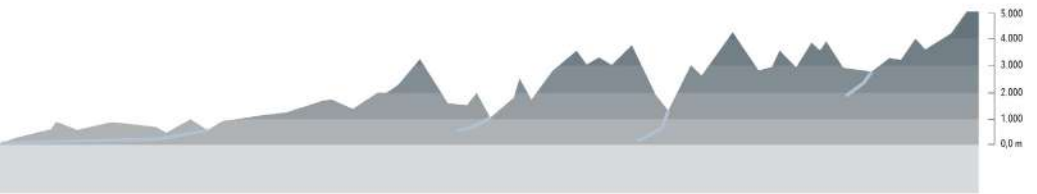
the logic of decentralised and spetialised occupation and production in complex geographies: As seasons transition and circumstances fluctuate, intermittent bridges and corridors form, uniting ecologies that would otherwise remain apart; on the other, the road network of the Qhapaq Ñan, an infrastructure that not only allowed the circulation of goods and people, but also organised mobility as an energetic, ritual and political system.

From efficient resource utilisation to environmental conservation, this exchange between ecological floors presents a holistic solution that aligns human needs with the natural environment. These considerations underscore the multifaceted benefits of a vertical archipelago concept:
- Resource efficiency: utilising resources available at different altitudes optimises their usage, minimising the need for long-distance transportation.
- Climate adaptation: by establishing habitats at varying altitudes, we can explore how building design and construction change with climate.
- Biodiversity preservation: a vertical archipelago can protect unique flora and fauna by creating conservation zones at different altitudes

Contrary to the modern notion of the market as a space of neutral economic transaction, exchange processes in the Andes and pre-colonial Mesoamerica implied an ethic of reciprocity that constantly reconfigured social and territorial relations. Exchange processes were forged in a web of meanings and values that went far beyond the mere material transaction. As in Europe, Asia, Africa or Polynesia, forms of exchange emerged in the Andean context that involved the discovery and appreciation of the languages, customs and values of other peoples. Within this framework, the model of vertical control formulated by Murra (1975) shows how Andean communities established productive enclaves on different ecological levels - from the Amazonian

lowlands to the high Andean punas - to guarantee access to a diversity of resources without depending on external intermediaries. This articulation was based on principles of reciprocity, redistribution and ritual kinship, rather than a mercantile logic.

However, these practices were sustained by a play of meanings in which the material was not always at the centre. The very notion of "work" in the Andean world lacked the abstraction imposed by colonial thought. As Cusicanqui (2018, pp. 44-50) points out, in the pre-colonial Aymara world there was no generic word for 'work'; instead, each activity had its own denomination - such as *imaqaña* for manual labour - which evidences a situated and concrete relationship with production. The act of producing was not conceived as exploitation of human time for accumulation, but as an expression of the link between body, territory and cosmic cycles.

From the "Natural" Economy to the Modern Market

This terminological and conceptual diversity has led to questioning the idea that Andean societies lived in a "natural economy" without exchange. The view that the market would have burst into isolated communities is unfounded, since the market, understood as a system of equivalences standardised by capital, was only consolidated as a hegemonic form a couple of centuries ago. In the peripheries of the world system, exchanges developed in a discontinuous manner, marked by cycles of articulation and fragmentation, refuting the idea of a linear evolution towards accumulation and "progress". (Cusicanqui, 2018, pp. 44-50).

Reciprocity, Redistribution and Social Networks

In the Andean core, barter - the direct exchange of objects or services - evolved in the centuries prior to
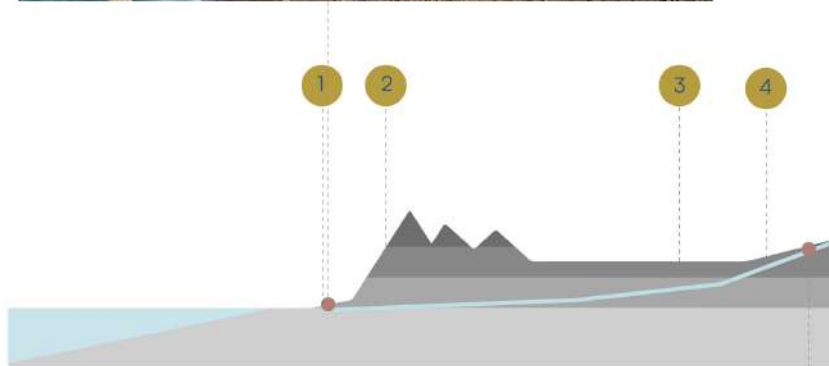
Quebrada Camarones

1 2 3 4

Cactus Cardon in Penivinto

1.- Changos - sea lion raft
            - Coastal sprawling villages

2.- Atrapanieblas / mistcather

3.- Inca - Chapac Ñam

4.- Inca - Tambo

5.- Aymara - Agricultural cycles

6.- Aymara - Camellones o Waru-Waru
            - associations of plants (Three Sisters)

7.- Aymara - Chullpas/Pukaras
            - Qochas (Andean cisterns)
              and underground canals

8.- Aymara - Livestock rotation
            - Kanchas (stone fences)
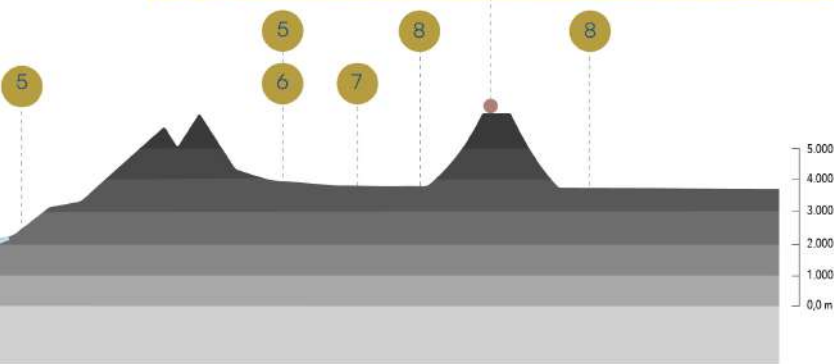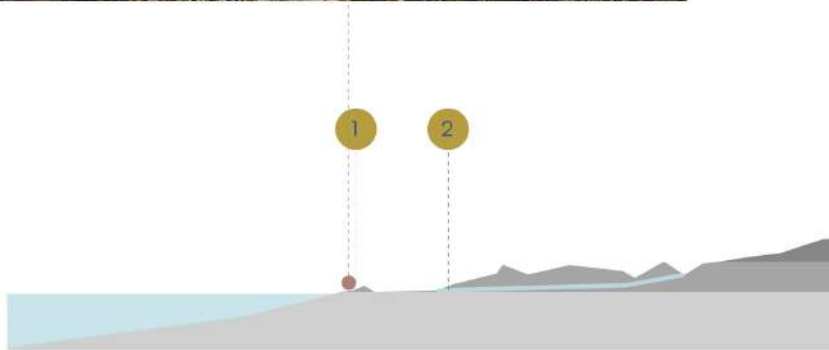
1.- Changos - sea lion raft
  - Coastal sprawling villages

2.- Atrapanieblas / mistcather

3.- Inca - Chapac Ñam

4.- Inca - Tambo

5.- Diaguita - Terraces
  - associations of plants (Three Sisters)
  - Andean cisterns and canals

6.- Diaguita - Agricultural cycles

7.- Diaguita - Livestock rotation
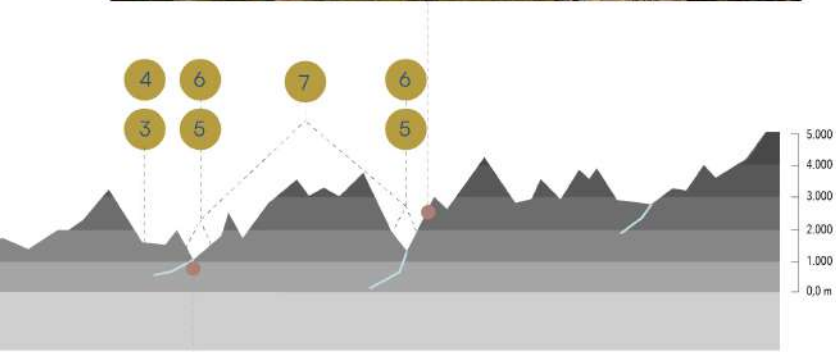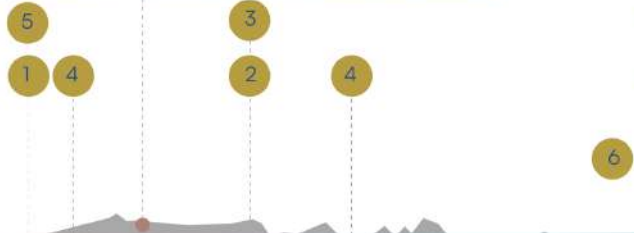
1.- Coastal Salt Flats

2.- Mapuches - Shifting/mixed/intercropping
- Canchones o Chacras sin riego /
System of fields without irrigation
- Rotation of land: hunting/forestry
(forest islands)/ agriculture

3.- Mapuches - Tala y Roza / Felling and Slashing
- Agricultural Cycle

4.- Mapuches - Huertas femeninas / Female
gardens (medicine)

5.- Mapuche - LLolle

6.- Mapuche - Paliwe/Eltuwe

7.- Mapuche - Livestock Rotation

8.- Mapuche - Chusquea Quila (sustainable
forest management)
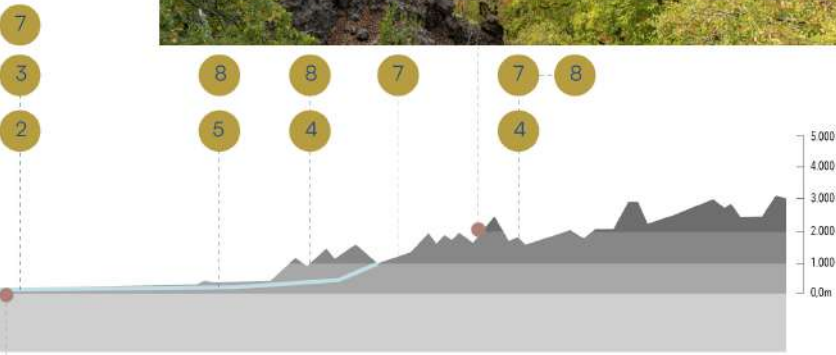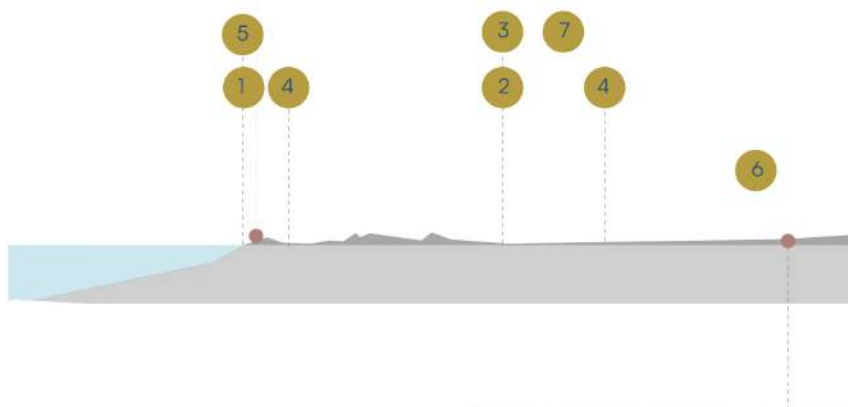
1.- Seaweed collection

2.- Mapuches - Shifting/mixed/intercropping
    - Canchones o Chacras sin riego /
      System of fields without irrigation
    - Rotation of land: hunting/forestry
      (forest islands)/ agriculture

3.- Mapuches - Tala y Roza / Felling and Slashing
    - Agricultural Cycle

4.- Mapuches - Huertas femeninas / Female
    gardens (medicine)

5.- Mapuche - LLolle

6.- Mapuche - Paliwe/Eltuwe

7.- Mapuche - Livestock Rotation

8.- Mapuche - Chusquea Quila (sustainable
    forest management)

the consolidation of the Inca state into broader forms of reciprocity and redistribution. This process was based on gestures of generosity and cultural seduction, which created long-lasting networks of kinship, neighbourhood, ritual and labour communities, extending across different ecological levels. Thus, the "islands" of this complex productive "archipelago" were integrated through mit'aso systems, laying the material foundations for the formation of the first state forms in the Tawantinsuyan era.

Transformations in the Pre-Inca Period

During the pre-Inca period - especially in the Aymara lordships of the Late Intermediate Period - a decisive cultural process can be observed: ancient modes of exchange were transformed into systems of reciprocity and redistribution based on outward gift-giving. Large shipments of products from different ecosystems, stored in warehouses known as pinvas and qullqas, were redistributed through gestures of generosity that made possible the agreed incorporation of different ethnic groups. This mechanism even made it possible to establish stable relations with unconquered peoples in the Antisuyu region, extending into the jungles and plains of the Amazon and the Chaco.

Economy of Offerings and the Symbolic Value of Labour

Parallel to exchanges aimed at material reproduction, there was an economy of offerings to sacred entities . Goods that were the product of painstaking human labour, such as textiles, were given in ceremonies at sacred sites (wak'as) - places considered to be voracious and hungry. These 'devourings' of goods, performed at specific times in the annual cycle, could both conjure catastrophes and attract rain and abundance. Among these offerings was the plumary textile product, whose art evidenced the vital importance of the Amazonian

lowlands for the cultures of the highlands and Pacific coasts, providing not only material but also symbolic inputs (Rivera, 2015b).

The history of work and exchange in the Andean world reveals a complex and dynamic network of social relations, where autonomy and self-sufficiency were based on shared cosmogonies and practices of reciprocity and redistribution. These forms of interaction allowed the coexistence and integration of diverse communities, languages and knowledge, constantly reordering territories and shaping a legacy that transcends the mere logic of the market.

Map labels, from north to south:

QUITO
Hatun Canar
Tomebamba (Cuenca)
Tumbes
Cajamarca
Chiquitoy Viejo
Huanuco Pampa
Jauja
LIMA
Pachacamac
Vilcashuaman
Incahuasi
CUSCO
Tambo Colorado
Hatun Colla
Chucuito
LA PAZ (Chuquiago)
Cochabamba
Tacna
Paria
Incallajta
Tarapaca
Pica
Tupiza
Catarpe
Tilcara
Salta
La Playa
Copiapo
Pucara de Aconquija
Chilecito
Ranchillos
Mendoza
SANTIAGO

Legend:

Area influencia Incaica
● Ciudad sobre Ocupacion Incaica
● Ocupacion Incaica
○ Ciudades actuales (post colonial)

60–300 cm

3.1.3. Qhapaq Ñan

The **Qhapaq** Ñan, or Inca Trail, was much more than a road infrastructure: it constituted a territorial, political, symbolic and ritual system that articulated the diverse ecosystems of Tawantinsuyu and connected human beings with the cosmos through movement, dance, offerings and recognition of the landscape. Far from being a mere circulation route, its layout was conceived from a cosmological and ecological logic, anchored in a relational conception of space. As Silvia Rivera Cusicanqui (2018) argues, in Quechua and Aymara the words *thaki* (road) and *takiy/takiña* (to sing or dance) are intertwined, revealing a performative duality where moving is not only moving, but also celebrating, connecting, transforming.

In this sense, the Qhapaq Ñan was not simply a communication route or a logistical route for the empire, but a **living infrastructure** that expressed deep links between body, territory and cosmos. During ritual pilgrimages, walking became an act of surrender and reciprocity with the elements. As Cusicanqui (2018, pp. 61-62) points out, offerings, songs and dances were performed along the route, establishing an energetic exchange that linked the walkers to the wak'as or sacred places, activating collective and territorial energy circuits. Thus, each stretch of the path could be read as a *knot* of meanings, a sort of *territorial kipu*, where memories, relationships and cosmologies were woven.

However, the **material and infrastructural importance** of the Qhapaq Ñan for the territorial articulation of the Inca empire cannot be overlooked. As García (2020) points out, this road network of more than 30,000 kilometres functioned as the backbone of Tawantinsuyu, crossing from Colombia to Chile
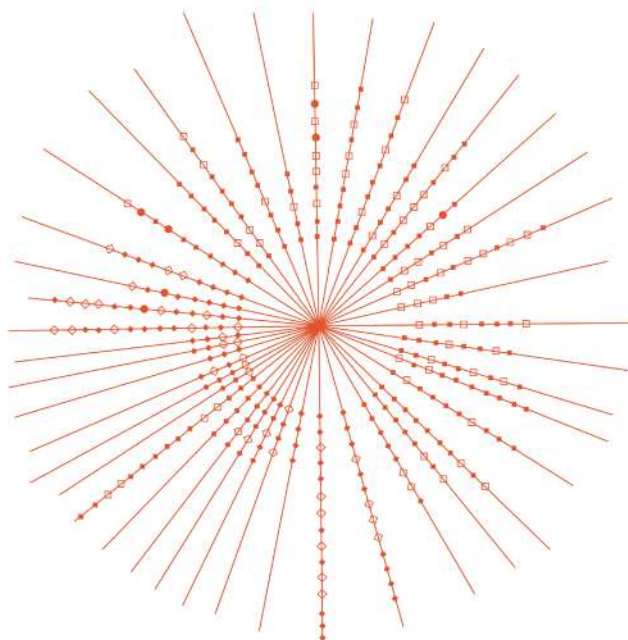
The ceques and huacas of the Cuzco ceque system, with indication
of the water sources and the huacas of the main canals
(Re-drawn from 'Drawing 1' from Sherbondy 1986-a, p. 72).

Huaca (Wak'a) ◆
Huaca and water point ◇
Huaca and main source for canals ●

and Argentina and consolidating itself as the system that made it possible to the Inca Empire to effectively 'occupy' the Andean space. The distinctive feature of this network was its profound **adaptation to the geography**, unlike today's highways that cut and fragment the landscape. The road did not impose itself on the territory; it read it, interpreted it and inscribed it with respect. In the words of García (2020), the Qhapaq Ñan was a "territorial structure that belongs to the landscape in which it is located", building a relationship of belonging with it and configuring a specific way of inhabiting and naming the world.

3.1.4. Ceque System

From this relational worldview emerges the structure of the *ceques* or *siq'z*, a system of imaginary lines that started from the Coricancha, the temple of the Sun in Cuzco, and extended towards the four suyos of Tahuantinsuyo. These lines articulated the territory as a living archive, a network of huacas and ceremonial points where the collective memory, the agricultural calendar and Inca cosmology were inscribed. As Cerrón-Palomino (2006) points out, the *ceques* were not simply spatial references, but channels of spiritual, social and political orientation. Each line was looked after by royal panacas or noble *ayllus*, and marked hierarchically the access to different huacas, in an order that started from the closest to the temple of the Sun to the most peripheral.

Tom Zuidema (1995), a pioneer in the ethnohistorical study of the *ceques*, interpreted this system as a model of spatio-temporal and politico-religious organisation, where each line recorded not only a geographical direction but also a ritual, calendrical and social function. Similarly, Brian Bauer (2000) sought to physically locate these huacas through excavations in the region of Cuzco, and to account for their

Ceque System

Inca Influence
"territory"

N

persistence in toponymy and local memory.

The astronomical function of the *ceques* system is central: many of these lines coincided with solar and lunar observation points, marking solstices, equinoxes and lunar phases. In this sense, the landscape was not simply inhabited, but contemplated, read, interpreted. But this was not an objective "measurement" of time as imposed by the European Gregorian calendar, but a situated contemplation: Andean calendars were observational and territorial, constructed from and with the environment. As Bustamante (2025) explains, Inca archaeoastronomy is the minimum basis for understanding any organisational dimension of the Tahuantinsuyo: without control of space and time, tributes could not be administered, sowings could not be coordinated and rituals could not be sustained.

In this framework, the environment was constructed from the visible and the invisible: hills such as El Plomo, Altos de Lipangue and Cerro Chiquillanes (Santiago and Socaire, Atacama, respectively) functioned as sacred references, visible from strategic points and associated with solar alignments.
The organisation of the territory responded, then, to rings of symbolic and cosmic proximity, where natural entities - volcanoes, stones, snakes, mythical animals - were not objects, but relatives. Links of reciprocity and care were established with them, typical of a relational ontology (Rivera Cusicanqui, 2010), where matter is always agency and relationship.

This way of understanding the world finds resonance in the theoretical proposals of Karen Barad (2007), who from quantum physics introduces the concept of "agential realism": reality is not composed of isolated entities, but of intractions - constitutive relationships where each part is transformed by encountering the other. This perspective allows us to understand how the

Ceque System in Socaire, San Pedro de Atacama

Socaire

San Pedro de
Atacama

E

East = knowledge
East = sun
East = new beginings

0   Km   40
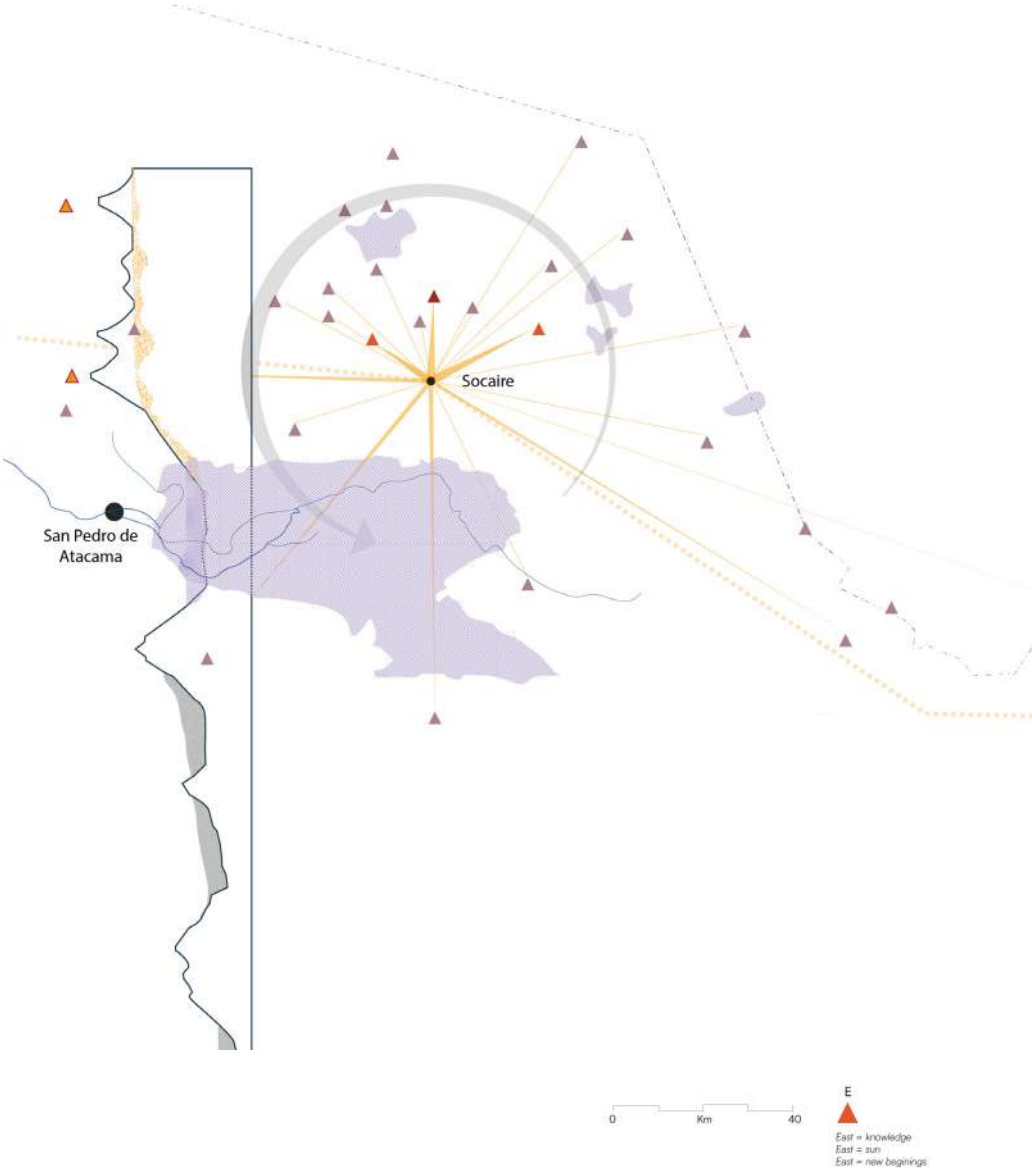
Ceque System in Cerro Huelen, Santiago

Santiago, Cerro
Huelen

E

East = knowledge
East = sun
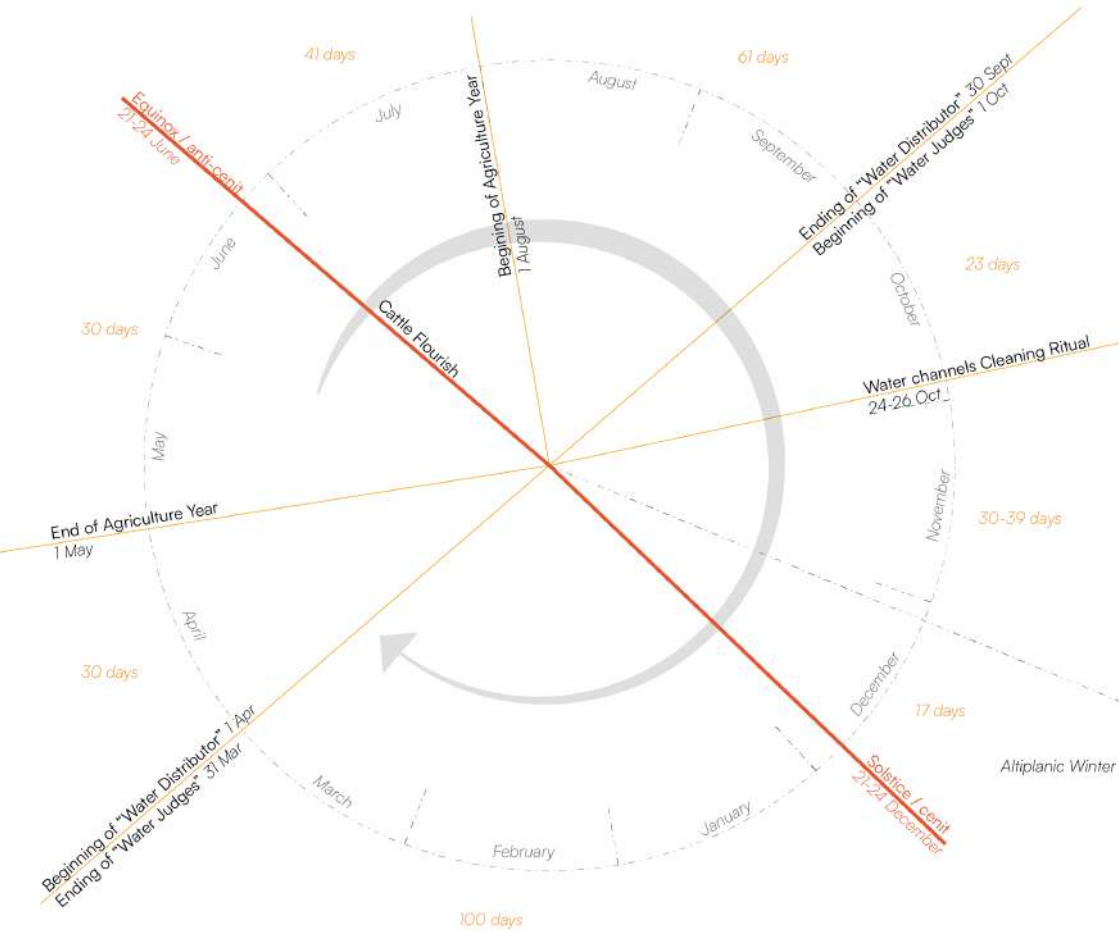East = new beginnings

0   Km   40
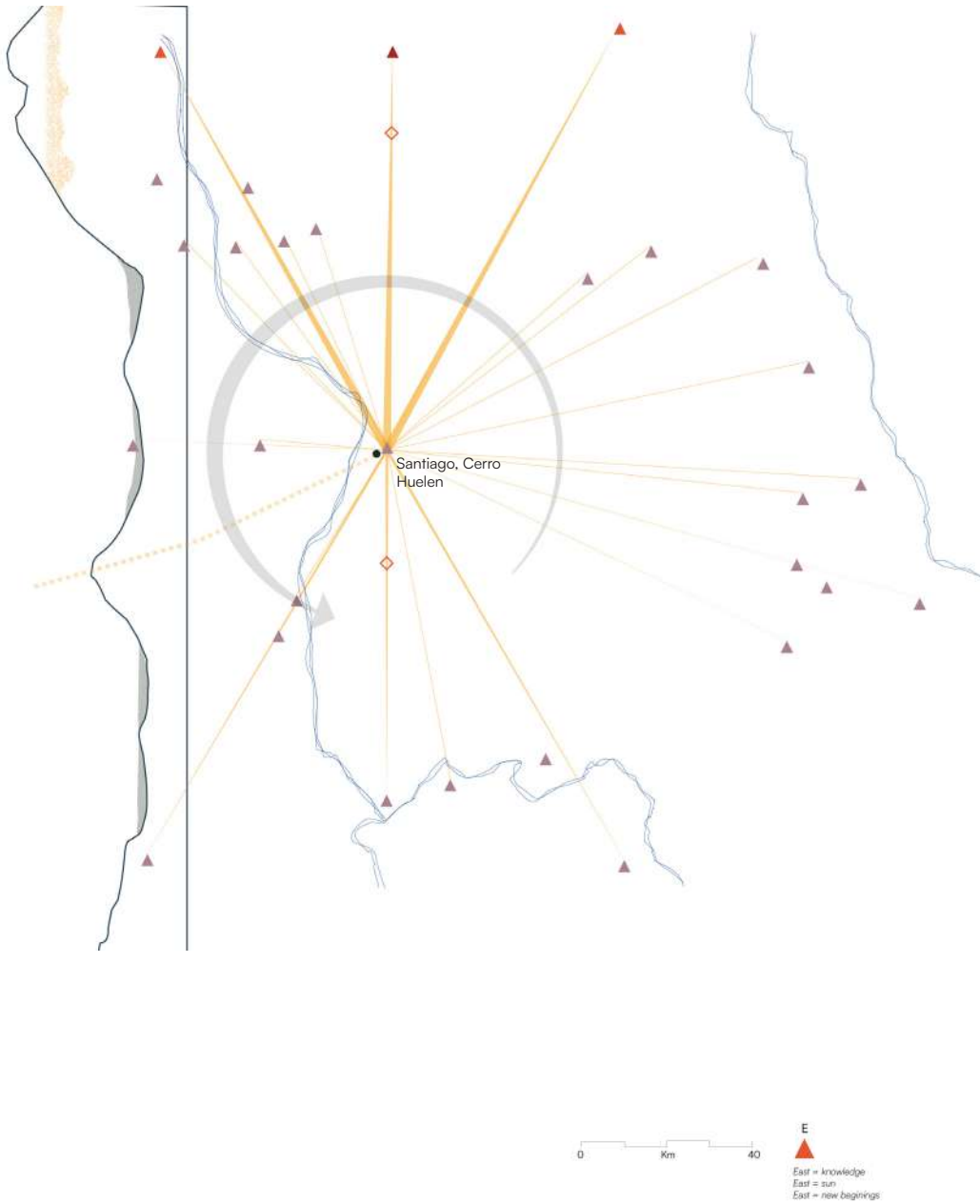
Two processes of decolonizing through maps

encounter between the Andean and the Spanish did not simply produce syncretisms or superimpositions, but new realities, new forms of time and space. This is what happened on the Huelén hill (today Santa Lucía), where the Incas carried out solar observations and capacocha rituals, and which was later Christianised with the construction of a hermitage in honour of Santa Lucía, patron saint of light. It is not a question of coincidences, but of *intractions*: it is not Christian, it is not Andean, it is something new.

Inca architecture also responds to this cosmopolitanism. The altar or *ushnu*, for example, is more than a ceremonial platform: it is a point of symbolic inscription and ritual return. From this perspective, the most basic theory of architecture takes on a new meaning: there is space, a point is defined, a rite is generated, a habit is created, and that habit produces place. The *ceque* is not just a line, it is a way of converting the territory into an archive of meaning, a living calendar that orients agricultural, political and spiritual life.

In this context, to speak of landscape is insufficient. Barbara Adam (1999) proposes the term *timescape* to refer to these temporal assemblages that structure modern experience and its effects, such as climate change. In the Andean world, we could speak of a *pachascape*: a configuration of relational time-space that is not represented, but lived. Hence the importance of studying history and archaeology from a diffractive methodology, as Barad proposes, which does not seek to compare or reflect, but to read one thing through another, in its constitutive differences.

The case of Santiago de Chile is particularly illustrative for understanding this overlapping of temporalities and ontologies. Recent archaeological research has revealed the existence of an Inca administrative centre in the Mapocho basin, where capacocha rituals were performed not in an empty space of transit, but in a

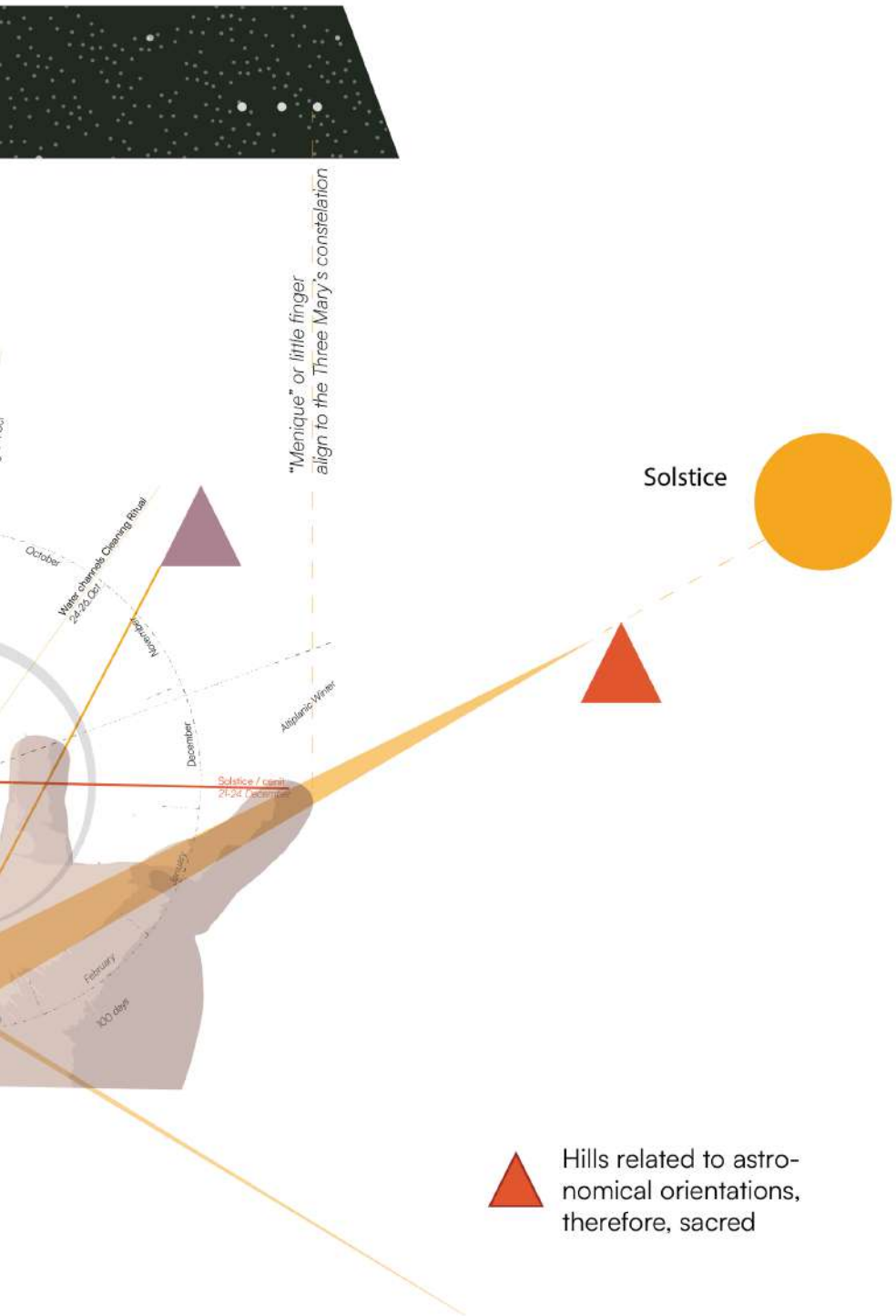Ceque System as a Calendar in Socaire, San Pedro de Atacama

41 days

August

July

61 days

Beginning of Agriculture Year
1 August

Ending of "Water Distributor" 30 Sept
Beginning of "Water Judges" 1 Oct

September

Equinox / anti-cenit
21-24 June

June

October

23 days

30 days

Cattle Flourish

May

Water channels Cleaning Ritual
24-26 Oct

End of Agriculture Year
1 May

November

30-39 days

April

December

17 days

30 days

March

January

Altiplanic Winter

Beginning of "Water Distributor" 1 Apr
Ending of "Water Judges" 31 Mar

Solstice / cenit
21-24 December

February

100 days

node of territorial articulation. This radically changes the reading of the site: it is no longer a point of passage, but a point of inscription. The Santa Lucía and Blanco hills - former huacas - were redefined as Christian sites, with new dedications, but in continuity with their original symbolic and geomantic function.

Such studies require a cross-sectional reading of sources, combining colonial chronicles, cabildo books, archaeological records and palaeoclimatic data. Only in this way is it possible to reconstruct how agricultural and ritual calendars were produced and how they were fundamental for survival. Maize production, for example, followed a precise twelve-month calendar, which in turn structured the Inca tax system.

When the Spaniards arrived, they had to appropriate not only maize and gold, but also the knowledge needed to produce them. As the records of the Cabildo of Santiago show, maize and gold were the currencies of exchange in the first decade of colonisation, and gold extraction, for example in Marga Marga, followed the rhythm of the rivers and the seasons. Without a calendar in place, there is no survival. For this reason, mastery of space was also mastery of time. The Incas understood this clearly: each *ceque*, each huaca, each altar, was a spatio-temporal inscription that articulated life, power and cosmos. What for Europeans was landscape, for the Andean peoples was *pacha*.

Equinox Sun

Ending of "Water Distributor" 30 Sept
Beginning of "Water Judges" 1 Oct

61 days

September

August

Beginning of Agriculture Year

July

Equinox / anti-point
21-24 June

Cattle Flourish

June

50 days

End of Agriculture Year
1 May

April

Beginning of "Water Distributor" 1 April
Ending of "Water Judges" 31 Mar

March

50 days

"Menique" or little finger
align to the Three Mary's constelation

Solstice

October

Water channels Cleaning Ritual
24-26 Oct

November

Altiplanic Winter

December

Solstice / cenit
21-24 December

February

100 days

e
of
d
n
s

Hills related to astro-
nomical orientations,
therefore, sacred

TIME

Present

SPACE

Landscape

116

3.2. Territorial Principles

The Landscape "does not exist".

In the indigenous world, the notion of "landscape" does not exist as a word or entity, nor as an aesthetic or contemplative category, as it is conceived in the European tradition. For these cultures, landscape is a moment of space in a given time, it changes. Concepts such as *MAPU* in the Mapuche world and *PACHA* in the Andes explain this interwinements of space and time. There is no word in Quechua or Mapudungun that designates the landscape as a totality separate from the self or the environment; however, there are terms that translate parts or elements of that environment, like Pachamama (mother earth) or Mapuche (people from 'earth'). This ontological and linguistic difference is not trivial: in the Andean universe, what we now call landscape was, rather, a living fabric of relationships, a web of material and symbolic agencies that were not observed from the outside, but inhabited from within. As Daniela Bustamante (2025) puts it, this is a profoundly relational conception of the world, where the basic unit is not the object or the subject, but the relationship itself. In this logic, space and time are not separate dimensions, but an indivisible unity: *pacha*, the living space-time.

The idea of landscape in Andean cosmopolitics is also strongly related to the *relational ontology* of the Andean world. Space and time are not separate entities, but are united in a pacha, a concept that encompasses both territory and time, integrating past, present and future into a single living reality. Western thought has historically suffered from a kind of epistemological schizophrenia: it fragments the world into isolated parts in an attempt to understand it, rather than addressing its totality (Almonacid, 2025). Philosophy and science were separated for centuries; however,

10-15 km

10-15 km

1-1,5 km

10-15 km

1-1,5 km

1-1,5 km

10 - 15 km

1-1,5 km

<3 km

<3 km

<3 km

<3 km

Clay

Cattle

Agriculture
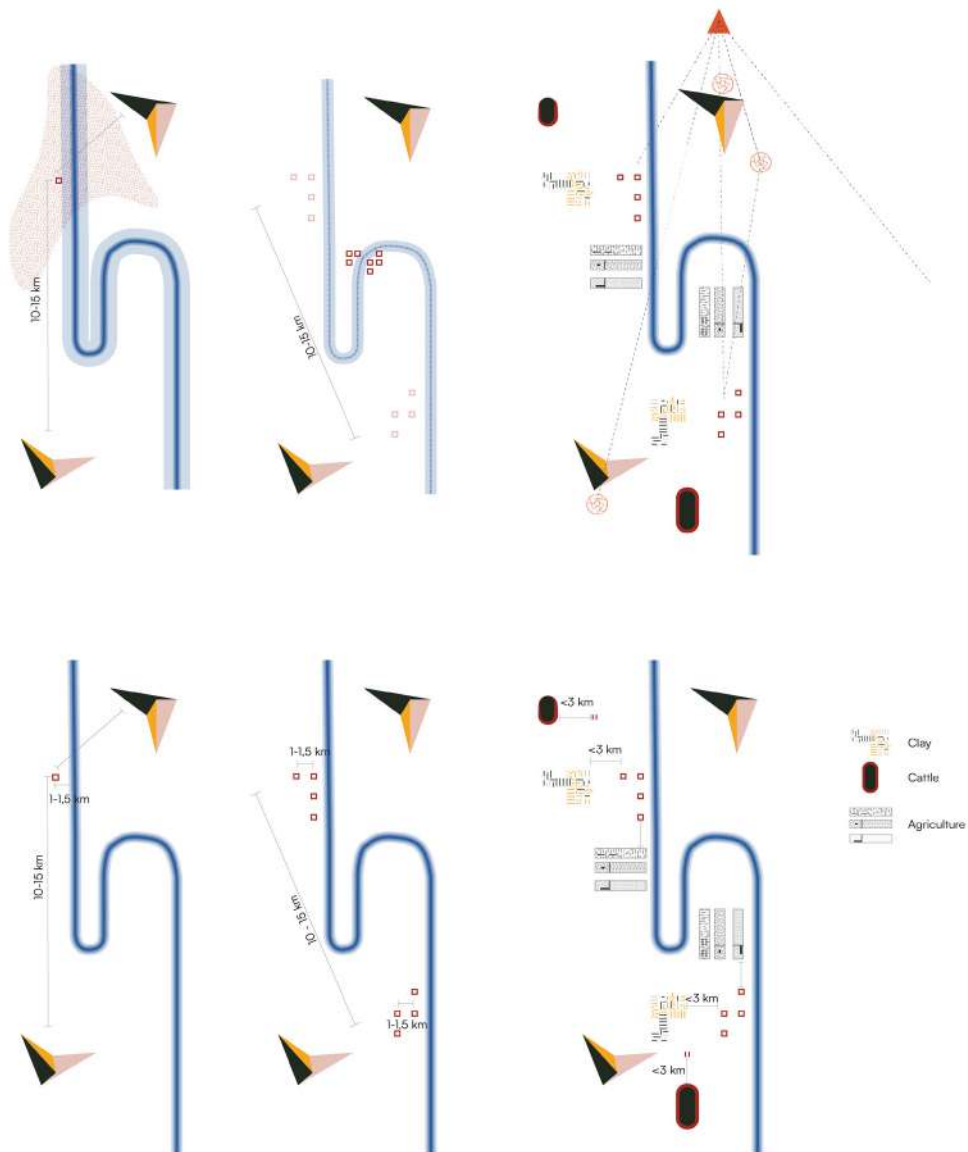
towards the east. Therefore, in addition to the houses, all Andean villages are organised around strategic points from which the territory is understood (the hills), associated with solar alignments.

"Good distances"

The principle of "good distances" is central to indigenous spatialities, especially in Andean and coastal territories, where good living is expressed in the harmonious relationship between spaces of life, death and subsistence. According to Lorena Sanfuentes (2025), the ideal distance between dwellings, rubbish dumps, cemeteries and extraction areas ranges between 1 and 1.5 kilometres, a pattern that has been documented from pottery cultures to the Incas. This territorial logic is not arbitrary, but the result of a profound knowledge of the geographical and climatic environment. While in the Norte Grande the villages were agglutinated and walled, on the coast mobile and dismountable settlements predominated, and in the south, rukas and ceremonial centres reflect a nomadic way of life. This organisation does not respond to a centralised urbanism, but to an ethic of mobility, reciprocity and care. As Milton Almonacid (2024) points out, for the Mapuche people, balance with nature is a guiding principle: even agriculture was seen as an artificial intervention. Instead, they spread seeds without forcing their growth, accepting their natural cycle as an expression of a respectful coexistence with nature.

Andean: Ayllu
Mapuche: Community
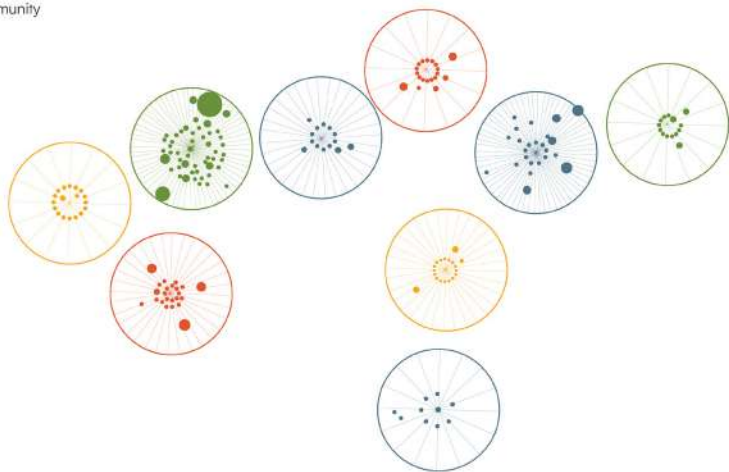
Women facilitating Collaboration
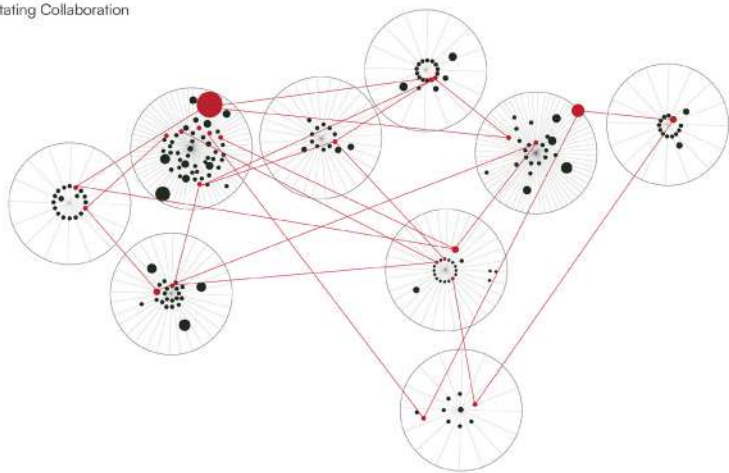
Andean Ayllu's configuration
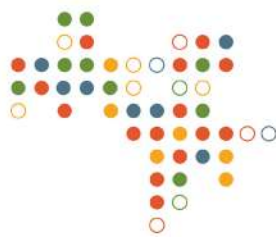
Mapu-che territorial configuration

Pehuen-che
E

Pikun-che
N

Willi-che
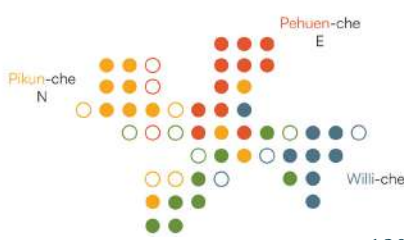
Non-hierarchical groupings

In the view of Milton Almonacid and Claudio Millacura , **non-hierarchies** among indigenous peoples are not an absence of organisation, but a radically different way of understanding coexistence. Unlike the Western model - where hierarchies are seen as natural and necessary to administer resources or protect against external threats - indigenous communities organise themselves horizontally, consciously avoiding the concentration of power.

Almonacid knows this because he is Mapuche, but he picks up on Pierre Clastres and his idea of "societies against the state", pointing out that many cultures, such as the Mapuche, maintained groups of 350-400 people not by chance, but because they knew that such a scale avoids hierarchisation. Ironically, we need a Frenchman to say so for this ancestral knowledge to be validated.

This communitarian logic stands in contrast to the Spanish colonising empire and extractivism, which arise under the premise of managing, extracting and protecting, often justified by narratives of scarcity or threat. While indigenous cosmologies see nature as an abundant system that provides - a living balance -, the classical (Catholic) Western world imposes the idea that "God will provide" after depleting the given. Almonacid therefore suggests disrupting the structures of modern knowledge, including the university, a medieval institution adapted to new logics, but still limited by enlightened reason. Thinking outside the box, then, implies imagining worlds where knowledge is not organised on the basis of hierarchy or a single truth, but on the basis of **plurality, care and relational sustainability.**
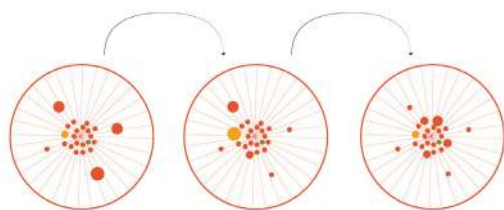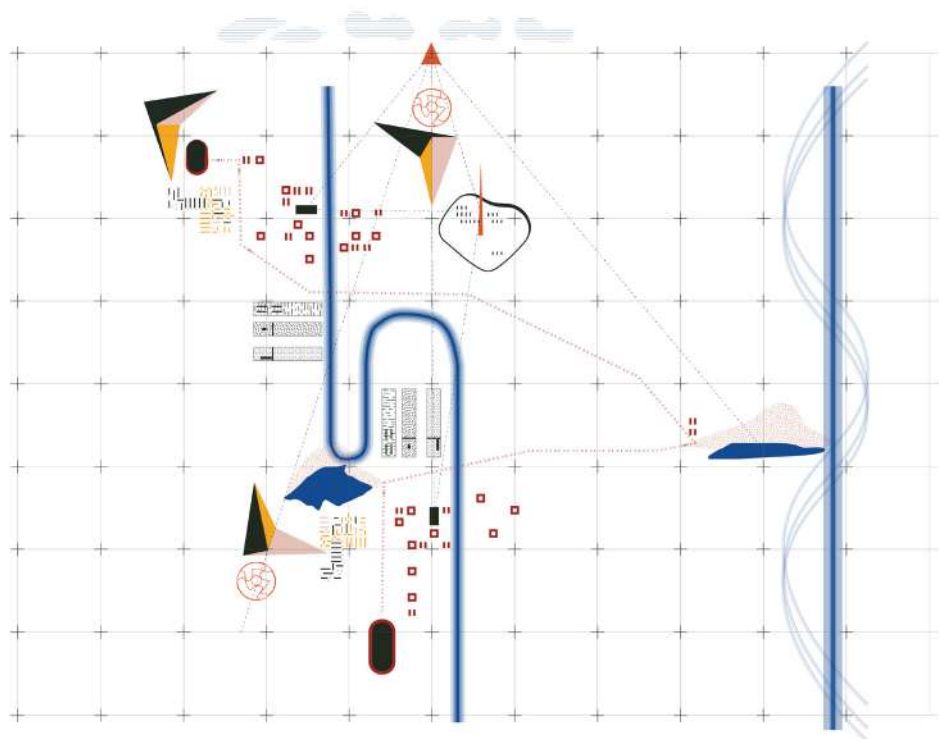
Conclusion.
Toward a Situated and Ancestral Urbanism

Rethinking urbanism from Andean and Mapuche worldviews invites a profound shift. These cosmovisions do not perceive territory as an object to manage, but as a living subject made of reciprocal relationships among humans, spirits, and natural elements. Normative systems such as the Az-Mapu embody ethical, spiritual, and practical principles that regulate the use of land, water, and ecosystems. These are not symbolic abstractions but active frameworks guiding inhabitation in balance with the world — central to contemporary biocultural conservation, especially in coastal and marine territories.

Recognizing entities like gnem and wak'as — spiritual guardians of Mapuche and Andean territories — challenges the modern notion of infrastructure as inert. These beings are not metaphors or myths but actors with agency. From this perspective, the city is not a technical construct but a relational field shaped by presence, memory, and spiritual forces. Urban design becomes a practice of cohabitation and care rooted in reciprocity, rather than extraction and control.

Indigenous interpretations of natural disasters further challenge Western frameworks. For Mapuche and Andean peoples, these events signal imbalances in the web of life, rather than mere anomalies. Practices such as ritual site selection, altitudinal migration, funerary rites, and landscape interpretation are not superstitions but strategies of resilience. Understanding these as knowledge systems offers valuable insights for designing with risk, rather than against it.

This shift is urgent. In Chile, historical records show that extreme weather events have often coincided with political ruptures. Recognizing climate not just

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as background, but as a structuring force, demands a temporal and relational approach to territory. Geomyths — symbolic narratives linking disasters, geography, and cultural memory — provide expanded frameworks for planning. They contain ecological warnings and adaptive strategies often overlooked by modern technocratic systems.

Yet, these ways of knowing are under threat. Extractivism, migration, and institutional erasure have fragmented the continuity of ancestral memory. As Diego Salazar points out, this creates a "temporal blindness" in modern planning, which overlooks deep histories of risk and adaptation. The 9.5 magnitude earthquake and tsunami 3,800 years ago on the northern coast — and Indigenous responses to El Niño cycles — show that ancient communities interpreted environmental signals and chose settlement sites accordingly.

Recovering this kind of long-term territorial memory is not nostalgic, but essential. In cities like Santiago, which have long histories of flooding and unregulated growth, we need planning that listens to the land and respects its rhythms. Rivers like the Mapocho are not just hydrological features but entities with memory. Ignoring their logic has led to repeated crises. Remembering them — spiritually and ecologically — could restore balance.

As Milton Almonacid argues, Indigenous knowledge does not aim to "change the world," but to inhabit it differently. Cities, historically defensive and hierarchical, must be dismantled conceptually to make room for other forms of life. Almonacid, echoing Pierre Clastres, reminds us that many Indigenous communities, like the Mapuche, intentionally limited their groups to 350—400 people — a scale that avoids centralization and domination. This communitarian logic counters both colonial statecraft and modern urbanism.

Almonacid also critiques modern knowledge systems, including the university, which remains shaped by Enlightenment logic. For him, disrupting dominant epistemologies is not just methodological innovation, but an act of imagining other possible worlds. Any knowledge integrated into formal systems must challenge them from within, bringing with it the weight of memory, territory, and lived practice.

Incorporating these cosmologies into urbanism does not mean romanticizing the past. It means recognizing the relational, spiritual, and multitemporal dimensions of territory — and planning accordingly. Instead of focusing solely on "ecosystem services," we must embrace ecological sovereignty, rooted in Indigenous rights and responsibilities toward land and water.

This approach aligns with paleoclimatology, which also encourages long-term thinking. By recovering ancient agricultural knowledge — like andenes adapted to desert systems — we find solutions to contemporary climate crises. These practices, often transmitted through oral memory or material traces, can inform more resilient models of land use and food systems today.

Ultimately, what emerges is a call for a situated, relational, and decolonial urbanism — one that values life over extraction, memory over erasure, and reciprocity over domination. This means recognizing the landscape as a living subject, and planning not just for people, but with all beings who share the territory.

Urbanism, then, must become a practice of care. It must listen to local narratives, attend to spiritual geographies, and work with long ecological timescales. We are not separate from the landscape — we are landscape.

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BECOMING INDIGNEOUS TO PLACE

Reimagining Urban Futures through Ancestral
Knowledge and Territorial Resilience in Chile

BOOK 5
Radical Spatial Scenarios

Introduction.

A Brief Approximation to Project and Spatial Planning

This chapter emerges as a point of convergence between the research developed in my previous books—on natural disasters, operational landscapes, and sacred landscapes—to explore a fundamental question: how can we imagine urban space through other logics, beyond the modern-colonial paradigm? Drawing from Indigenous dynamics, values, and practices—particularly Mapuche and Andean—I propose a speculation on possible futures and utopian pasts that reconfigure our understanding of territory, risk, and collective dwelling. I take Santiago de Chile as a starting point, not only because it is the territory I know best, but because it is shaped by two overlapping colonial processes and the two cosmologies I have studied throughout this thesis: the Andean and the Mapuche worlds. Each of the scenarios becomes a speculative yet grounded planning concept or spatial strategy for climate resilience, justice, and post-anthropocentric futures.

Beliefs & Values

Design

Facts & Analysis
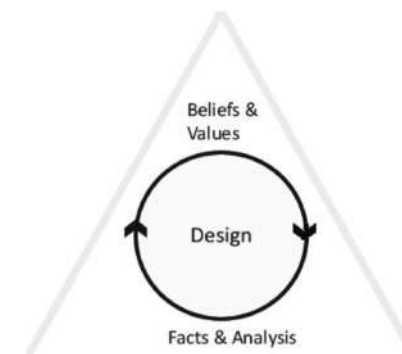
If the imagination is to transcend and transform experience it has to question, to challenge, to conceive of alternatives, perhaps to the very life you are living at the moment.

— Adrienne Rich

The world we want to transform has already been worked on by history and is largely hollow. We must nevertheless be inventive enough to change it and build a new world. Take care and do not forget that ideas are also weapons

- Subcomandante Marcos

Chapter 1.
What is Radical Spatial Imagination?

Definition and Conceptual Framework

In times of overlapping crises—ecological, social, and subjective—rethinking how we imagine space is no longer merely an academic concern, but a profoundly political one. Radical Spatial Imagination (RSI) proposes precisely that: an epistemological and ontological shift in how we conceive of territory, the city, and their interrelations, based on forms of knowledge and worlds historically marginalised by colonial modernity.

I understand Radical Spatial Imagination (RSI) in this thesis as the collective capacity to imagine space in ways that transgress normative, linear, and Eurocentric frameworks which have dominated urbanism and spatial planning. It implies opening up to cosmologies, temporalities, and relational modes that have long been excluded by the colonial-modern matrix. RSI is not merely a theoretical approach; it is a critical tool to conceive and construct spatial worlds from the common, the situated, the plural (non-human), and the ancestral.

Drawing on the definitions of Haiven and Khasnabish (2009), RSI is deeply connected to radical imagination, which is not simply a creative faculty, but a political means of remaking the world. They describe imagination as a collective process by which we "map what is, narrate how it came to be, and speculate on what could be" (Haiven & Khasnabish, 2009, p. ii). In this sense, RSI is a political and collective exercise in the reterritorialisation of thought: a way of resisting the spatial order imposed by capitalist modernity.
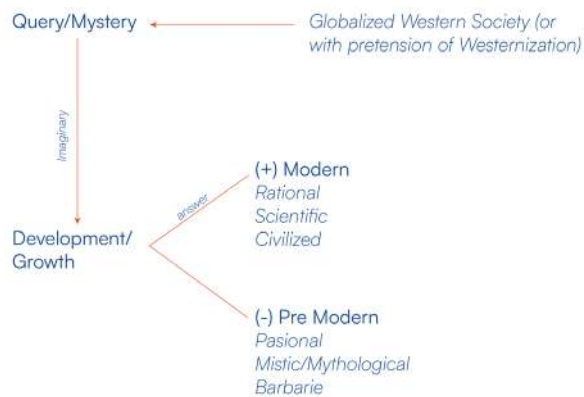
Imaginary for indigenous people

Query/Mystery ← Cyclical / non-linear conception of time (Indigneous)

Imaginary

Renovation
Duality

answer

(+) Life
Land
Complementarity
Reciprocity
Goodness

answer

(-) Death
Oblivion
Unbalance
Evil

Imaginary for contemporary society

Query/Mystery ← Globalized Western Society (or with pretension of Westernization)

Imaginary

Development/
Growth

answer

(+) Modern
Rational
Scientific
Civilized

(-) Pre Modern
Pasional
Mistic/Mythological
Barbarie

Etimology: Radical & Imagination

The term radical comes from the Latin radix, meaning "root." Thus, to be radical means to seek out the root causes of social and spatial problems, rather than remain at the level of symptoms or superficial solutions. For Haiven and Khasnabish (2009), radical approaches aim to transform from the root, targeting deep structures of power such as colonialism, capitalism, and patriarchy.

Meanwhile, imagination also has Latin roots, from imaginatio, related to the formation of mental images and the capacity to reflect the inner world or project ideas (Haiven & Khasnabish, 2009, p. 3). Although once regarded with suspicion or as illusion, today imagination is celebrated as a source of originality. However, the authors caution that imagination should not be understood as escapism, but rather as a deeply political tool for creating collective alternatives to the existing order..

RSI as Counter-Paradigm: Collective, Situated and Plural

In contrast to dominant models, my RSI proposes a set of opposing principles—not as a total replacement, but as an invitation to think: a blank canvas on which to imagine and practise other forms of city-making. Inspired by Indigenous territorial knowledge and practices, my RSI does not seek to "include" the Indigenous within dominant urbanism, but to "reconfigure the frameworks themselves" (Haiven & Khasnabish, 2010, p. iii). It is a counter-paradigm that recognises design as a situated, political, and relational activity.

Collective: RSI understands imagination as a social, rather than individual, process. As the authors note, radical imagination "*is always collective, though rarely autonomous*" (Haiven & Khasnabish, 2010, p. ii). This entails co-creative processes that value memory, orality, and communal knowledge. Territory is imagined from the *we*, not from the ego of the designer.

Cyclical and Adaptive: Far from linear models, RSI proposes a cyclical logic of time and transformation. Territories are living, mutable, always becoming. It encourages the design of infrastructures that breathe, that shift with the seasons, that embrace impermanence as a principle of resilience.

Situated: RSI is profoundly contextual. There are no universal formulas. Planning is grounded in local cosmologies, emotional topographies, and geo-cultural narratives. As in the Inka *ceque* system, space is structured through meaning, memory, and ritual practice—not through technical homogeneity.

Plural and Relational: RSI recognises the simultaneous existence of multiple worlds, agents, and scales. Rather than centring the human, it proposes governance

models in which rivers, glaciers, or mountains are actors with rights. Territory is understood as a web of living relations, not an empty surface to be filled.

Furthermore, conventional planning often operates under the assumption of universality: it assumes that there exists an optimal model of city or development that can be replicated regardless of context, history, or culture. This vision strips territories of their specificity and erases local epistemologies—particularly those of Indigenous peoples, racialised communities, and grassroots movements.

Haiven and Khasnabish argue that "*radical imagination is not a recipe or a solution, but a collective capacity to see, feel, and create different worlds in the face of an order that presents itself as singular and inevitable*" (2009, p. iv). Applied to space, RSI rejects the imposition of homogeneous forms and promotes the multiplicity of territorial imaginaries.

Chapter 2.
Applying Indigenous Knowledge to Spatial Planning

Critique of Classical Planning: Rigidity, Anthropocentrism, and Universalism

Modern urbanism in Chile has become a normative project that imposes a linear vision of progress, where the urban is synonymous with civilisation, order, and rationality. Under this logic, urban planning often assumes universality: it presupposes that there exists an optimal urban model that can be applied anywhere, regardless of geography, history, or culture. As Haiven and Khasnabish (2010) argue, these hegemonic structures are part of a broader framework of colonialism, capitalism, and patriarchy, where imagination itself has been colonised (p. iii). The modern city does not only plan streets and buildings: it plans possible futures, controls collective desire, and restricts spatial thinking.

Classical planning rests on four problematic pillars:

1. **Regulatory Rigidity**: Zoning tools, building codes, and hierarchical scales reflect a fixed vision of space, one that contradicts the fluid, ritual, and relational nature of space in other cultures.

2. **Anthropocentrism**: The modern city is designed for humans—and in practice, for certain human bodies—denying the agency of rivers, mountains, animals, spirits, or seasonal cycles.

3. **Linear Temporality**: Urban planning presumes a progressive, cumulative temporality, ignoring the cyclical conceptions of time held by many Indigenous cultures as the basis of territorial life.

(A) Concentric Zone Model

(B) Sector Model

(C) Multi-nuclei Model

(D) Spatial Interaction Gravity Model *

- Central business District (CBD)
- Working Class Residential
- Medium Class Residential
- High Class Residential
- Industrial Zone
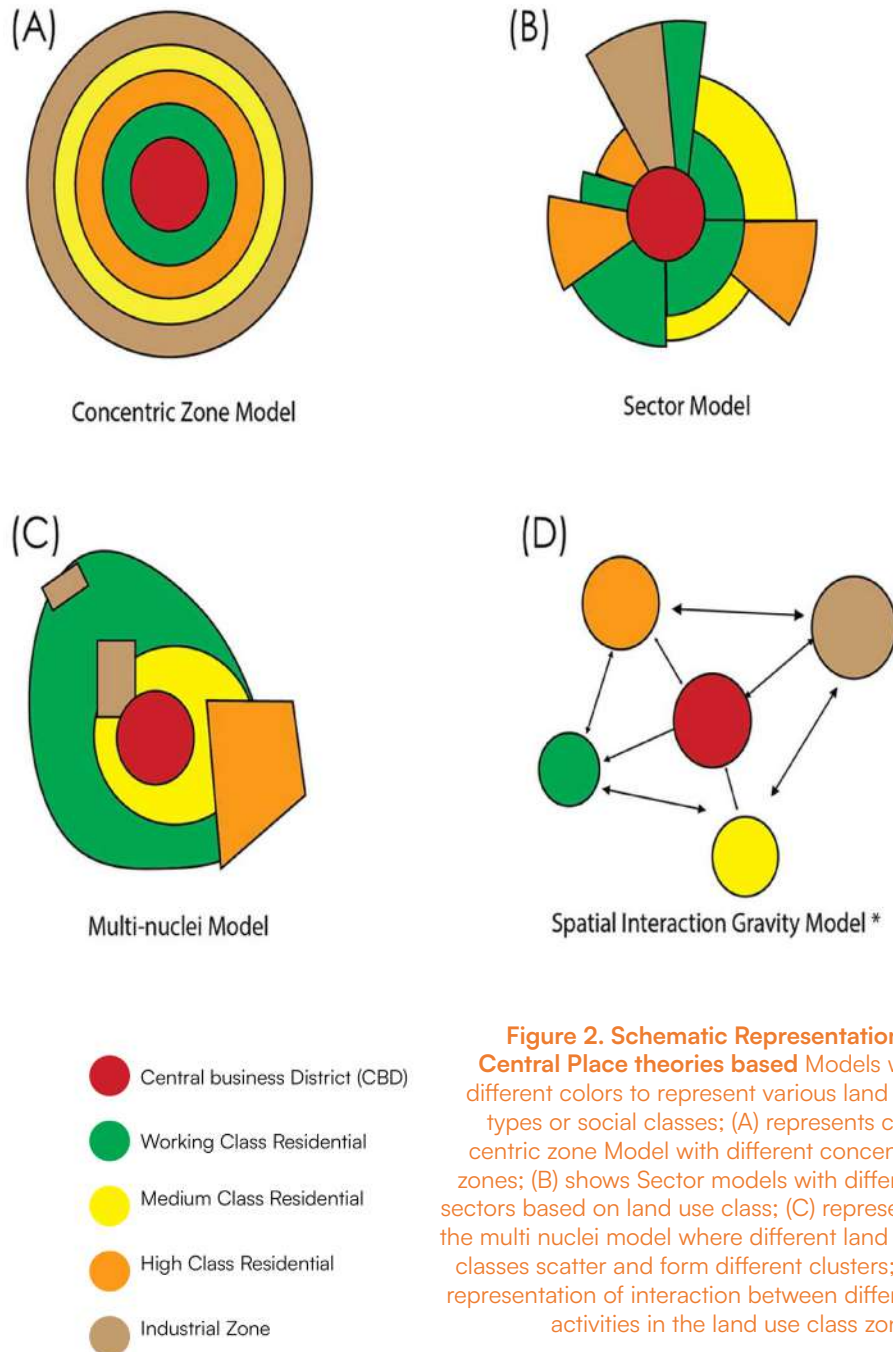
Figure 2. Schematic Representation of Central Place theories based Models with different colors to represent various land use types or social classes; (A) represents concentric zone Model with different concentric zones; (B) shows Sector models with different sectors based on land use class; (C) represents the multi nuclei model where different land sue classes scatter and form different clusters; (D) representation of interaction between different activities in the land use class zones.

4. **Abstract Universalism**: Under the promise of replicable "best practices", urban models are exported that uproot local communities and reinforce colonial structures.

These characteristics do not merely limit spatial justice—they constitute a form of epistemic violence in themselves.

Towards Radical Spatial Scenarios: Reconfiguring Urban Concepts through RSI

Radical spatial imagination does not simply oppose modern urbanism; it seeks to transform it at its roots. As discussed, hegemonic urban planning has functioned as a normative, colonial, and extractive project that imposes a singular vision of the future, where city, civilisation, and progress are interwoven as unquestionable truths. The scenarios I propose instead open up space to denaturalise these concepts and to propose new ways of naming, understanding, and constructing the urban from multiple worlds.

This transformation requires a critical re-examination of the categories that structure our ways of thinking about territory. Below, I offer a conceptual re-reading of the terms I will use in the **Radical Spatial Scenarios (RSS)**:

THE MOST COMMON WORDS

Future
Resilience
Sustainability
Territory
Property
Landscape
City
Agriculture
Consumption
Sedentarism/Nomadism
Natural Disaster
Tradition
Politics
Administration
Survival*
Work
Market
Extraction - raw materials
Resources
Mobility
Conection
Functional
Infrastructure
Efficiency

Habitational Matrix

Conceptual axes that structure how we inhabit, organize, and make meaning of territory and collective life.

THE MOST ~~COMMON~~ NEEDED WORDS

Diversity
Energy
Balance
Unbalanc

Future
Resilience
Sustainability
Territory
Property
Landscape
City

Space/time
Adaptive
Diversity

Mother "earth"

Agriculture
Consumption

Gratitude
Permission
Respect

Sedentarism/Nomadism

Natural Disaster
Tradition
Politics
Administration
Survival*
Work
Market
Extraction
raw materials
Resources
Mobility
Conection
Functional
Infrastructure
Efficiency
Diversity

Death
Survival
Alliance

Observation
Memory

Exchange/Trade
Reciprocity
Permission

Habitational Matrix

Conceptual words that structure
how we inhabit, organize, and
make meaning of territory and
collective life.

Reciprocity
Gratitude
Observation
Space/time
Permission
Exchange/Trade
Memory
Energy
Diversity
Balance
Unbalance
Alliance
Survival
Death
Mother "earth"
Spirits
Respect
Adaptive

Spirits
Respect

Mother "earth"

18   19

1. **Resilience / Sustainability vs. Adaptation / Impermanence / Alliances**
Discourses on resilience and sustainability have often been co-opted by technocratic agendas that seek to stabilise the current order. RSS re-signify them through flexible adaptation, an embrace of impermanence, and the construction of inter-species alliances. The goal is to design territories that breathe, that accept change as part of life, and that do not rely on "bouncing back" but rather on transformation.

2. **Property / City / Territory vs. Relationality / Respect / Care**
The modern notion of private property is based on the separation between subject and land. RSS begins with respect and relationality as the foundation of territorial existence. The city is not a functional machine but a symbolic ecosystem where Mother Earth is honoured, and where territory is not owned but cared for—with permission sought to inhabit it. This epistemological shift also implies a decentring of the city as the only legitimate place of modern life, and a questioning of private property as the engine of urban growth.

3. **Landscape / Nature / Natural Disaster vs. Energy / Imbalance / Survival**
The concept of landscape, as inherited from Enlightenment thinking, separates the observer from the territory. RSI invites us to think of space as an energetic field, where imbalances are not anomalies, but signals. Rather than viewing "natural disasters" as external events, RSS assumes that territory lives, breathes, and defends itself. Survival is not an individual act of resistance but a collective, relational, and often spiritual process.

4. **Sedentarism vs. Nomadism / Temporality**
Conventional planning privileges sedentarism, crystallising life in fixed maps. RSS reclaims the value of nomadism as an adaptive mode of existence. Mobility is not equated with disorder or informality, but with territorial strategy and environmental care. In this sense, radical scenarios consider the temporality of use as a central dimension of design.

5. **Politics / Administration vs. Reciprocity / Observation / Community**
While modern urban governance tends toward bureaucratisation, RSS proposes a politics of care, in which reciprocity and situated observation are legitimate mechanisms of governance, and care becomes the core of urban planning. The political extends beyond the state and is embodied in community action—in everyday decisions about how and with whom territory is inhabited.

WE NEED NEW STORIES

Urbanism is not only about infrastructure—it is a project of memory, care, and belonging. This project began with a practical question: how can planning respond to climate risk in Chile? But along the way, it revealed something deeper—that the problem is not only technical, but profoundly narrative. Current urbanism treats territory as abstract, neutral, and extractable, turning the city into a node within a global machine of accumulation and erasure. Yet, Indigenous worldviews offer radically different ways of inhabiting—based on reciprocity, respect, and cyclical relations with land and life. What we need today is not more technology, but new stories. To think otherwise, we must re-story space: shifting from zoning logics and rigid grids to territories of care, memory, and ecological responsibility. Reimagining urbanism through relational epistemologies is not a symbolic act—it is an ecological, political, and cultural urgency. And in a country like Chile, marked by disaster, inequality, and wounded memory, imagining new ways of living is not a luxury—it is a radical act of care, resistance, and restoration. Planning, in this sense, is no longer about better control over the land, but about learning to live differently and repairing broken ties with it.

Chapter 3 .
Radical Scenarios for Chile

Principles Transformed into Planning Concepts

Each scenario that follows takes one or two Indigenous principles of inhabiting, along with one or two practices, and situates them within the territory. I work with scenarios as a way to bring together Indigenous concepts in a specific site as a form of design essay. Each of these principles becomes a speculative but grounded planning concept or spatial strategy for climate resilience, justice, and post-anthropocentric futures.
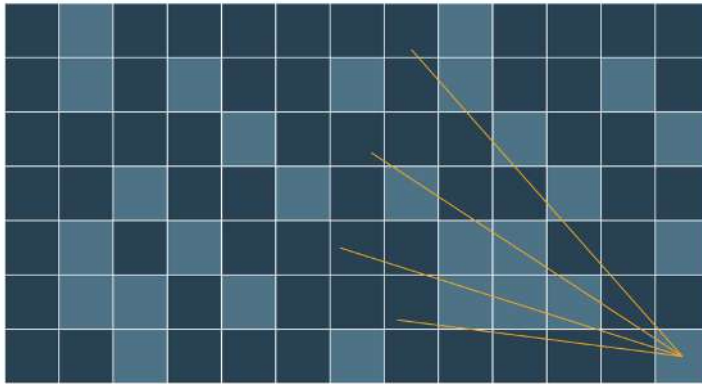
Scenario 1: Ceques & Care .
A Non-Linear, Sacred Structuring

Speculative Urban Scenario for Santiago, Chile

This studio project proposes a speculative yet grounded urban reimagination of Santiago based on the Inca *ceque* system—a sacred, radial network of orientation, ritual, and memory. I chose Santiago because it is the site where two overlapping colonial processes converge, alongside the two cosmologies studied in this thesis: the Andean and the Mapuche worlds

The project begins with a simple yet radical question: **What if, instead of the colonial grid, Santiago had been structured through the ceque system? And instead of an institutional rigid, concrete goverment building, we would have a hill as the center of the city?** How would this change our relationship with the territory? How would we have grown? what will our borders look like? Our infrastructure? And what implications would this have for addressing current risks such as the climate crisis and natural disasters?

- **Root problem:** rigidity of infrastructure

- **Root value:** embrace the "terremoteada" identity

This question sets the stage for a non-linear system grounded in care, ecological reciprocity, and recognition of the metropolitan territory as a living being. From this foundation, a new model of territorial occupation is proposed—one that not only transforms urban morphology but also strengthens resilience in the face of extreme events such as wildfires, floods, droughts, and landslides.

Actual Situation of Santiago and its hills

Image 4: Topographic map of Santiago
Source: Fundacion Cerros Islas
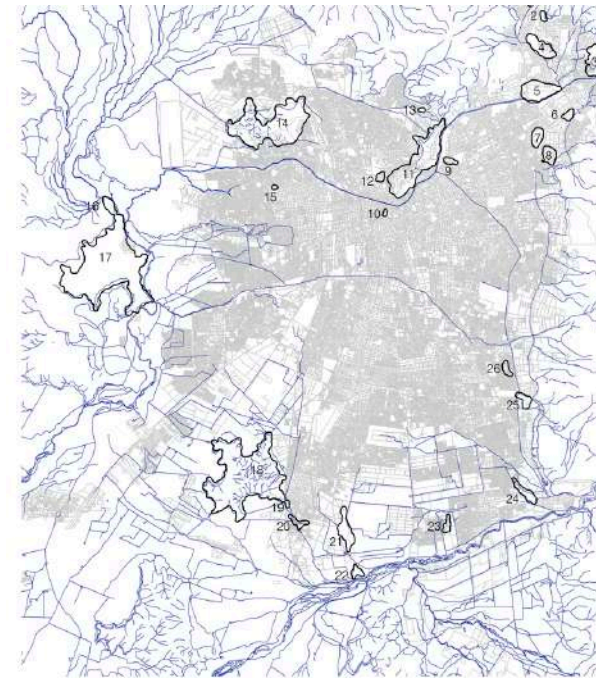
Image 5: Socio-economic map of Santiago
Source: Fundacion Cerros Islas

Image 6: Hidro-graphic map of Santiago
Source: Fundacion Cerros Islas
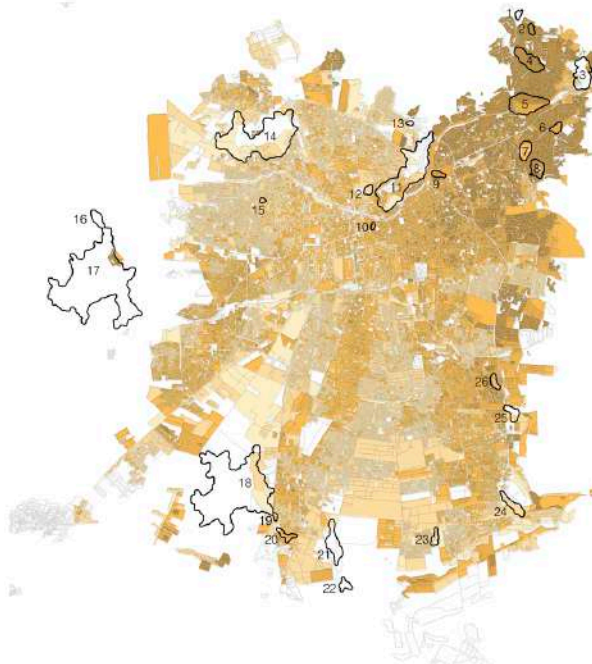
Image 5: Green Areas of Santiago
Source: Fundacion Cerros Islas
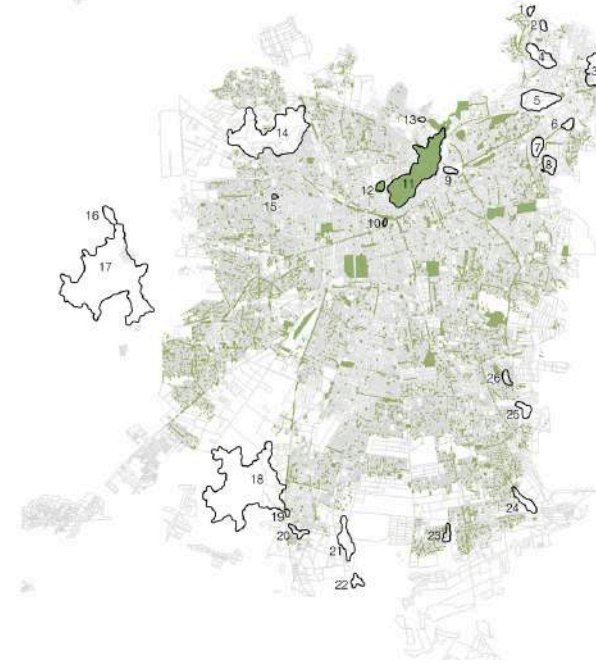
E △

It imagines a territory where sacred geographies and ecological reciprocity replace extractive rationalism and rigid zoning. The project is spatially anchored in Cerro Huelén (Huelen Hill or Santa Lucía hill), reclaiming it as a living center of territorial significance—displacing the current epicenter of political power located at La Moneda or Plaza de Armas, which represent the Spanish colonial grid and republican control.

Therefore, I propose: a new center, a new ecological and territorial order, new connections, and new principles—rooted in Indigenous foundations and adapted to contemporary life.

PALACIO DE LA MONEDA
Joaquín Toesca, arquitecto (1784)
Calle Moneda S/N, Santiago

Image: Instead of concrete burocratic building, Huelen Hill **as the center**
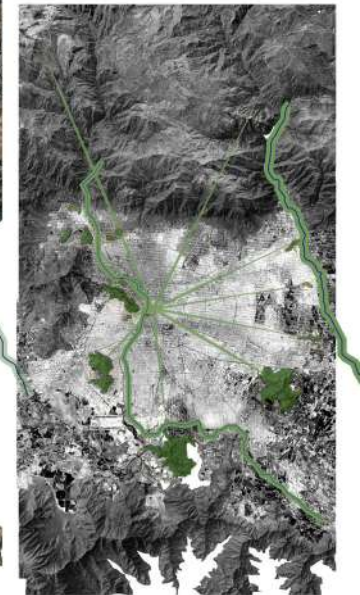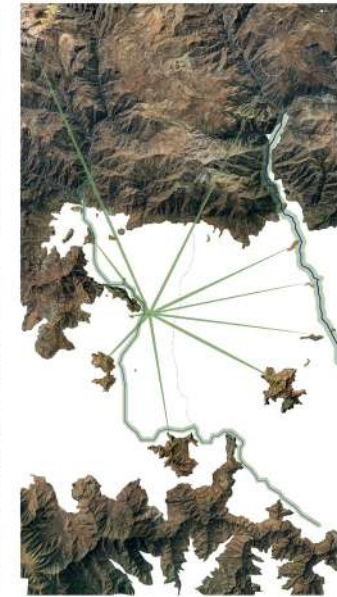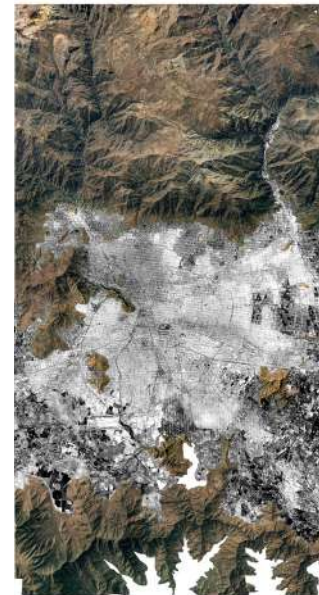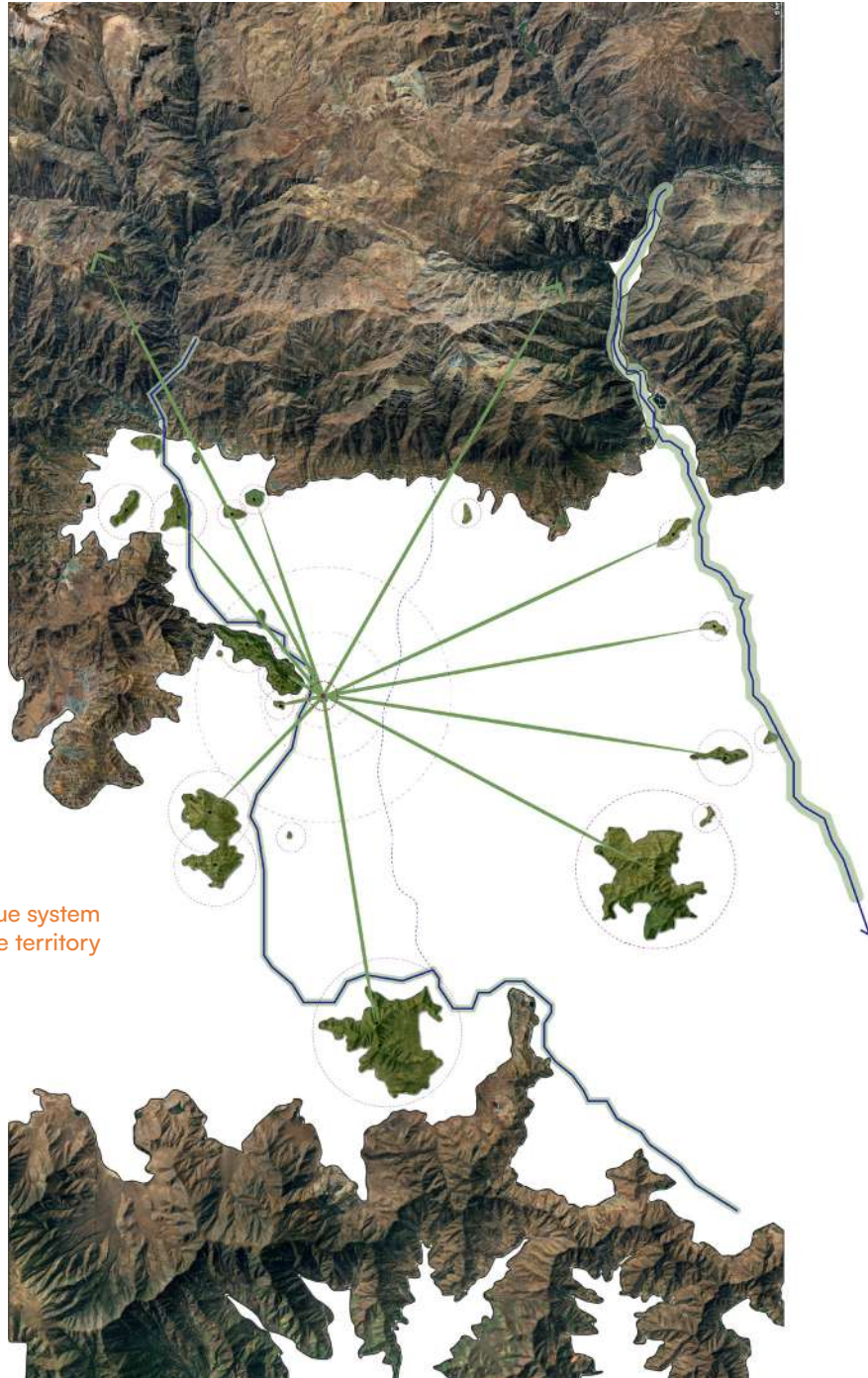
Image: Ceque system in the territory

Territorial Dynamic	Practices	Cosmovisions
Ceques	Itinerant agriculture — Slash and burn	Permission and Respect
Good Distances	Women-led gardens	Cohabitation
Hierarchies	Circular architecture	
East Orientation		

co-urbanism	tecnology	mobility	density	infrastructure

Image: How the Ceque or green corridors would look like

Huaca (Wak'a) ◆
Huaca and water point ◇
Huaca and main source for canals ●
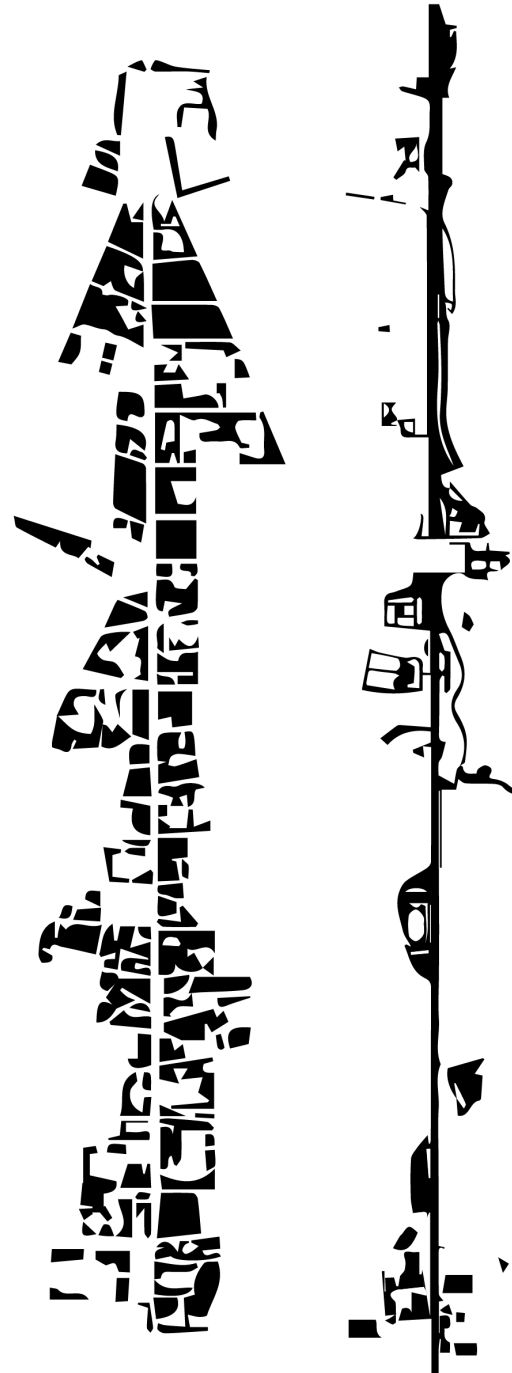
1.- Design Inputs: Spatial Principles from the Ceque System

- **Centre (Cerro Huelén):**
  Conceived not as a static monument but as a dynamic and living sacred geography—a hill that pulses with ritual, memory, and topographic orientation. The centre is alive; it breathes, guides, and organises. **What would that edge be like?**
  How would your relationship to that urban centre/landmark unfold?
  This hill is not merely topography: it is a tool for territorial reading, a solar marker, and an ecological connector.

- **From there, the ceques are traced:**
  Radial lines of physical and symbolic connection that allow for territorial reading and function as ecosystem corridors. Applied not as rigid zoning instruments but as a flexible, care-based spatial network for connectivity and coordination.
    * The territory was historically organised through astronomical sightlines (*ceques*) towards hills and horizons, linking them via biological corridors.
    * Alignments correspond to solstices, equinoxes, and lunar cycles (sun—moon crossovers).
    * Natural elements such as Cerro El Plomo and Altos de Lipangue reappear as sacred spatial reference points.
    * The construction of space considers both the visible and invisible, with rings of territorial proximity.
    * **Each ceque becomes a path of cohabitation—not just movement.**

TRANSPORT & WaTER
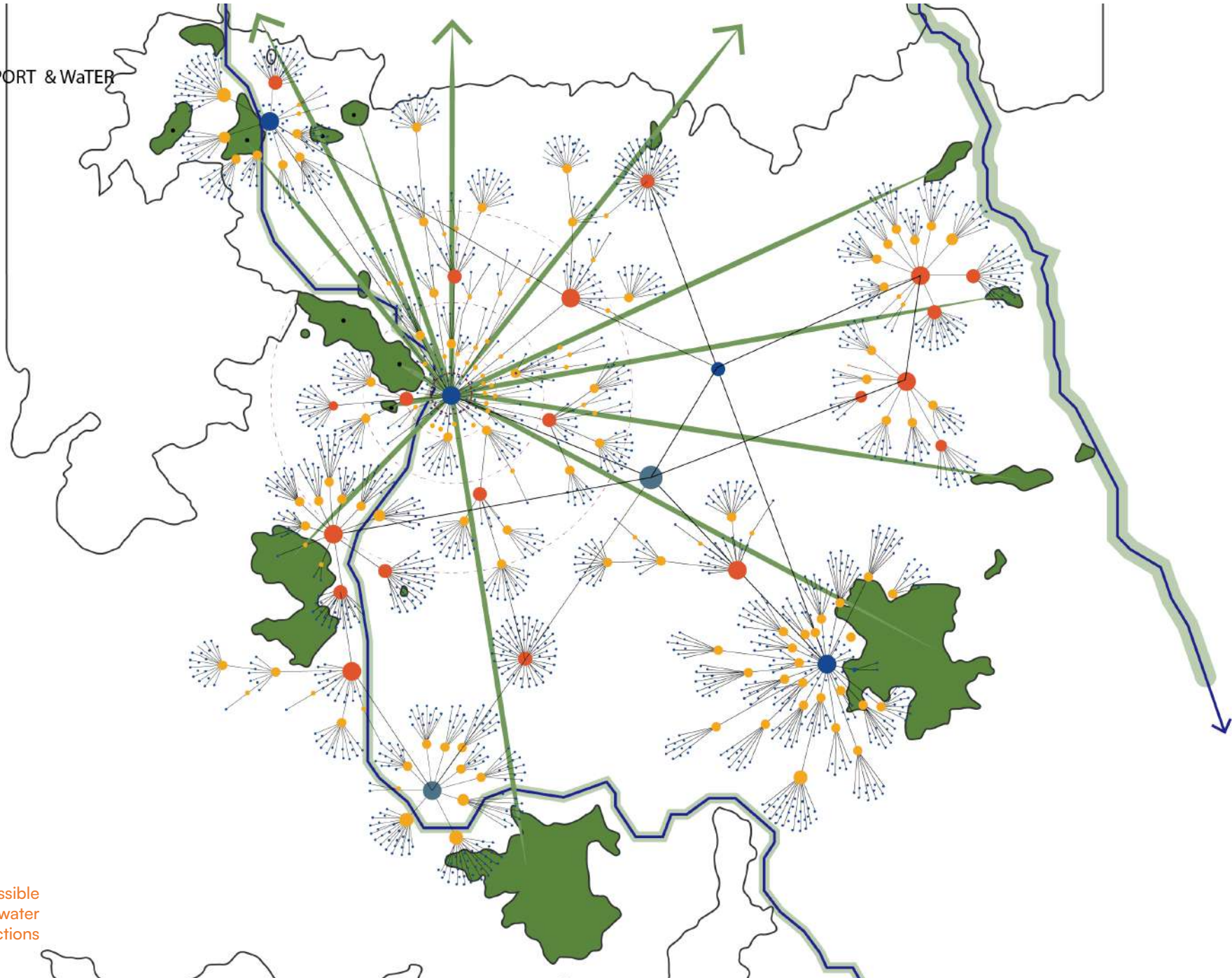
Image: Possible
mobility and water
conections

Image: Morphological explorations on how the city may look
Mountain drawing: : Fundación Cerros Isla, 2012.
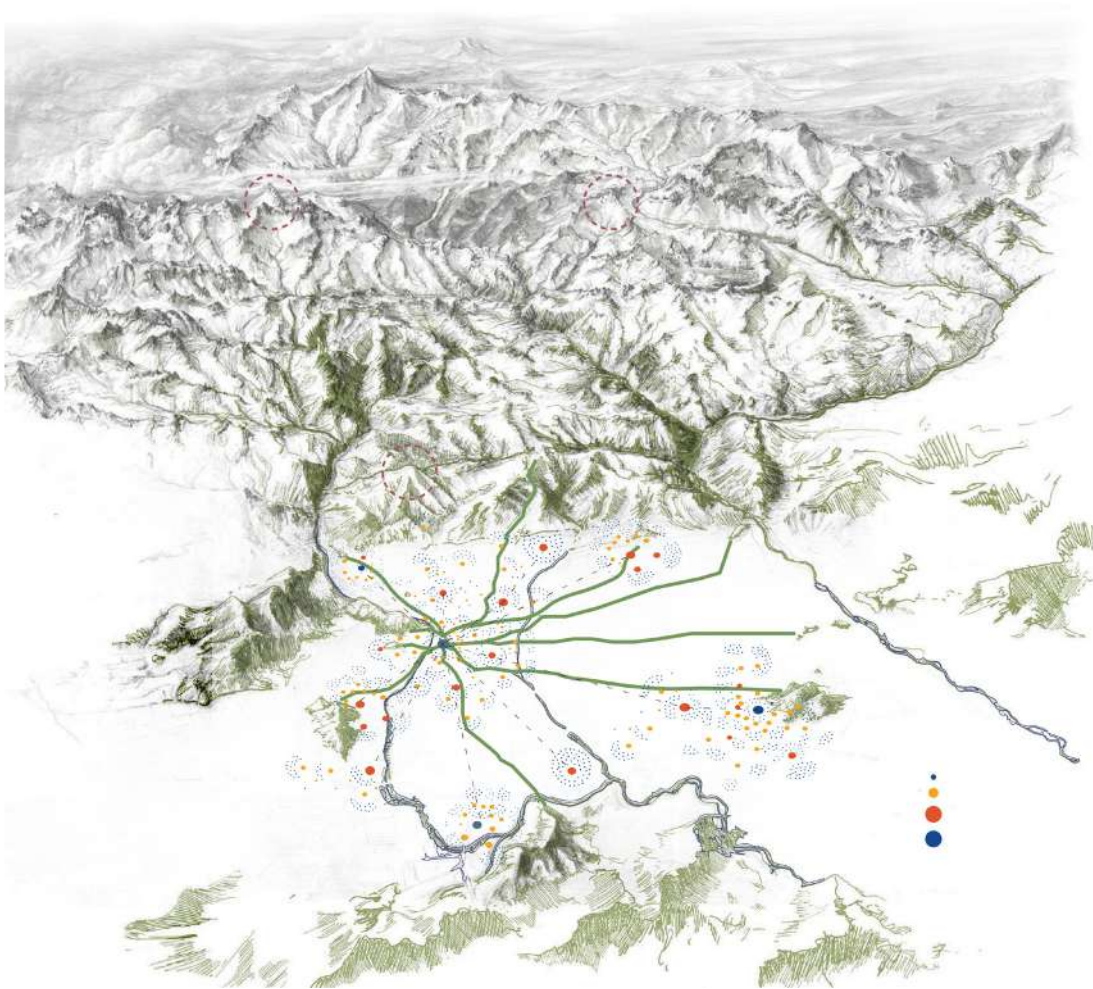
• **Territorial Order:**

  * **Good Distances**: A principle of respectful proximity—establishing thresholds between communities, ecosystems, and uses. A network of *care-based relations* is structured every 1.5 km, following Indigenous principles of "Good distances".

  * **Hierarchy**: Not one of vertical dominance but of relational scale. Communities are limited to 300—400 people, enabling a micro-social fabric where infrastructures of care can flourish.

  * **Eastern Orientation**: In honour of solar cycles and Andean cosmologies, structures and collective life are aligned with celestial rhythms rather than Cartesian rationality.
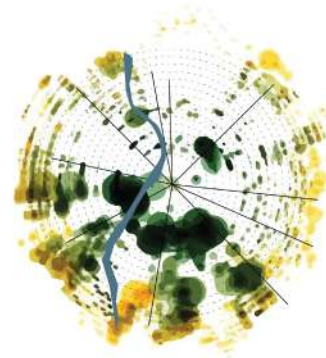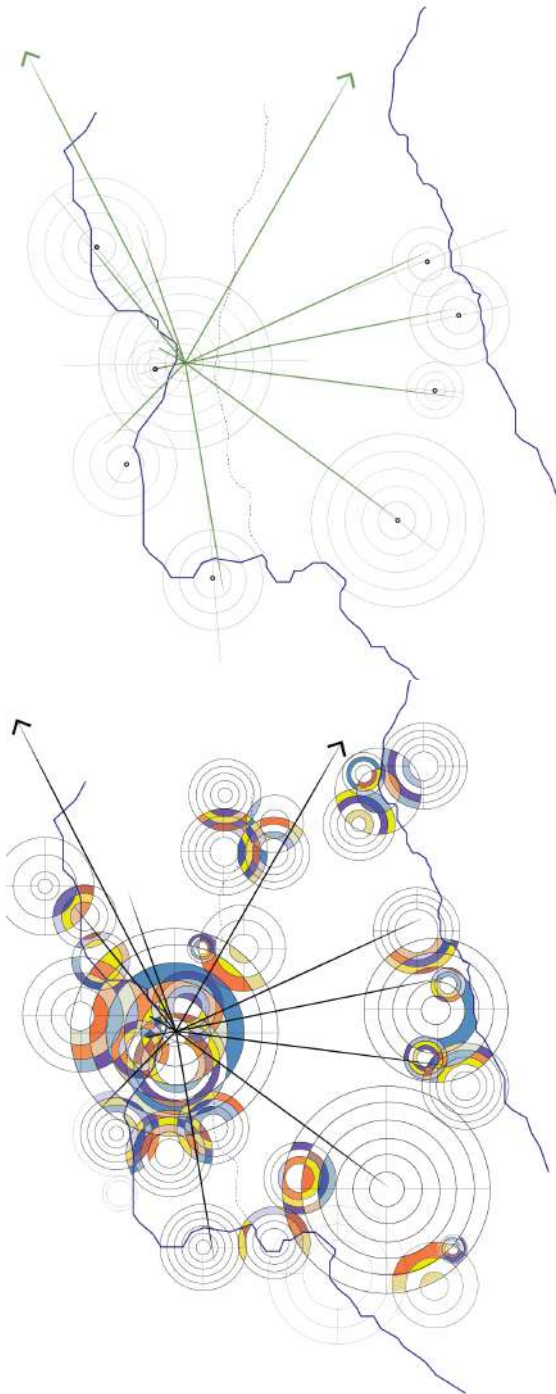
2. Urbanism for Territorial Resilience

The *ceque* system is not only a ritual structure but also a resilience infrastructure:

- **Hydrological Reading of the Territory**: The lines trace watersheds, runoffs, and slopes, guiding urban occupation through ecological functioning rather than real estate speculation. This allows for risk prevention, mitigation of flash floods, and the design of natural drainage systems.

- **Soil Rotation and Regeneration**: Inspired by Indigenous agricultural practices (slash-and-burn, itinerant cropping, rotation), land use is framed as cyclical and regenerative, reducing the risks of erosion, desertification, and forest fires.

- **Adaptive Micro-Communities**: By limiting community size (300—400 people), a polycentric, agile, and situated governance model is promoted. In emergencies, this enables immediate local response, access to mutual care, and efficient community organisation.

- **Spaces for Nature**: The system distinguishes between space for humans, space for nature, and shared space—enabling continuous ecological corridors, biodiversity reserves, and buffer zones for extreme events.

- **Sustainable Mobility, Appropriate Technologies**, medium-to-high densities, and **co-urbanism principles** connect these nodes, enabling just and resilient territorial distribution.
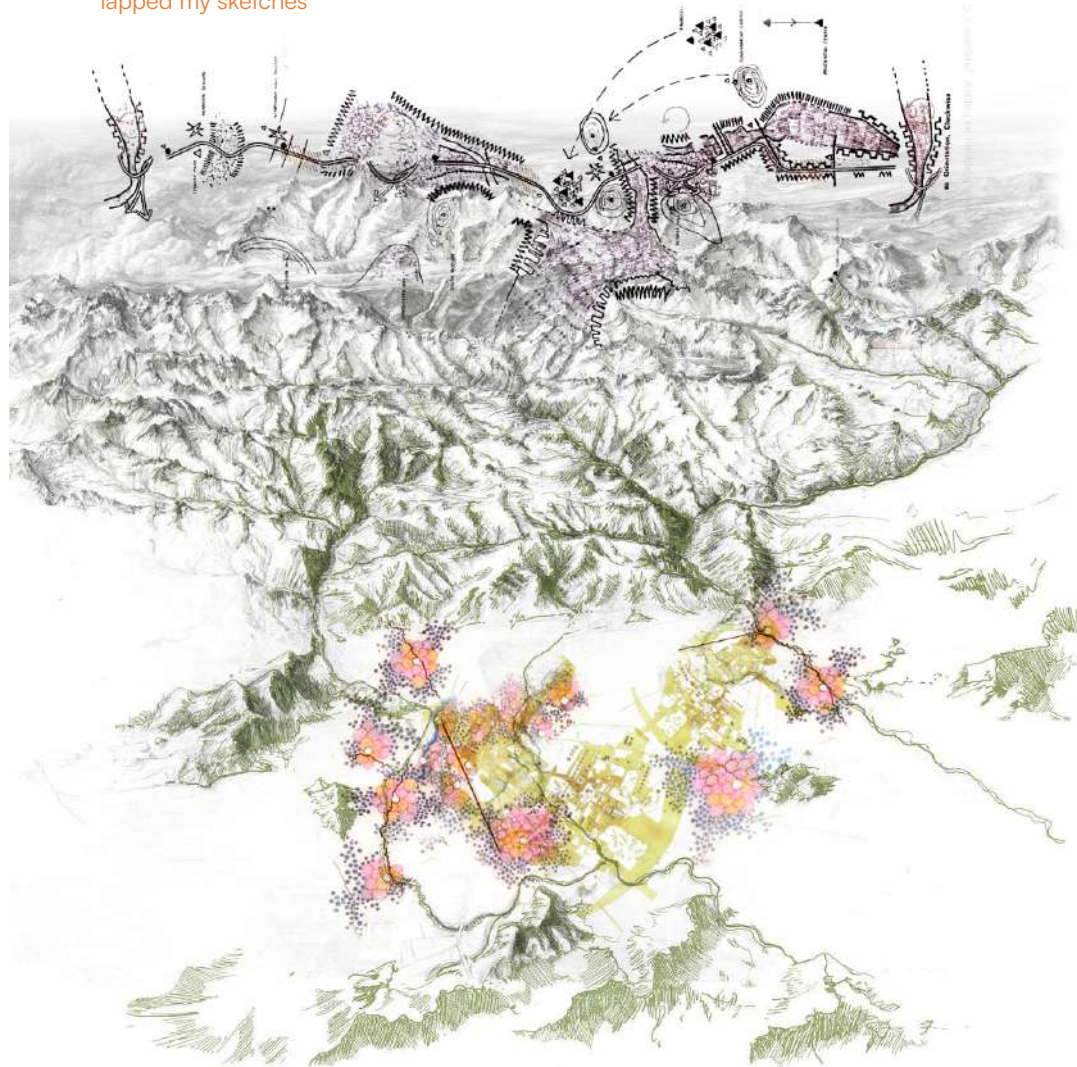
3. Infrastructure of Care

This project proposes replacing the logic of heavy, technocratic infrastructure with a network of soft, decentralised, and situated infrastructure—based on mutual care and ecological reciprocity. This network is structured every 1.5 km, following the Indigenous principle of "good distances", and is composed of spaces designed to sustain both daily life and climatic or territorial emergencies.

These infrastructures of care integrate ancestral knowledge with contemporary needs, combining community gardens, collective kitchens, water reservoirs, and climate shelters with schools, CESFAMs (family health centres), elder care centres, and spaces for communal exchange and learning.

These spaces not only support daily life but also become support systems during crises: heatwaves, water scarcity, disaster-related isolation, etc.

Image: Mobility as an ethos

Image: Explorations on different options of urban fabric.
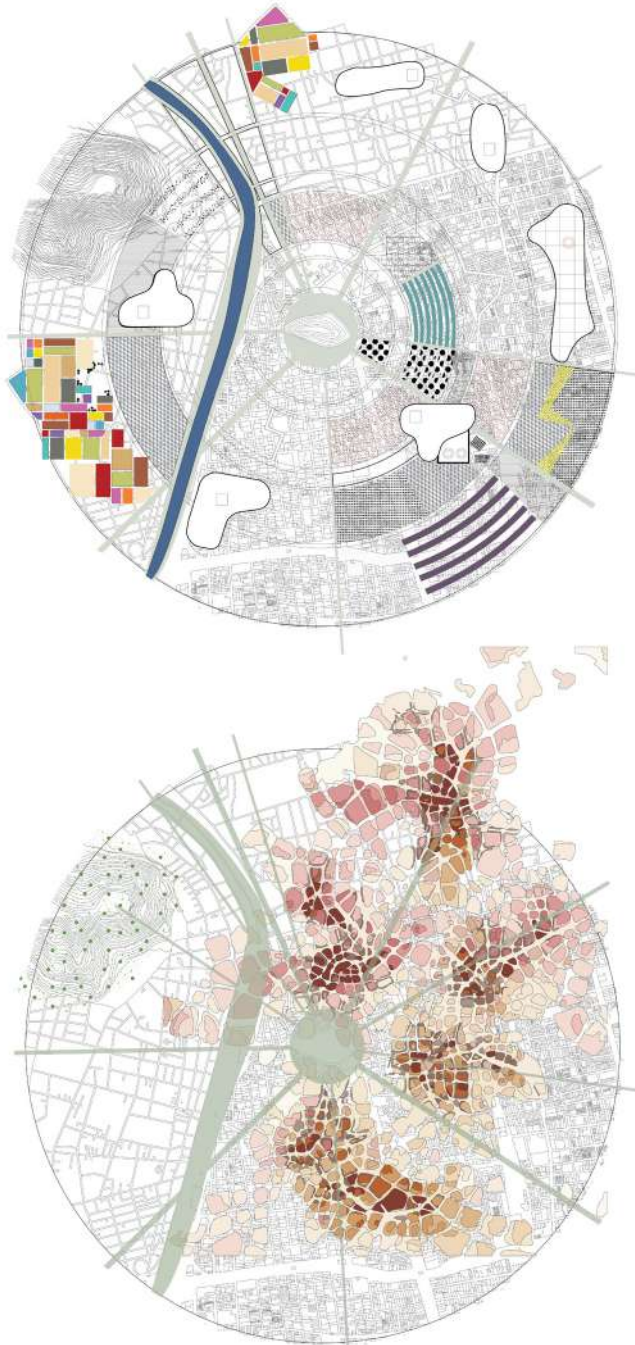
4. Scales of Action

- **Landscape**: The hill as a geographic—and spiritual—node connecting sky and earth.

- **Ecosystem**: Integration of hill, valley, and river as an environmental and social continuum. Geography is sacred, and therefore must be cared for and respected.

- **Territory**: The *ceque* system as a tool to imagine a regional planning approach that is climate-adaptive, culturally situated, and spiritually meaningful.

Image: Actual urban fabric of Santiago, downtown
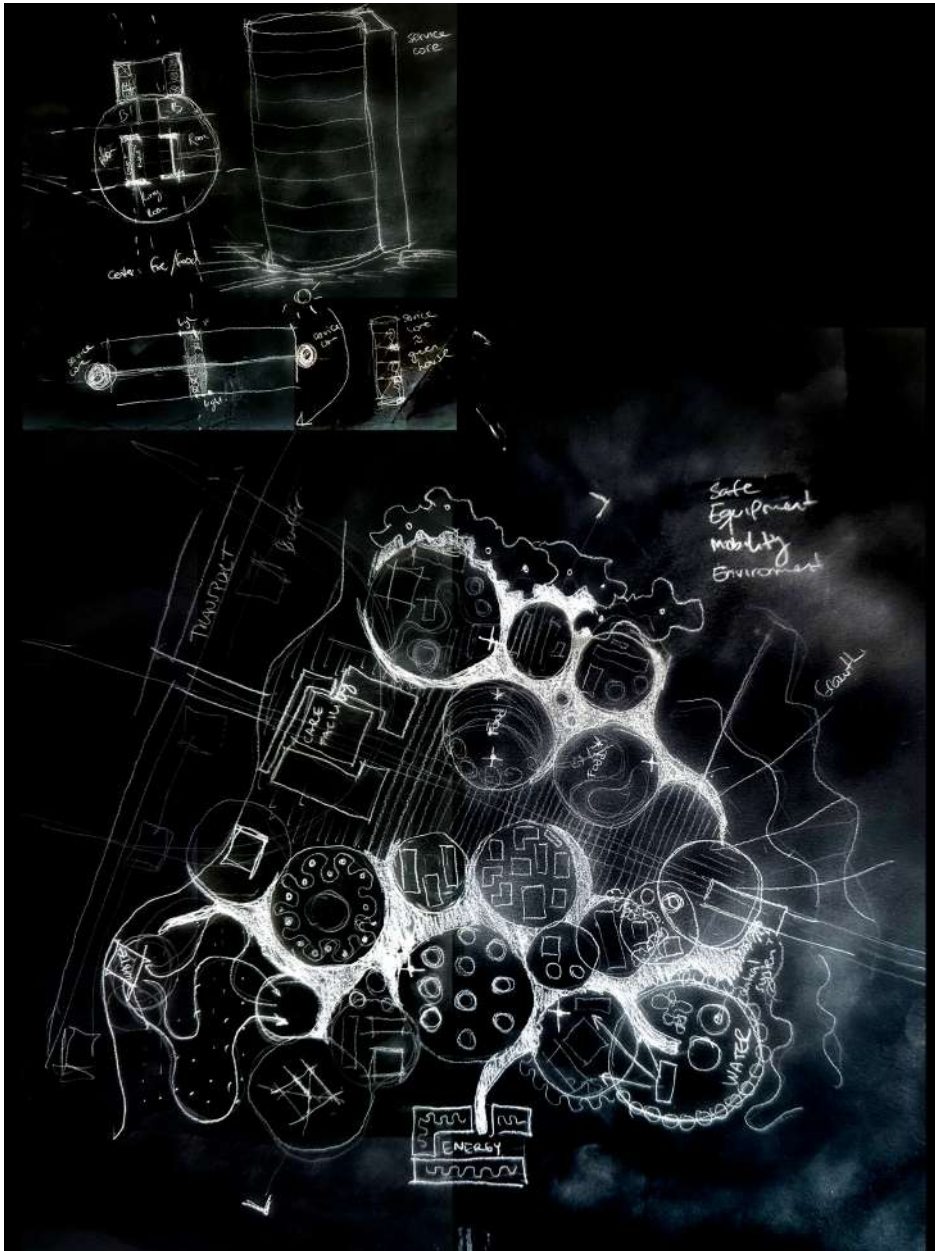
5.- Methodological and Conceptual Framework

This is not a master plan, but a framework for a new territorial order and self-organization rooted in care and reciprocity. The ceque system becomes a spatial logic that coordinates without controlling, and structures without fixing. It challenges the foundational myths of modern urbanism—efficiency, separation of functions, centralized infrastructure—by introducing a polycentric, ritual-based spatial language.

- **Care as Critical Infrastructure**: Community gardens, water harvesting, rotational cultivation, and common kitchens become essential urban devices—**supporting collective life** and mutual support. Urbanism becomes a form of co-habitation, not just land management.

- **Cosmovision as Urban Strategy**: The planning model is informed by Mapuche and Andean worldviews, where territory is not owned, but **asked permission to**. Ritual and ecology are not symbolic, but operative logics of space production.

- **Dual Ecology**: This speculative Santiago embraces a spatial ethic where **humans and non-humans** co-create the landscape. It delineates areas for nature, areas for humans, and crucially, **spaces for both**—shared ecologies where species meet
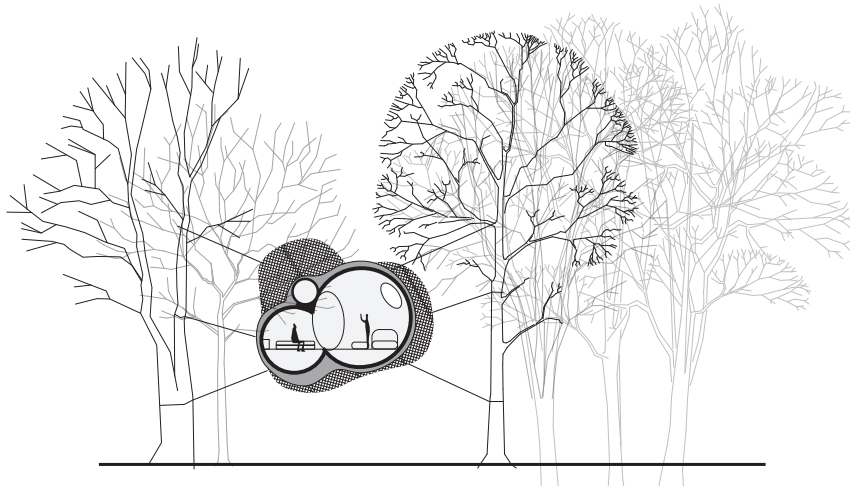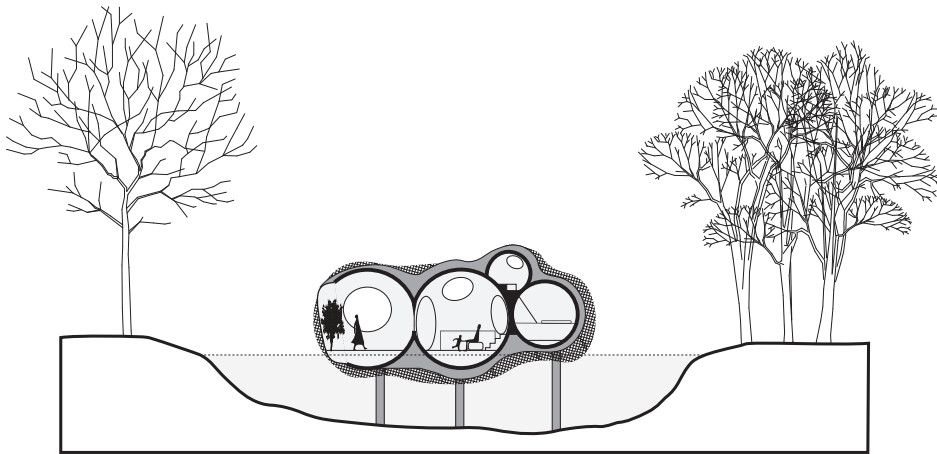
Image previous page:
Sketches on how would a neighbor-hood and buildings could look like.
Using the principle of the Cirsle and no private property.

Ceque-Based Urbanism as Disaster Risk Reduction

In this speculative Santiago, climate resilience is not engineered from above but cultivated through relational infrastructures that emerge from the land itself. Replacing the rigidity of the colonial grid with the flexible, reciprocal logic of the ceque system offers not only a symbolic reorientation, but a functional and spatial strategy for disaster risk reduction. Unlike the static, extractive urbanism imposed by the Spanish grid—built to dominate and divide—the ceque system organizes the territory through sacred geographies and ecological flows. Ceques are reinterpreted as green corridors that connect mountains, rivers, and settlements, forming a living, decentralized infrastructure that respects topography, water cycles, and biodiversity. These radial alignments trace hydrological paths, fire breaks, and migratory routes, allowing urban form to adapt to the behavior of the land rather than resisting it. By embedding principles of ritual, rotation, and reciprocity into the city's spatial DNA, this model reframes disaster management as an act of anticipatory care. Risk is no longer externalized or deferred—it is metabolized through good distances, polycentric governance, and spatial humility. Micro-communities become resilient units of mutual aid, while sacred landscapes—anchored by mountains and water as sentient, guiding beings—serve as ecological and spiritual nodes for coordination and protection. In this context, disaster management is not a reactive protocol but an embedded logic of territorial cohabitation—where resilience is cultivated through the alignment of human settlements with the rhythms, thresholds, and intelligences of the Earth.

Territory becomes sensor and signal.

Mountains are sacred

Space for River

Human space, natural space, and shared spaces

decentralized, agile, and situated governance

Water and watersheds are sacred

The ceques align with watersheds, slopes, and natural runoff paths.

avoiding construction in high-risk areas.

small settlements (300–400 people) is proposed

ecological corridors, the creation of biodiversity reserves, and buffer zones against extreme events.

Rotation of soil use = ecological cycles, not permanence

This reduces risks like erosion, desertification, and the spread of wildfires.

HIDROLOGICAL READING
ADAPTIVE MICROCOMMUNITIES
SOIL ROTATION AND REGENERATION
SPACE FOR NATURE

Scenario 2: Nomadism .
Designing for Mobility and Water Insecurity

Year 2183. We failed. There was no orderly transition. The cities of Chile's Central Valley collapsed: scorching heat, extreme drought, and catastrophic rains turned urban centers into climate and social traps. Water reserves vanished, rigid infrastructure crumbled under its own weight, and the extractivist model finally devoured itself.

So we migrated. To the coast. To the fjords of the south. To the places where there is still water, mist, shade, and possibility. But we did not repeat our mistakes. This time, we did not build monumental cities or centralized networks. This time, we listened to the long memory of the land, to Indigenous mobility practices, to cycles, to light architecture, and to the principle of reciprocity.

A new principle: mobility as an ethos

The city is no longer a fixed object or a hegemonic center. We are mobile societies, guided by an ancestral principle: we never inhabit a place for more than six years. This gives the land time to regenerate, ecosystems time to heal. Our settlements dissolve and migrate, following routes of water, seasons, shade, and wind.

Each settlement is composed of communities of 300 to 400 people, a human scale that avoids hierarchy, fosters mutual care, and maintains operational autonomy. This measure, inspired by Mapuche organization and echoed by anthropologists like Clastres, allows for distributed and affective governance.

Image: Possible adaptations of the module

Wind power

Geothermal

Solar CSP

Hidro power

Tidal Power

Solar photovoltaic

Floating desalination systems

E

0   100   200   400 km

Image: Energy map
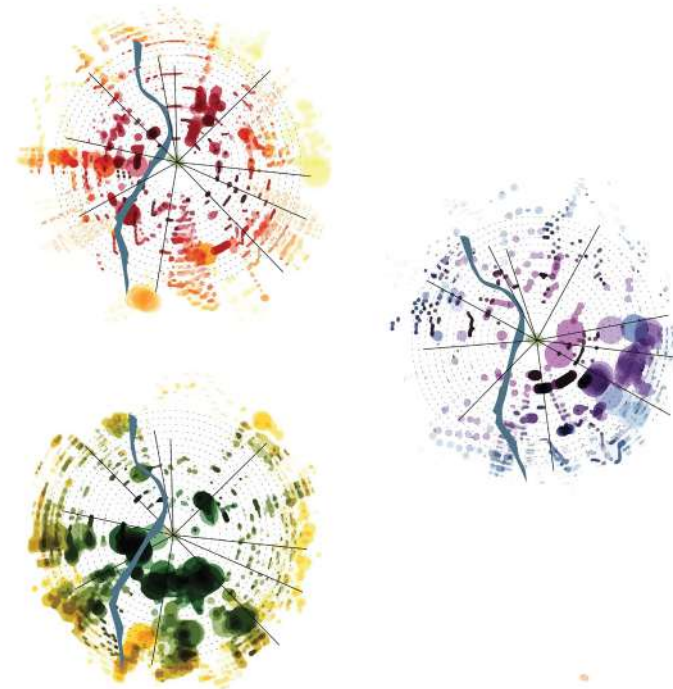Data Source: Sustainable Energy Division (August 2021). Ministry of Energy, Chile

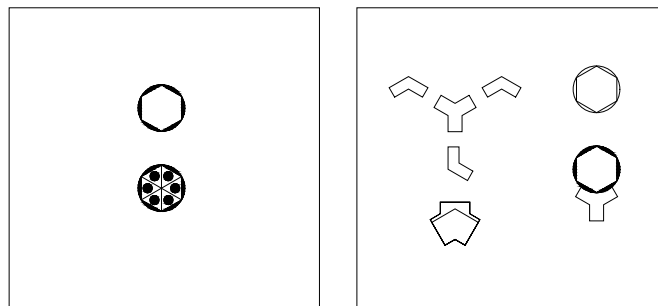**Image:** Mobility as an ethos

Essential and ephemeral infrastructure

Only three types of infrastructure are permanent:

- Bulwarks: coastal defensive walls that function as breakwaters and symbolic settlement edges.

- Energy nodes: renewable generation points (solar, geothermal, wind, tidal) distributed across the country, connected by flexible, mobile energy networks.

- Floating desalination plants, operating at multiple scales: harvesting fresh water, producing salt, filtering nutrients, and regenerating coastal habitats.

Everything else moves, breathes, floats, and adapts. The basic unit is a hexagon inscribed within a circle. The hexagon concentrates vital home functions (cooking, sleeping, resting); the circle acts as a climate shield, solar panel, living façade, and environmental filter.

Each unit can float, be lifted by zeppelins or drone-cranes, or move over land with light systems. At its base, a set of telescopic "legs" adapts to irregular topographies without excavating or damaging the terrain.

Productive landscapes and water care

There is no monoculture. Food is organized through nomadic micro-agro systems that rotate seasonally through fertile valleys. Small-scale crops of maize, chili, quinoa, beans, and medicinal herbs grow in mobile terraces and foldable vertical systems. Production is biodiverse, local, and low-impact: you eat what you grow, and you grow what the land allows.

Water, the most sacred good, is extracted from the sea through passive desalination systems. Modular salinity-controlled pools, floating along the coast, serve multiple functions: they condense fresh water, foster high-salinity habitats, grow algae, and produce salt. These are ecological, economic, and spiritual infrastructures all at once. They are organized into three zones:

- Ecology zone: restorative habitats, regenerative aquaculture, biodiversity buffers.

- Industrial zone: salt and algae production, biofertilizers.

- Habitable and recreational zone: collective rafts, floating commons, ceremonial spaces.

These zones are not isolated: they overlap and blur. Just as life ignores compartments, so too does the city.

Image: Basic module/unit and Bulwarks

minimal unit of habitation

water connection
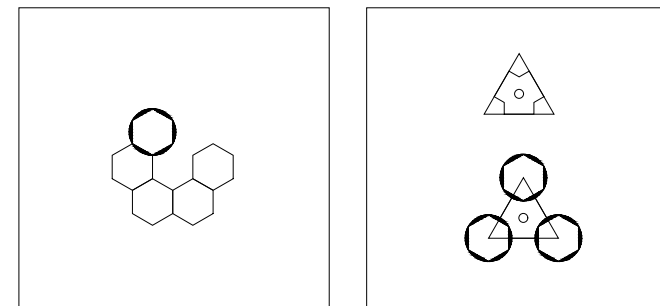
land connection

high rise connection

Image: Combinations in horizontal or vertical, see page 60

Minimal Unit of habitation

Water Connection

Land Connection

High Rise Connection

Facade

Ecological Habitat Pool

Food Pool

Production Pool

Desalination & Industrial Pool

Storm

Calm

Reduce waves

Bridge over

Soft Ports

6 km
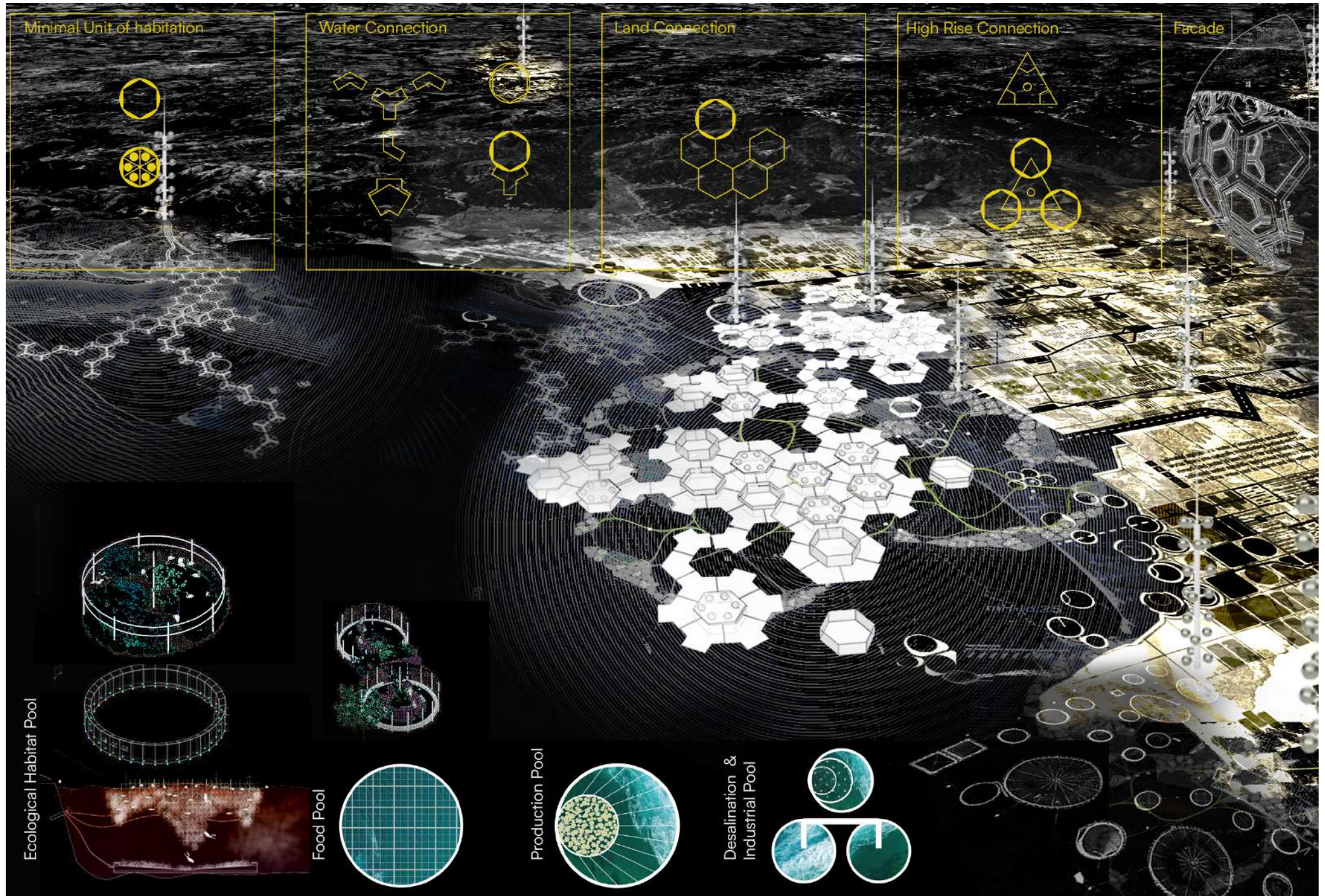
Image: Transformation according to risk or need

Reduce waves

Bridge over

Storm

Calm
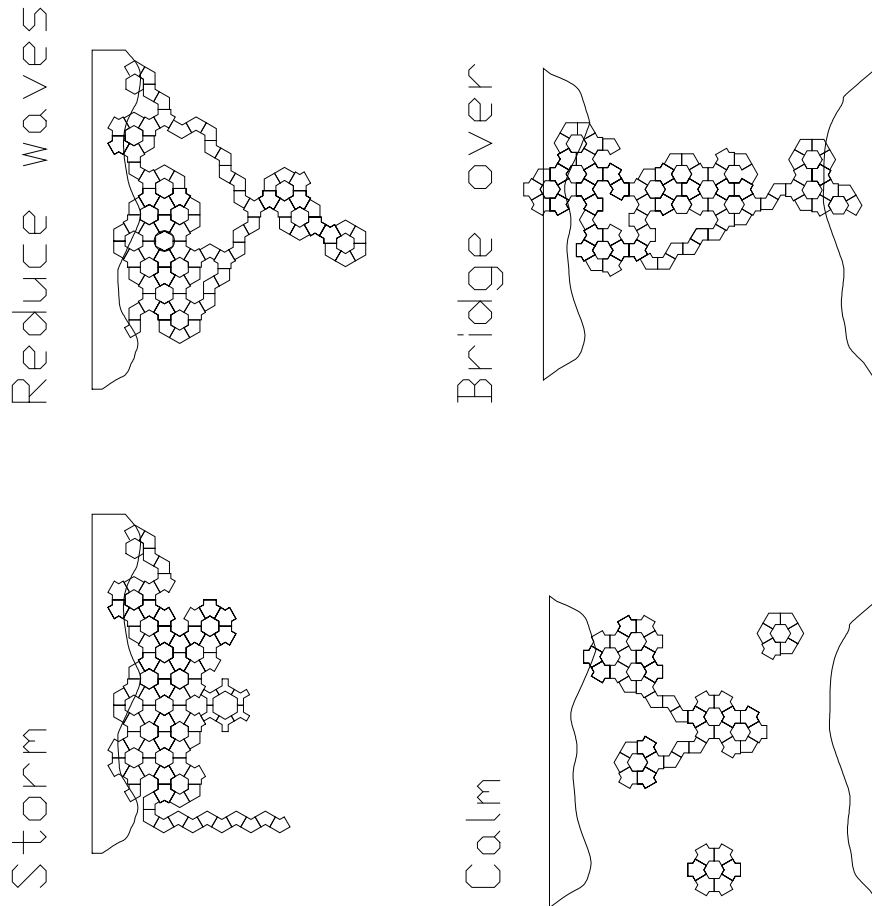
Floating networks and connective tissues

Communities are not isolated. Aerial and maritime networks connect settlements. Small zeppelins transport people, food, knowledge, and housing modules. In the skies, routes follow thermal currents and wind. At sea, electric catamarans navigate from node to node. But there are no "centers": there are distributed meshes, collaborative systems with no fixed hierarchies.

Each node has its "soft port": a floating connection space that emerges only when needed. There, exchanges, festivals, ceremonies, and agreements take place. There is no permanent property, no extractive market — only reciprocity and mutual dependence.

Epistemology of collapse

This radical city is born of collapse — but also of memory. Architecture is no longer designed to last centuries, but to honor the moment, adapt to change, and disappear with dignity. The university is no longer a temple of Enlightenment thought but a nomadic knowledge community. Geomyths — narratives that blend landscape, catastrophe, and learning — are part of the curriculum: each generation learns to read the land, listen to the water, and negotiate with the spirits of place.

Urban decisions are no longer made by experts in offices, but by communities through lived experience. Design is not imposition, but negotiation. And the urban planner, more than a projector of spaces, is a mediator between scales, species, memories, and futures.

Beyond progress: inhabiting as ritual

Collapse taught us to inhabit with humility. We no longer pursue linear progress, but cyclical balance. Every migration is also a mourning: for what was, for what we leave behind. But it is also a celebration: of the
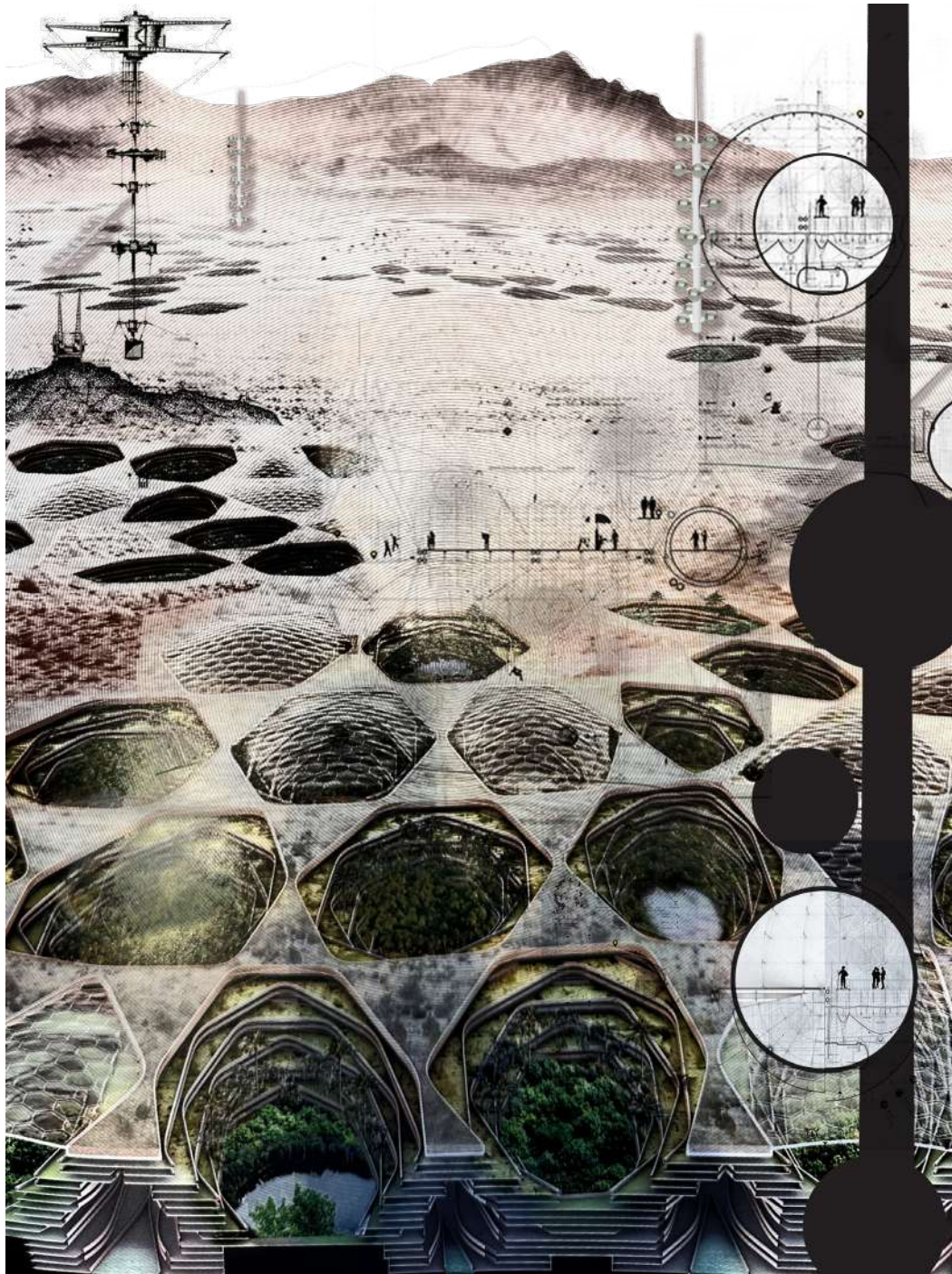
place that receives us, of the cycle that begins again.

In this radical imaginary, the city is not something we build — it is something we cultivate, listen to, celebrate, and let go. Because inhabiting a territory is not about dominating it, but reciprocating with it.

Disaster as signal, not enemy

In this world, disaster management is no longer a reactive system of emergency response, but a continuous practice of relational awareness. Disasters are not external forces to be conquered, but the land's way of signaling imbalance. By designing for impermanence, by rotating settlements, by listening to geomyths and seasonal signs, we prevent catastrophe not through domination, but through deep adaptation. Risk is not eliminated — it is metabolized through movement, memory, and respect. In this sense, our nomadic infrastructures are not just mobile — they are resilient rituals. We do not wait for collapse to act; we live in ways that make collapse less necessary.

Image: Maybe, in the valley or dessert, we can have some infrastructure for water reservoir. And the infrastructure for living there is in towers
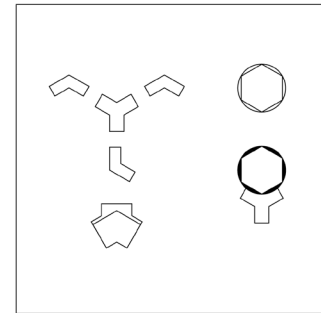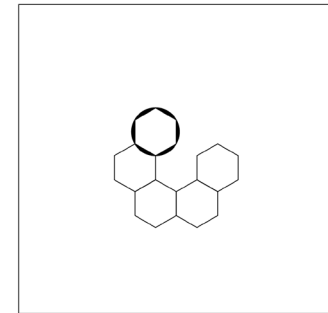Base image: Sietch Nevada, Mastys Designs

64   65
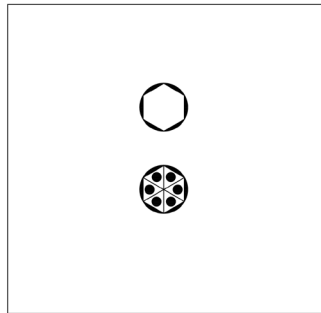
minimal unit of
habitation
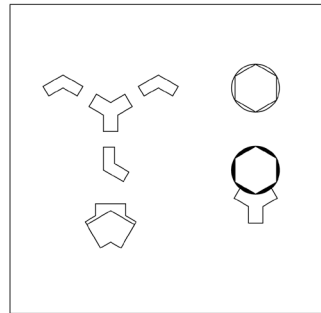
water
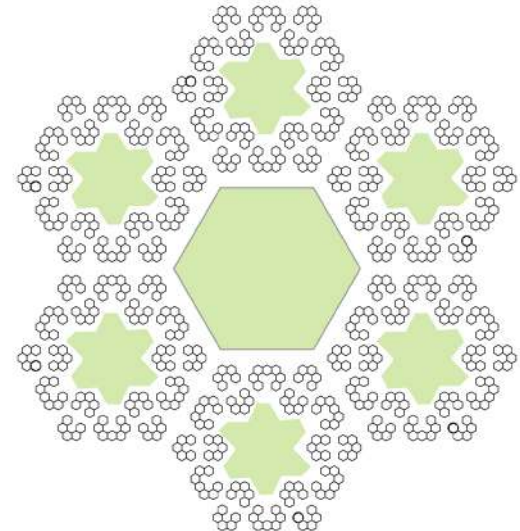connection

water
connection

land
connection

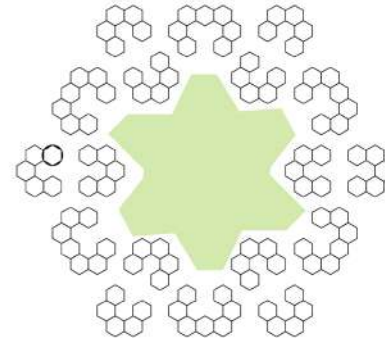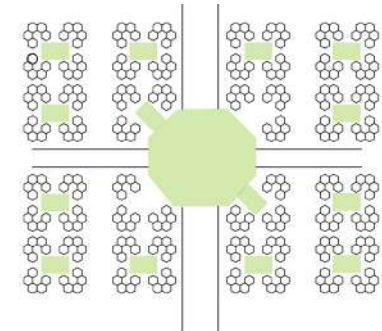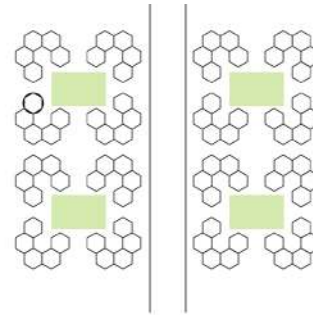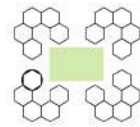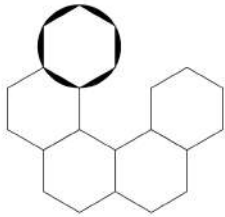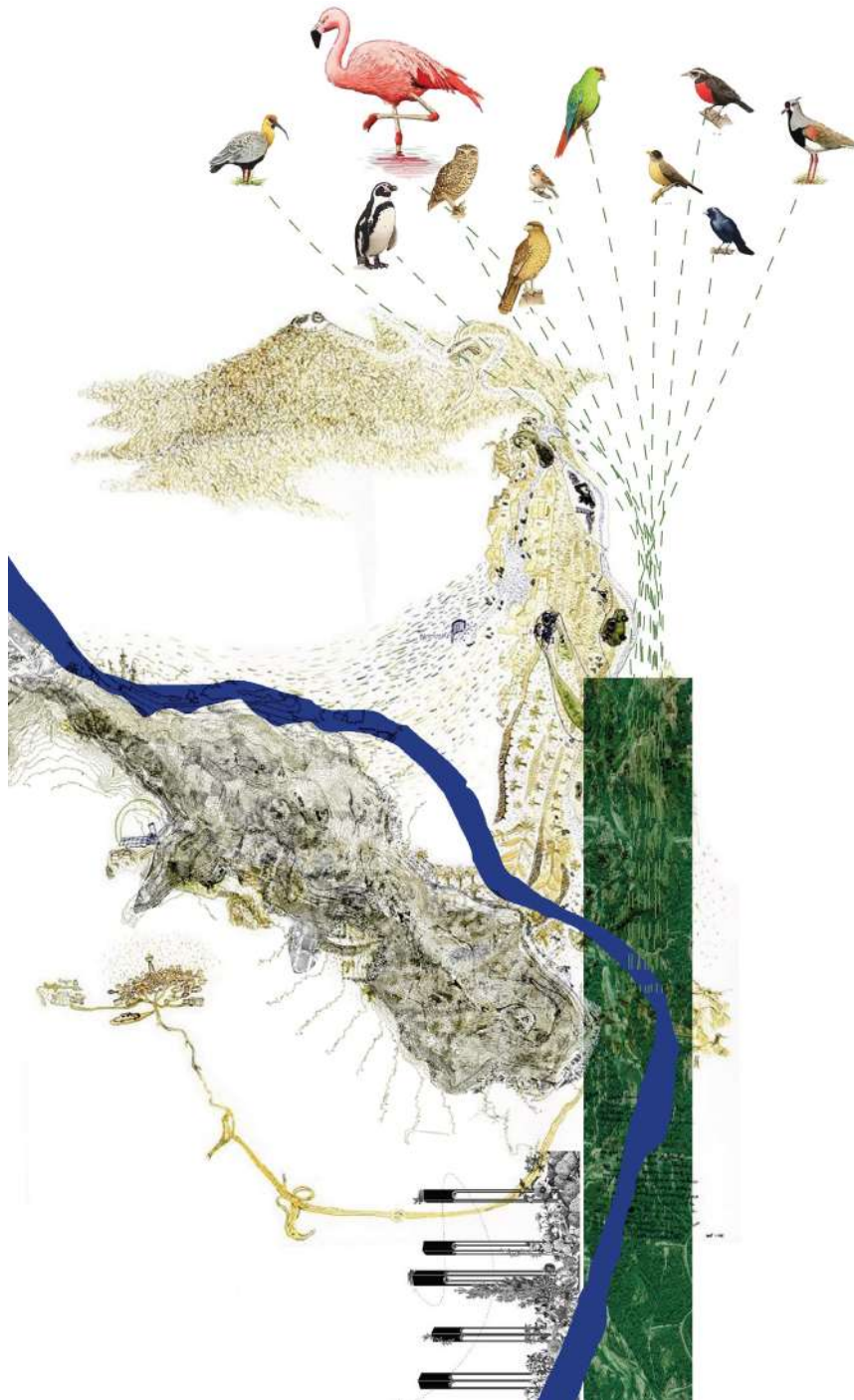**Image:** Urban Plan-
ning flexibility
From the same
module, it can adapt
, grow or shrink to
need

Scenario 3: Non-Human .

Planning with and for the non-human

What if we stopped designing cities for humans? What if territory were planned based on the needs of water, birds, soil, forests, and the spirits that inhabit mountains?

This imaginary emerges from a radical renunciation: we no longer place ourselves at the center of the world. We abandon the modern illusion that the city is the pinnacle of civilization, and instead accept that we dwell among millions of life forms — all of which possess agency, will, and rights.
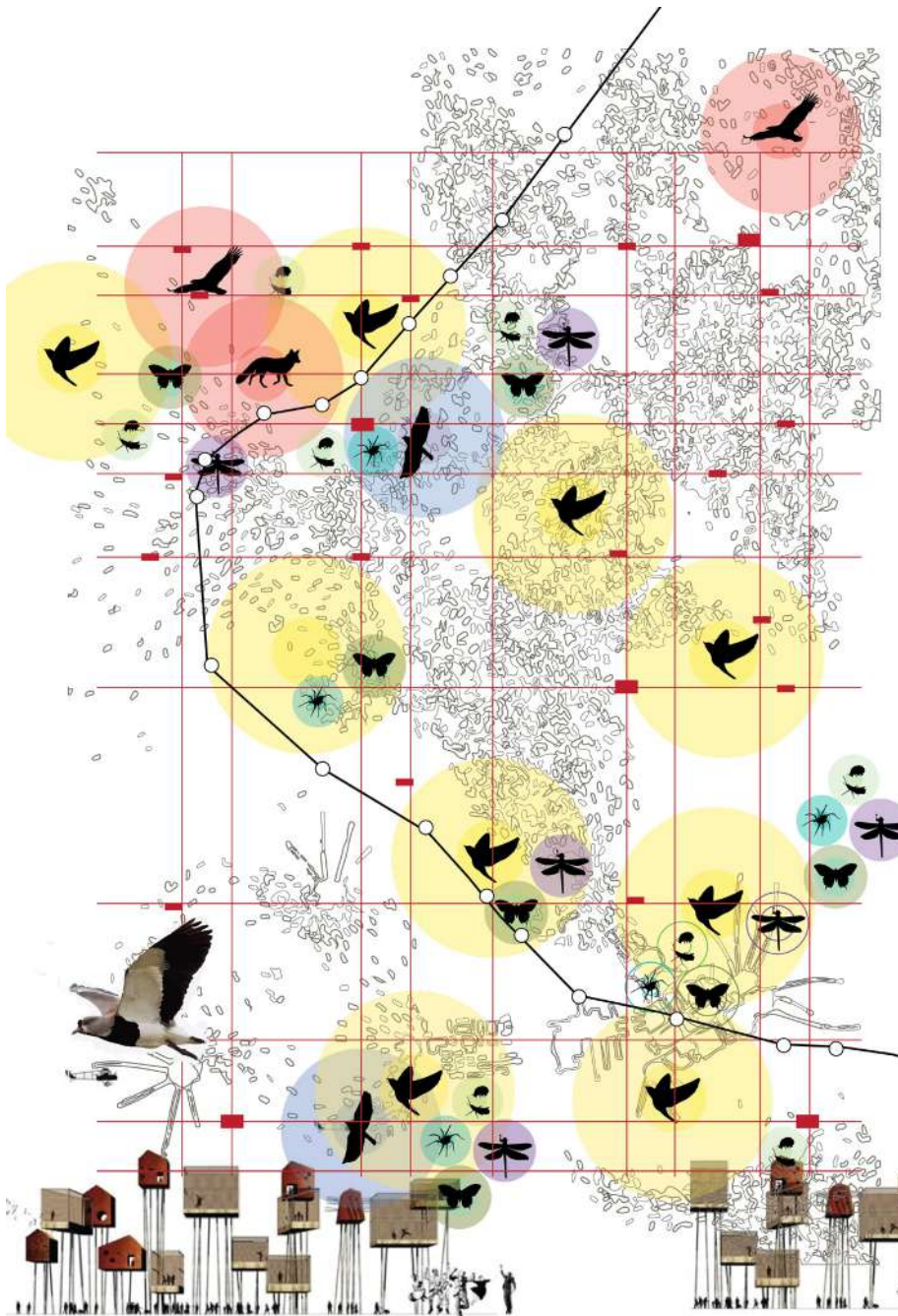
Designing for birds

In this city, maps aren't drawn in offices — they emerge from flight. Geography is read from above: corridors don't connect shopping malls, but nesting sites. Infrastructure adapts to migration routes. Roofs are rest platforms, lampposts are wind observatories, and façades sing with the morning sun.

Cities are no longer structured by avenues, but by resonant forests, full of fruit trees and mist. Buildings never exceed three stories, because anything taller disrupts the sky. Structures are built from natural fibers, biological resins, woven branches, and materials designed to biodegrade with the rain. Nothing is eternal — everything returns to the earth.

In this world, flight patterns are early warning systems. Birds no longer flee in fear from human noise — they guide us. Their changes in rhythm and route tell us of imbalance, of shifting temperatures, of storms approaching. Urban infrastructure follows their migrations, building around rhythms of movement, not permanence.

Previous page: Conceptual images of how would the flight maps look like

68

69

Designing for water

Water is not an enemy. It is a teacher. Water is no longer piped or drained. It is honored. Rivers hold legal rights, and urban plans are written with them as participants. Cities flow with the seasons. They expand with rain, contract with drought.

Water is not an enemy. It is a teacher. Cities are designed to expand and contract with rain cycles, never built in fixed floodplains, but rather on amphibious platforms, floating roots, and migratory grounds. Water is listened to. When it speaks loudly, we move. When it's silent, we sing to it. Water infrastructure does not aim to control, but to care: porous weaves, capillary systems, vegetative sponges that absorb and release as needed.

Disaster prevention is not based on walls or dams, but on absorption, distribution, and respect. Wetlands are sacred zones. Rain is stored, not drained. Desalination pools act as floating ecosystems, generating fresh water, cultivating algae, and buffering storms. Their salinity variations even help track climate shifts.

Designing for soil

In this world, soil is a subject, not a surface. It has voice. It has memory. Every temporary settlement begins with a dialogue with the ground. We read its moisture, its fatigue, its vitality. If it does not want to be inhabited, we leave it alone.

We don't dig. We don't pave. We hover. Homes rise on soft stilts like aerial roots, allowing the soil to breathe. Paths are not paved but drawn with seeds that only bloom in dry season. Every step leaves a vegetal trace. The dominant color is not gray — it's green, in all its variations.

Soil is not passive. It holds memory. Landslides, droughts, and erosion are not geological accidents

Previous page: Conceptual images of howinfrastructure for a city for birds look like.

Next page: Maybe we will have to live in cages, so our context can flourish
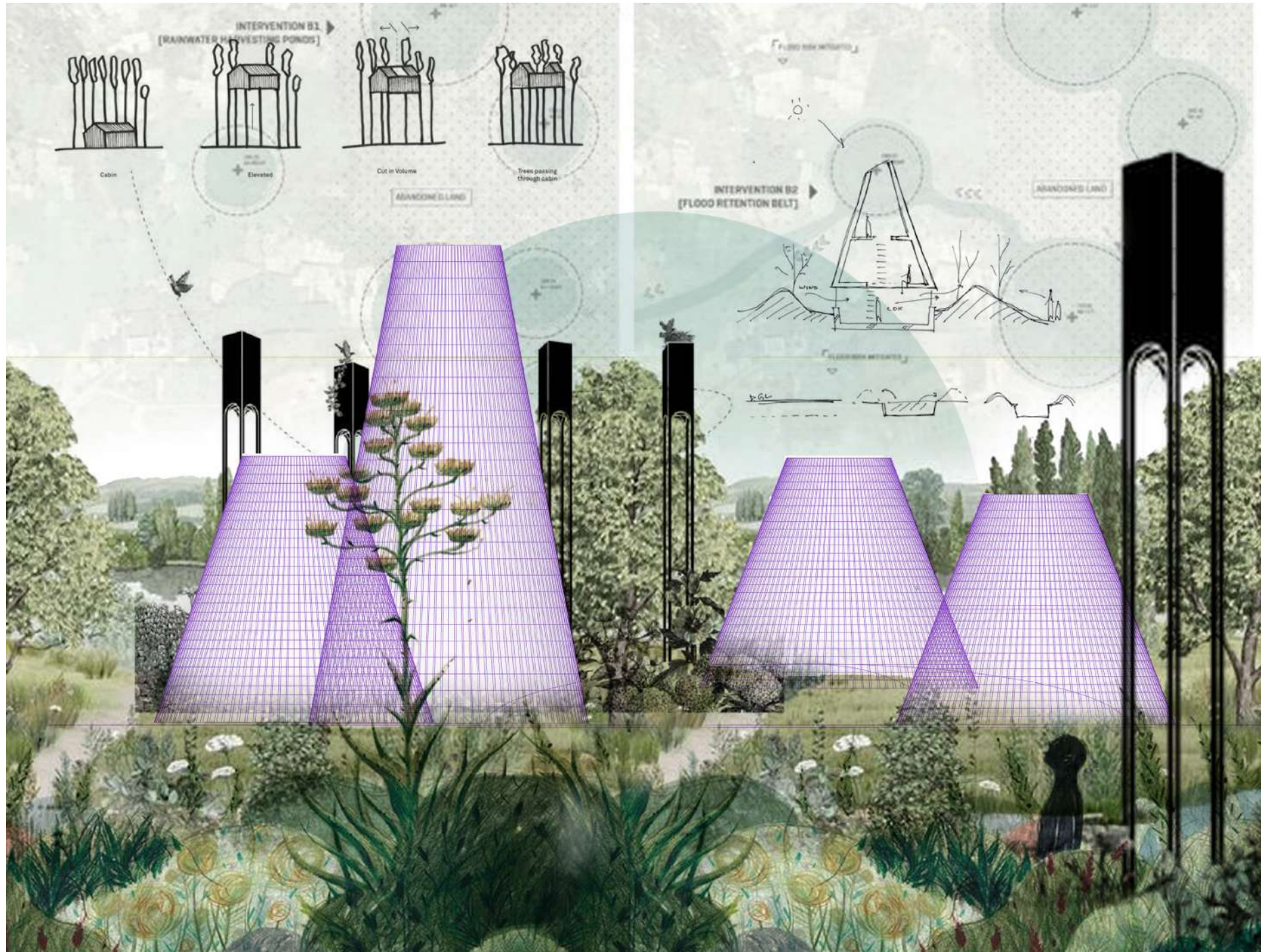
— they are signs of exhaustion. In this model, disaster management is ecological reciprocity: by giving the land time, we receive warning. When certain trees stop blooming, when certain insects disappear, we know it is time to leave — or to intervene differently. The soil speaks before the crisis arrives. We simply learn to listen.

Interspecies governance

Territorial decisions are made in watershed, forest, and wetland councils. Each one includes human representatives and interpreters of the non-human: water guardians, bird-song listeners, wind-language readers. Politics becomes ceremony. Quorum is not measured in people, but in agreements between worlds.

Urban laws are not written in technical codes but in stories. Each zone is regulated according to its spiritual energy and value for collective life: there are silence zones for bats, shadow zones for lichens, and wind zones for insects.

What we call resilience begins with governance. Every community decision involves humans and non-human beings through appointed guardians and interpreters. Anticipating disaster is not about prediction models, but about restoring broken relationships.

Disaster management approach:
In this radical imaginary, disaster management is not defined by alarms or emergency declarations, but by seasonal ceremonies and shared ecological awareness.

Here, urbanism becomes an act of humility and ritual, where the city listens, learns, migrates, and sometimes disappears. We do not build against collapse; we live in a way that makes collapse part of the cycle — not an end, but a beginning.

Previous page: Interspecies governance. Bird-song readers
Image Source: Permeable Playground : Forest Lucidity

Conclusion .

Towards Pluriversal Planning

Crucially, this shift redefines how we understand and manage disasters. Rather than treating them as external threats to

This radical imaginary is not fantasy — it is reparation. It is a post-anthropocentric architecture that acknowledges a historical debt to the more-than-human world. An urbanism that does not domesticate but converses.

It's not about representing nature — it's about planning with it. About imagining cities that don't need permission to exist, because they already belong. Cities where design is not measured by productivity, but by reciprocity.

To inhabit this world requires humility, listening, and letting go.

We are not the planet's designers — we are its guests.

This thesis constitutes a methodological contribution to the fields of urbanism, architecture, and landscape design from a situated, decolonial, and relational perspective. In response to the limitations of modern urbanism—anchored in extractive, technocratic, and hierarchical logics—I propose an epistemological shift toward pluriversal planning models rooted in territory, care, and Indigenous cosmologies. More than an adaptive response to the climate crisis, this work calls for a deep transformation of our spatial values, design scales, and modes of relating to the world (Escobar, 2018).

I thus reaffirm that *we are landscape*, and we must design as if that were true. Through the concept of *Radical Spatial Imagination* (Haiven & Khasnabish, 2010), this research does not offer closed utopias, but tools to imagine and construct territorial futures grounded in critical hope, ecological reciprocity, and reverence for the sacred. Although the timeframe of this master's degree did not allow for full implementation of the proposed system, its methodological validity has already been recognized and applied by others: an architecture student at TU Delft adopted these principles to develop her own thesis project, proving that this

approach is not only theoretical but transferable, fertile, and transformative.

In this sense, my thesis is not a conclusion but an opening: an invitation to imagine, design, and inhabit radically from the global South, where spatial imagination is not an aesthetic abstraction, but a political practice of collective survival. As Haiven and Khasnabish (2010) argue, to imagine radically

Scope and Limitations

This project does not attempt to fully resolve several foundational aspects, which remain open for future development and critical engagement. The basic infrastructure—such as energy systems, potable water supply, transportation networks, and public services—has not been addressed in technical detail. Mobility systems, in particular, remain unresolved: how do we move across a territory shaped by sacred geographies without reimposing extractive logics? How do energy, waste, and water systems function in a way that sustains both human and more-than-human communities? The provision and governance of healthcare, education, and climate shelters remain speculative and require deeper exploration.

The question of borders is also a persistent challenge: how can one define the edges of a community without enclosing or territorializing them? How are thresholds between the urban and the sacred constructed—between what is built and what is listened to? Technological systems capable of supporting this way of living are not developed here, and the social structures—Who governs? How are decisions made? Who is included in the definition of "community"?—remain deliberately open.

Likewise, the economic dimension is not resolved. How might a system like this be funded, constructed, and maintained without falling into the logics of commodification or neoliberal "green" urbanism? Temporal scales also require further elaboration: How does this model adapt seasonally, cyclically, and across generations? How do these systems evolve in response to environmental and cultural shifts?

Rather than offering a comprehensive design, this is not a master plan but a possibility—a framework for reinhabiting territory with care, reciprocity, and resilience. It is an invitation to practice what might be called Radical Spatial Imagination (RSI): a political and creative process of imagining space otherwise. This is not a theory but a counter-practice—a spatial response to climate crisis, urban inequality, and epistemic violence. It does not seek to "add" Indigenous knowledge onto Western urbanism, but instead proposes a worldview rooted in Indigenous thought as a primary framework, one that decenters the modern city and asks instead: how might we imagine urban planning through Traditional Ecological Knowledge (TEK)?

As such, this work is less a proposal than a provocation—an open question for planners, designers, and communities to engage with, adapt, and evolve. It sketches a beginning, not an end.

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is also to construct the material conditions for making the impossible possible.

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BECOMING INDIGNEOUS TO PLACE

Reimagining Urban Futures through Ancestral Knowledge and Territorial Resilience in Chile

BOOK 6
Conclusions & Reflection

Conclusion 1.

Thinking otherwise

What does it mean to "inhabit"? and, what does it mean to become indigenous to a place?

What I've learned from this research is that Indigenous knowledge is not only knowledge about the environment, but a way of living in balance with it. Indigenous worldviews do not separate nature and culture, individual and community, time and space. Concepts such as Az-Mapu (Mapuche) or Pacha (Andean) do not distinguish between physical and spiritual territory: they are living notions, linked to a specific space and time, which articulate memory, landscape and identity (interviews, 2025). (interviews, 2025).

Colonisation fractured this relationship. It not only appropriated land, resources and people, but also knowledge, languages and ways of doing things (Bustamante, 2025). Western thought has tended to fragment the world in order to understand it, separating the scientific from the spiritual, the urban from the natural (Troncoso Meléndez, 1999). Today, even science is beginning to recompose these divisions.

Thinking about urban futures from the perspective of urbanism also implies considering the imaginaries that these futures propose. Design and infrastructures are not neutral: they can reproduce logics of exclusion or open up democratising possibilities, which is why urban planning must question its epistemological foundations. For this reason, urbanism must question its epistemological foundations: what if we think of the city not from Le Corbusier (traditional, modernism), but from ancestral agricultural calendars, from reciprocity instead of property, from care instead of extraction?

By questioning the foundational principles of modernist urbanism, this research proposes new principles for imagining the city and the territory. These principles are not constructed in abstraction, but emerge from the geography, memory, and specific ecosystems of Chile.

The Indigenous notions explored here do not merely approximate the Western definition of "landscape"—they transcend it, weaving together territory, spirituality, and identity into a single practice. The true value of this proposal lies in the fact that it is not limited to a particular case: by working from memory—not tradition—it opens methodological possibilities that are adaptable and replicable in other contexts.

Why memory and not tradition? Because memory is resilient. It lives, is transmitted orally, it transforms, and it resists. Tradition, on the other hand, tends to freeze fragments of the past, fixing them in time. Memory, being dynamic and situated, offers a real and tangible path to rethink how we inhabit space.

Thus, this thesis is an invitation: to change the questions that guide urbanism, to imagine from other logics, and to stop thinking of the city as an object to be designed and instead begin to understand it as a living process— one in relation to the land, the cycles, and other beings.

Becoming indigenous to the land is not a metaphor—it is a political, cultural, and ecological urgency for urban futures.

Conclusion 2.

Imagining new territorial justice agenda

We know that not all natural hazards can be avoided—but disasters, as we've seen time and again, aren't just "natural." They result from the ways society is organized, how we use space, and whose voices get left out of decision-making. To truly reduce risk in Chile, we need to move away from simply reacting to emergencies and start rethinking how we relate to territory and to each other.

This means shifting from a disaster-response model to one of risk governance that takes prevention seriously and is rooted in territorial justice. Territories can't keep being treated as sacrifice zones or just areas to manage. They are lived spaces—full of memory, identity, and knowledge. Including those dimensions in planning and governance isn't just symbolic; it's key to building more just and resilient futures.

At the same time, climate phenomena don't just affect the environment—they intersect with politics, economics, and even the spiritual life of communities. There's compelling research showing how extreme weather events in Chile have historically aligned with moments of political crisis, like the 1924 drought before the fall of Alessandri, or the 1982 floods during the decline of the dictatorship. That pattern tells us we can't ignore the climate when we talk about social stability or political change.

But this also invites us to broaden how we understand these events. From Andean and Mapuche perspectives, for example, phenomena like El Niño or intense rains are seen not as random disasters, but as signs of imbalance—between humans and nature, or between opposing cosmic forces like Kai Kai and Tren Tren. These worldviews challenge us to think differently

about risk, and to imagine urban planning that respects natural cycles and landscape entities, rather than trying to dominate or suppress them.

So if we really want to address the roots of vulnerability, we need a more integrated, culturally aware, and historically grounded approach—one that values diverse ways of knowing and puts justice at the center of how we govern territory in times of climate change.

Conclusion 3.

Planning With, Not For: Reimagining the Territory as a Living Subject

Chile is at a critical juncture where a profound territorial transformation is urgently needed. But this transformation cannot be reduced to administrative decentralization or technocratic improvements to urban flows. It requires a new way of thinking and feeling the territory. The landscape can no longer be treated as a passive backdrop or as a warehouse of extractable resources. It must be recognized as a living entity, shaped by memories, knowledge systems, and ecological relations that have long been ignored or marginalized.

As this chapter has argued, the centralized, functionalist planning model has produced a "peripheralization of risk" (Ingeborgrud, 2018), where the most vulnerable regions — due to social, geographic, or historical factors — bear the brunt of climate change, natural disasters, and structural disinvestment (Jordan et al., 2018; Letelier & Irazábal, 2015). This territorial injustice is not incidental but the result of extractivist and technocratic logics that treat land as a means, not as a relational space.

In contrast, other forms of territoriality are emerging, rooted in the traditional ecological knowledge of Indigenous peoples. The practices of the Lafkenche, for instance, go beyond sustainable forest or water management: they embody a worldview in which the territory is a web of relationships among humans, climates, soils, and spirits (Watson, 2019; Nabhan, 2020). This challenges the instrumental view of landscape and proposes an ecology grounded in respect and reciprocity.

As Barad (2007) argues, matter and meaning are entangled: to design spaces is also to design worlds.

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This places a responsibility on architecture and urbanism, which must go beyond "impact mitigation" and actively engage in the construction of new forms of living — regenerative, inclusive, and situated. The Chilean urban metabolism — highly dependent on fossil inputs and producing vast waste — cannot be transformed without revisiting its symbolic, economic, and political foundations (Wolman, 1965; Wackernagel & Beyers, 2019).

But this transformation cannot come from technical fixes alone. It also demands a narrative restoration (Nabhan, 1997): re-telling our relationships with territory through affective, situated, and plural perspectives. To become landscape, as many territorial movements propose, means recovering a sensitivity eroded by centuries of colonization, forced modernization, and top-down planning.

Ultimately, landscape is not external to us. We are landscape. In our bodies, memories, and ways of life dwell the diverted rivers, the flattened hills, the forgotten rituals, and the surviving resistances. Embracing this condition is not romantic — it is deeply political. It means recognizing that every territorial wound is also a social one. And that any real possibility for climate adaptation begins with restoring, caring for, and collectively reimagining the worlds we inhabit.

Conclusion 4.

Not to Change the World, But to Inhabit It Differently

We are landscapes, geographies unifies as more then our political and administrative borders. Rethinking urbanism from Andean and Mapuche worldviews invites a profound shift. These cosmovisions do not perceive territory as an object to manage, but as a living subject made of reciprocal relationships among humans, spirits, and natural elements. Normative systems such as the Az-Mapu embody ethical, spiritual, and practical principles that regulate the use of land, water, and ecosystems. These are not symbolic abstractions but active frameworks guiding inhabitation in balance with the world — central to contemporary biocultural conservation, especially in coastal and marine territories.

Recognizing entities like gnem and wak'as — spiritual guardians of Mapuche and Andean territories — challenges the modern notion of infrastructure as inert. These beings are not metaphors or myths but actors with agency. From this perspective, the city is not a technical construct but a relational field shaped by presence, memory, and spiritual forces. Urban design becomes a practice of cohabitation and care rooted in reciprocity, rather than extraction and control.

Indigenous interpretations of natural disasters further challenge Western frameworks. For Mapuche and Andean peoples, these events signal imbalances in the web of life, rather than mere anomalies. Practices such as ritual site selection, altitudinal migration, funerary rites, and landscape interpretation are not superstitions but strategies of resilience. Understanding these as knowledge systems offers valuable insights for designing with risk, rather than against it.
This shift is urgent. In Chile, historical records show that extreme weather events have often coincided

with political ruptures. Recognizing climate not just as background, but as a structuring force, demands a temporal and relational approach to territory. Geomyths — symbolic narratives linking disasters, geography, and cultural memory — provide expanded frameworks for planning. They contain ecological warnings and adaptive strategies often overlooked by modern technocratic systems.

Yet, these ways of knowing are under threat. Extractivism, migration, and institutional erasure have fragmented the continuity of ancestral memory. As Diego Salazar points out, this creates a "temporal blindness" in modern planning, which overlooks deep histories of risk and adaptation. The 9.5 magnitude earthquake and tsunami 3,800 years ago on the northern coast — and Indigenous responses to El Niño cycles — show that ancient communities interpreted environmental signals and chose settlement sites accordingly.

Recovering this kind of long-term territorial memory is not nostalgic, but essential. In cities like Santiago, which have long histories of flooding and unregulated growth, we need planning that listens to the land and respects its rhythms. Rivers like the Mapocho are not just hydrological features but entities with memory. Ignoring their logic has led to repeated crises. Remembering them — spiritually and ecologically — could restore balance.

As Milton Almonacid argues, Indigenous knowledge does not aim to "change the world," but to inhabit it differently. Cities, historically defensive and hierarchical, must be dismantled conceptually to make room for other forms of life. Almonacid, echoing Pierre Clastres, reminds us that many Indigenous communities, like the Mapuche, intentionally limited their groups to 350—400 people — a scale that avoids centralization and

domination. This communitarian logic counters both colonial statecraft and modern urbanism.

Almonacid also critiques modern knowledge systems, including the university, which remains shaped by Enlightenment logic. For him, disrupting dominant epistemologies is not just methodological innovation, but an act of imagining other possible worlds. Any knowledge integrated into formal systems must challenge them from within, bringing with it the weight of memory, territory, and lived practice.

Incorporating these cosmologies into urbanism does not mean romanticizing the past. It means recognizing the relational, spiritual, and multitemporal dimensions of territory — and planning accordingly. Instead of focusing solely on "ecosystem services," we must embrace ecological sovereignty, rooted in Indigenous rights and responsibilities toward land and water.
This approach aligns with paleoclimatology, which also encourages long-term thinking. By recovering ancient agricultural knowledge — like andenes adapted to desert systems — we find solutions to contemporary climate crises. These practices, often transmitted through oral memory or material traces, can inform more resilient models of land use and food systems today.

Ultimately, what emerges is a call for a situated, relational, and decolonial urbanism — one that values life over extraction, memory over erasure, and reciprocity over domination. This means recognizing the landscape as a living subject, and planning not just for people, but with all beings who share the territory. Urbanism, then, must become a practice of care. It must listen to local narratives, attend to spiritual geographies, and work with long ecological timescales. We are not separate from the landscape — we are landscape.

Conclusion 5.
Towards pluriversal planning

Crucially, this shift redefines how we understand and manage disasters. Rather than treating them as external threats to be controlled, we read them as signals from a disrupted relationship between humans, ecosystems, and spiritual forces. Disasters are not anomalies — they are messages. They are the voice of the land when it has been silenced for too long.

This radical imaginary is not fantasy — it is reparation. It is a post-anthropocentric architecture that acknowledges a historical debt to the more-than-human world. An urbanism that does not domesticate but converses.

It's not about representing nature — it's about planning with it. About imagining cities that don't need permission to exist, because they already belong. Cities where design is not measured by productivity, but by reciprocity.

To inhabit this world requires humility, listening, and letting go.

We are not the planet's designers — we are its guests. This thesis constitutes a methodological contribution to the fields of urbanism, architecture, and landscape design from a situated, decolonial, and relational perspective. In response to the limitations of modern urbanism—anchored in extractive, technocratic, and hierarchical logics—I propose an epistemological shift toward pluriversal planning models rooted in territory, care, and Indigenous cosmologies. More than an adaptive response to the climate crisis, this work calls for a deep transformation of our spatial values, design scales, and modes of relating to the world (Escobar, 2018).

I thus reaffirm that we are landscape, and we must

design as if that were true. Through the concept of Radical Spatial Imagination (Haiven & Khasnabish, 2010), this research does not offer closed utopias, but tools to imagine and construct territorial futures grounded in critical hope, ecological reciprocity, and reverence for the sacred. Although the timeframe of this master's degree did not allow for full implementation of the proposed system, its methodological validity has already been recognized and applied by others: an architecture student at TU Delft adopted these principles to develop her own thesis project, proving that this approach is not only theoretical but transferable, fertile, and transformative.

In this sense, my thesis is not a conclusion but an opening: an invitation to imagine, design, and inhabit radically from the global South, where spatial imagination is not an aesthetic abstraction, but a political practice of collective survival. As Haiven and Khasnabish (2010) argue, to imagine radically is also to construct the material conditions for making the impossible possible.

Reflection.
Not a Flag, but a Rhizome

This thesis explores the intersection of urbanism, Indigenous knowledge systems, and climate resilience. In this era of the Anthropocene—where survival is increasingly uncertain—I propose rethinking urbanism through principles like gratitude, observation, balance, and memory. Because we don't simply inhabit the landscape; we are the landscape. Geography connects us more deeply than any political or administrative border ever could. Through this work, I sought to understand urban and extra-urban relationships grounded in respect and ontological plurality, returning agency to the territory as a living text—a vision of mutual nurturing toward a decolonial future.

The hardest part has been imagining—other futures, other ways of dwelling, and new relationships between humans and other beings. I was born, raised, and educated in a territory shaped by multiple layers of colonization: Indigenous peoples, Spanish conquest, and waves of migration, including my own family's. Chile is a capitalist country, heavily reliant on extraction. My education and discipline—architecture and urbanism—are built on a colonizing logic: appropriating territory to impose new orders.

In a country like Chile, where safety and economic inequality are urgent issues, imagining alternative forms, relationships, and dynamics is complex. I understand that Indigenous views of territory are beautiful, yet applying them within today's political, economic, social, and ethical realities feels challenging. Perhaps a collapse is needed before we can rebuild.

Still, this has been a profoundly transformative process. Questioning the traditional concepts and practices I was raised with has been one of my most

significant learnings, especially amid climate, political, and spiritual crises. I feel, deep in my gut, that we are at a global turning point: wars, natural disasters, extremisms, water crises. Everyone wants change—in politics, the economy, and land—but few are willing to change their habits or their relationship with nature. This is where imagination becomes essential: as a tool to envision resilient futures and as a social tool to imagine more just, more grateful, more balanced, grounded societies.

I've also learned that language matters—how we name things matters—and so do the concepts we use to design. I began this thesis working with Western ideas of "dwelling" and discovered profoundly different Indigenous concepts. I bring into dialogue pairs of ideas like:

Western:
Property
Territory
Sustainability
City
Agriculture
Tradition
Work
Politics
Administration
Density

Indigenous:
Reciprocity
Gratitude
Memory
Permission
Observation
Alliance
Balance
Death
Energy

From this tension, I draw my own concepts to imagine decolonial futures: diversity, sotires/language, balance, adaptation, memory, and temporality.

Though rooted in specific cultural contexts, principles like reciprocity, gratitude, observation, and balance are universal values that can adapt to other territories and memories. It's not about copying forms but recovering meaning. This thesis is an invitation to imagine from

one's own territorial memory—whatever that may be.

This work is not a manual of solutions; it's a methodology for thinking, expressing, and designing differently— for cohabiting among humans and non-humans. It's an invitation to decolonize urban design. One of the most disruptive lessons was learning to reconcile with collapse and chaos—not as threats, but as natural cycles and regenerative possibilities.

Milton Almonacid expresses this clearly: Mapuche thought does not begin with conflict but with complementarity—life and death, order and chaos, feminine and masculine. While Western thinking seeks to control the future, Indigenous peoples offer another way: imagining from regeneration.

I see this even in my grandmother, deeply Catholic, who at 99 clings to life out of fear because of her belief in "heaven," rather than surrendering to the natural cycle. It made me reflect on how deeply we have learned to deny death.

If we try to "save the planet" through technology and infrastructure alone, à la Elon Musk, we risk losing 80% of it. But if we accept controlled collapse and design new systems—food, energy—based on other logics, real transitions become possible. The ego resists this dismantling, but urgency demands it.

Chile must also decentralize to design a real transition. From Santiago, the realities of the north and south are neither known nor understood.

As Almonacid says, Western thought holds the illusion that the world can be changed—even through figures like Gandhi. Indigenous thought, instead, proposes simply dwelling differently. Cities originally arose as defensive, hierarchical structures for managing

resources; this thesis challenges that narrative.

In the practice of urbanism and architecture, this research invites us to ask before designing: Whose territory is this? To whom must I ask permission and show respect? To the municipality? The legal owner? Or the thousands of beings inhabiting that "vacant" or "unused" site?

This research proposes rethinking, re-narrating, redesigning, and re-planning territory through the knowledge of Chile's Indigenous peoples. In a fluid and sometimes deconstructed process, each chapter addresses an aspect of dwelling: natural disasters, operational landscapes, sacred landscapes, and urban imagination. Collectively, the thesis deconstructs Western identity and knowledge, challenging traditional approaches to urbanism.

It has been an interdisciplinary, emotional, and multi-scalar journey—from disaster management strategies to sustainable urban landscapes inspired by Indigenous teachings. Though I couldn't deliver a fully formal project, I'm proud this thesis is already being used by other students for their architectural work. It's an invitation to self-reflect and reinvent— contributing methodologically to an urbanism of plural worlds, in respect and kinship with nature: a becoming Indigenous to place (Kimmerer, 2015).

As Gary Nabhan (2020) points out, recovering traditional ecological knowledges offers a path to a more just and balanced future. That's why I believe Chilean architecture, territorial design, and public policy must adopt a holistic approach—recognizing the land not just as a resource, but as an extension of our collective and spiritual identity.

Finally, I want to thank my supervisor Irene, who invited me to imagine and gave me courage to be radical; Jonathan, who joined in my rescue and taught me that representation can be decolonized too; and Robin Wall Kimmerer, whose Braiding Sweetgrass accompanied me throughout, teaching the wisdom of plants.

On my mentor's question after P4—Who will lead or hold the flag for this new framework I'm proposing? I've been thinking about it a lot. Here's a reflection I'd share with friends, a way to open the conversation, not a definitive answer.

I still stand by my original reply: I will hold the flag... for now. It sounded a little pedantic when I said it, but here's why:

When Irene asked who I want to do this research for, I said, "My peers, colleagues in design and planning"—those theorizing and designing around territory and habitation. That is my current sphere of influence.

Since beginning this research, I've participated in interdisciplinary activities discussing Indigenous knowledge in contemporary contexts and found there's already a community talking about this—not specifically about territorial planning, but related. So it's not just "my flag." There are others out there, and we should join forces.

That said, thinking of it as a flag makes me uncomfortable. I picture myself as one of those soldiers in a 16th-century painting—one leg on a rock, flag in hand, with troops behind me. I don't like that image.

I prefer to imagine it as a fungus—connected to, through, and with the ground. A big rhizome that surfaces as mushrooms here and there. That fits better with my imagination and the research I'm proposing:

rooted, connected with the land, without hierarchies, each piece working independently but collectively.

I'm already seeing small roots growing—my principles are being "seen" and used by Elise, and another teacher recently contacted me about collaborating on circular water stories.

So, while I stand by holding the "flag," back in Chile I see this more as planting the first seed and building a rhizome, sharing knowledge rather than imposing it.