ACONCAGUA VALLEY

CHILE

INTRO AND PARTNERS

ACONCAGUA RIVER & QUINTERO BAY, CHILE

The Aconcagua River Basin, located north of Santiago, extends 142 km from the Andes Mountains to the Pacific Ocean. With a population of 630,000, the region faces various socio-ecological conflicts due to the activities of mining, industrial agricultural, and energy industries. Copper is the biggest export of Chile, but copper mining led by companies like Codelco and Anglo American, while central to the local economy, has extractive practices that have caused severe environmental and social degradation over the past three decades. Memories of the 1965 El Cobre Tailing Dam collapse, where Anglo America currently operates in El Melon and the devastation that communities downstream suffered from this and similar incidents in other regions, are still fresh in people's minds. Meanwhile, critical infrastructures, such as the cargo and passanger railroad built to connect Santiago and the Port of Valparaiso have been discontinued, leaving communities stranded or dependent on expensive transportation alternatives to reach bigger towns for employment. Due to the water-intensive operations of these companies, they have priority in extracting ground water and often pollute aquifers. This has caused downstream communities to increasingly suffer from water scarcity and health issues.

While the mining companies promise jobs to the neighboring communities, these jobs are few compared to the thriving agricultural economy that was once the mainstay for the people along the fertile Aconcagua River Valley given the region's temperate climate. However small-scale farming has given way to water-intensive cash crops like avocados. Prolonged droughts in Chile have added to the water stress, so that the Aconcagua River now runs dry in many more months than in the past. The expansion of cash crops and urbanization is also placing additional pressure on endemic ecosystems in the valley that still support rich but dwindling biodiversity.

Minerals extracted from the Andes are processed in coastal areas, where industrial complexes, such as copper foundries, oil refineries, and thermoelectric plants have been located for easy access to shipping for exports and imports. These complexes are concentrated around the Aconcagua River estuary and in nearby coastal regions such as Ventanas. These areas, now known as "sacrifice zones," have had a devastating effect on local ecosystems and communities. From being celebrated beachside tourist resorts of the past, they have now become deserted places where severe pollution is causing health hazards and economic hardship for local communities struggling to survive.

Furthermore, Aconcagua River Basin and the estuary have endured the negative externalities of the needs of nearby metropolitan areas, such as Santiago and Gran Valpara so, suffering from pollution and environmental degradation caused by illegalsand mining and landfills. The closure of coal-fired thermoelectric plants and the Codelco- Ventanas foundry offers an opportunity for a wholesale rethink of the region's energy and environmental future that needs to be environmentally sustainable,financially viable, and social just.

Investigating these material heritages and historical narratives across diverse urban contexts, students worked in collaboration with local stakeholders to explore pathways for repair and regeneration. On the field visit to Chile, Columbia students and faculty worked alongside their counterparts at the Universidad de Diego Portales. They also engaged with Anglo American Company, community groups including Muzosare, Mujeres y Rios Libres among other organizations, as well as officials from the Municipalities of Quillota Municipality and Concon.

During the semester and their field visit, Columbia student groups analyzed five sites along the Acancagua Basin and the estuary. They explored the role that urban design envisioning can play in shaping the future of energy, climate, and sustainable symbiosis between species (including humans) and nature.

COLUMBIA GLOBAL CENTER SANTIAGO
Antonio Campa a
Chirs Molinare

UNIVERSIDAD DE DIEGO PORTALES, FAAD
UDP FACULTIES
Alejandra Celed n
Carolina del Campo
Nicolas Stutzin
Margarita Jans
Elizabeth Wagemman
Nicolas Navarrete
Magdalena Bustamante

UNDERGRADUATE STUDENTS
Luna Figueroa
Vicente Sierra
Cristobal Mallea

CHILE SITE VISIT HOSTS
Concon
Ilen Saez (Former Councilwoman)

Concon Minicipality
Marcela Roman (Director - Parque Ecologico La Isla)
Belen
Dr. Roberto Thomson (Ornithologist and Adjunct Professor at University of Chile)

Patrimonio Vivo Costa (NGO)
Fabiola Ruiz (President of Patrimonio Vivo Costa)
Pia Morales (Treasurer of Fundacion Cidemar)

Mujeres en Zonas de Sacrificio en Resistencia (MUZOSARE)
Mercedes Yovera
Cristina Ruiz

Quillota Municipality
Margot Leticia Flores Correa

Mujeres y Rios Libres (NGO)
Valeska Barrera

Quintero Municipality
Claudia Ebensperger (Geographer, Urban Advisor)
Victor Azocar (Quintero Citizen)

Kennedy Foundation
Felipe Celedon (Project Manager, Wetlands Conservancy)

Anglo American
Tom s Barros

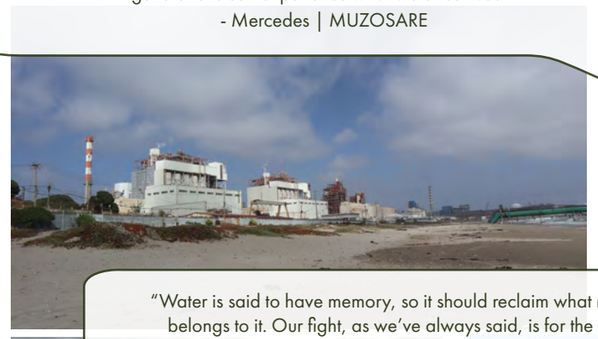
Cerros Resilientes Foundation
Mauricio Guerra

CHAO CARB N
Ladislao Palma

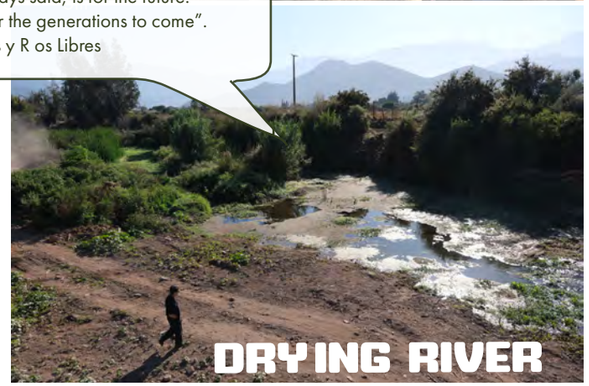
SEMINAR SPEAKERS
High Voltage, Landscape, Energy and Industry in the Aconcagua Valley
Paola Bolados
Pablo Mansilla
Tomas Arizt a
Nicol s Diaz
Juliet Vielma
Paula Livingstone
Tomas Folch
Claudio Astudillo
Matias Honour

SITE VISIT DOCUMENTATION & AGENTS OF CHANGE

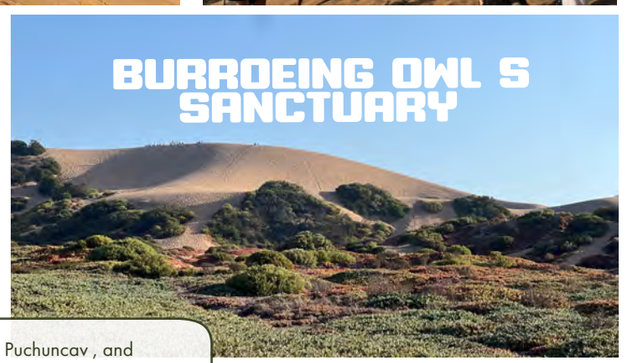
"The factories have affected the whole region, humans, animals, nature, everything... We will fight for our rights against the big industries and wish that our future generations can experience what we once lived."
- Mercedes | MUZOSARE



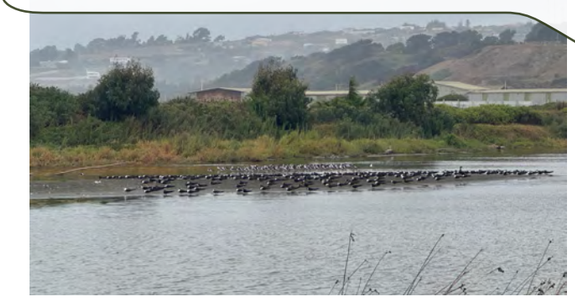
"Water is said to have memory, so it should reclaim what rightfully belongs to it. Our fight, as we've always said, is for the future. Everything we do isn't just for us—it's for the generations to come".
- Nicole & Lesly, Mujeres y R os Libres



"Coastlines should not be defined by political boundaries but seen as a living landscape" - Dunes Team



"C ncon is a sacrificial zone just like Quintero, Puchuncav , and Ventanas - it's the same thing. But here people don't like when you talk about it because this is a touristy city and people don't like to acknowledge it. But it's really important because this is about our health!"
- Fabiola Ruiz | Patrimonio Vivo Costa President



CLIMATE x DESIGN FRAMEWORK

El Melón

The Nogales Valley Alliance:
A Regenerative Framework For Post-Mining Futures

Aconcagua Valley/Quillota

Agua Para Todos:
Restorative Urbanism In The Aconcagua River Valley

Ventanas

Quintero Bay, A Breakthrough:
From Sacrificial Zones to Living Territories

Quintero

H.E.A.L Quintero:
Restoring Health, Environment, Access and Livability

Concón Estuary

Reimagining Concon Estuary:
Reclaiming Concon With Community-Led Catalysts

Concón Dune

Living Coast, Breathing Dunescape:
From A Road That Broke The LAndscape To Trails That Build It

Santiago
El Cobre
La Calera
Quillota
Aconcagua River
Quintero Bay
Dunas de Ritoque
Concón
Bahía Concón
Viña del Mar
Bahia de Valparaiso
N

UD Studio Sites

VENTANAS

ACONCAGUA VALLEY, CHILE

Spatial Visions

ACONCAGUA VALLEY, CHILE

QUINTERO BAY: A BREAKTHROUGH

FROM SACRIFICE ZONES TO LIVING TERRITORIES

Maissa Eid / Georgia Fernandes / Patricio Munoz / Dutt Patel

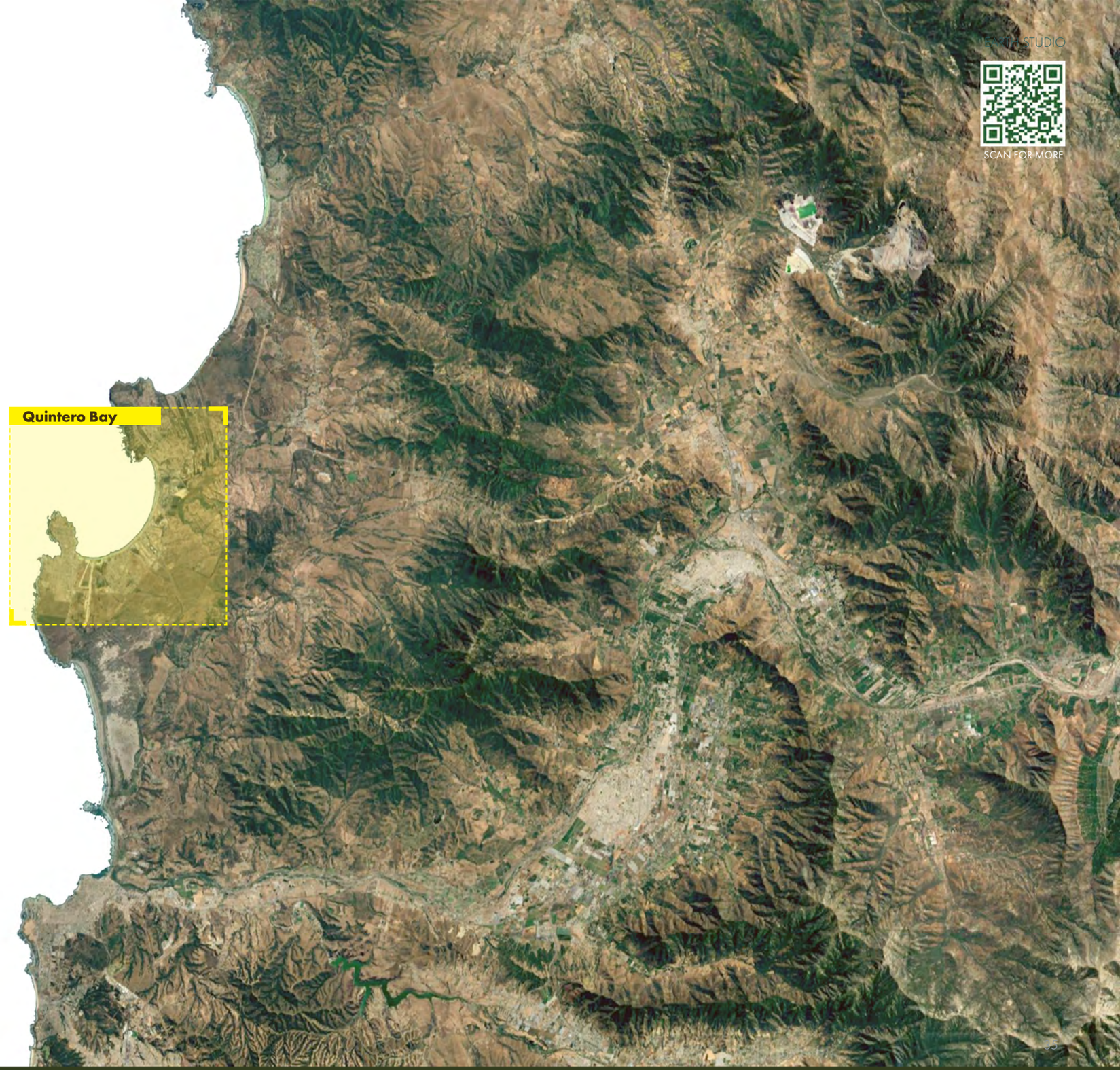
WHAT IF THERE IS A SYMBIOTIC RELATIONSHIP BETWEEN NATURE, INDUSTRIES AND COMMUNITY?

In Quintero Bay, one of Chile's most damaged sacrifice zones, industry has left deep scars on the land and people's lives. The Quintero region powers the nation but offers little in return to its people only pollution, illness, and loss.

Yet, hope grows. Inspired by grassroots groups like MUZOSARE, designers and residents are reclaiming the landscape.

Wetlands are being restored and abandoned factories are being reimagined and transformed. Together, they are building a new model- one rooted in repair, care, and shared futures.

This is not just recovery; it's a quiet revolution to turn zones of harm into places of healing, where community and ecology thrives side by side.

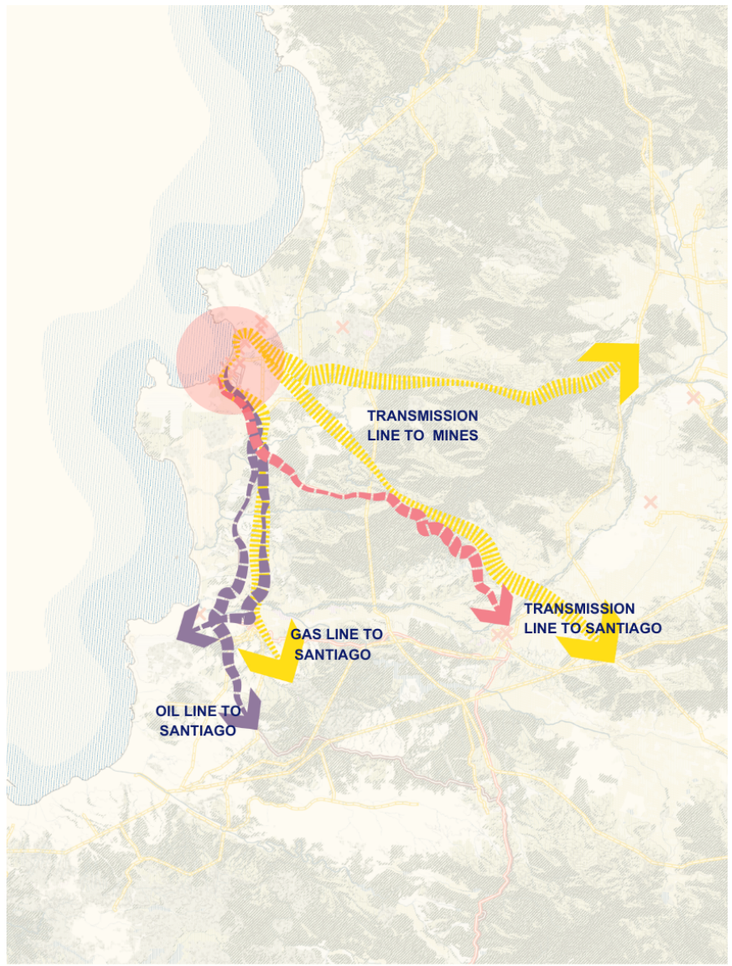


SCAN FOR MORE

01 | Reclaimed Wetland And Spaces For The Community

02 | Ventanas Industrial Complex

The Chilean coast is dotted with numerous “sacrifice zones,” areas heavily impacted by industrial activity and environmental degradation. One of the most prominent is the Ventanas Industrial Complex, located near major mining operations and a busy port.

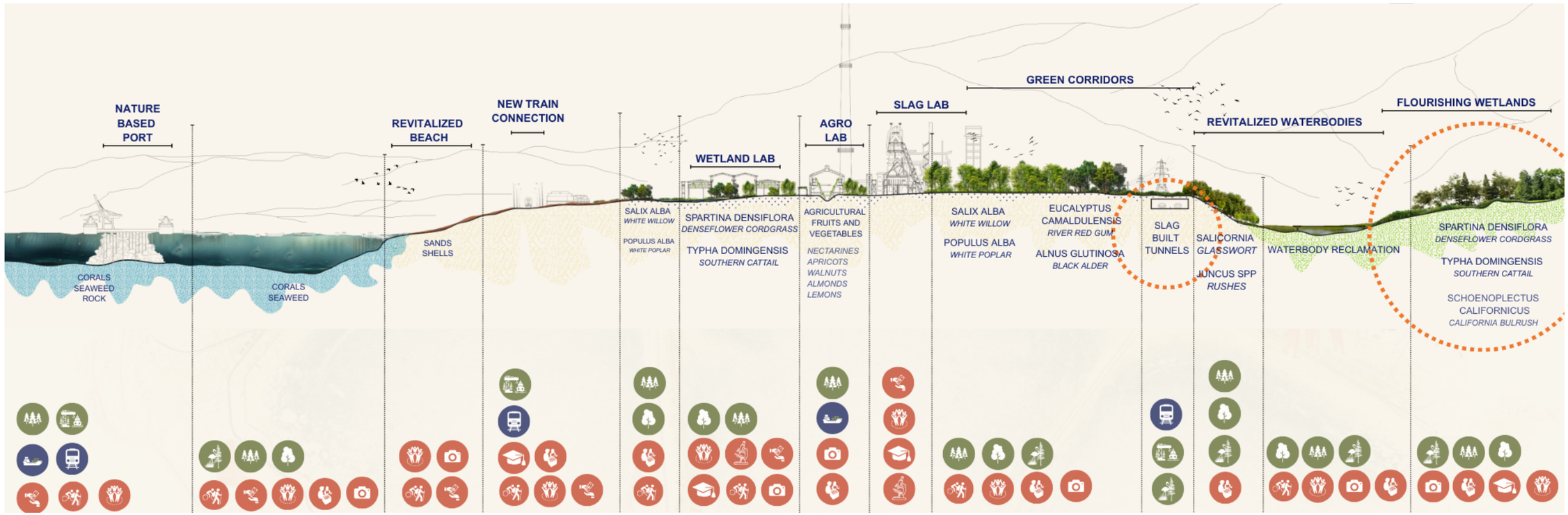


03 | Connection To The Region

This bay plays a critical role in national infrastructure, supplying approximately 7% of Chile’s energy. Its significance is further underscored by a vast network of transmission lines, railways, and roads that connect it to the rest of the country.

04 | Landscape's Current Condition

05 | Landscape's Condition In 2100



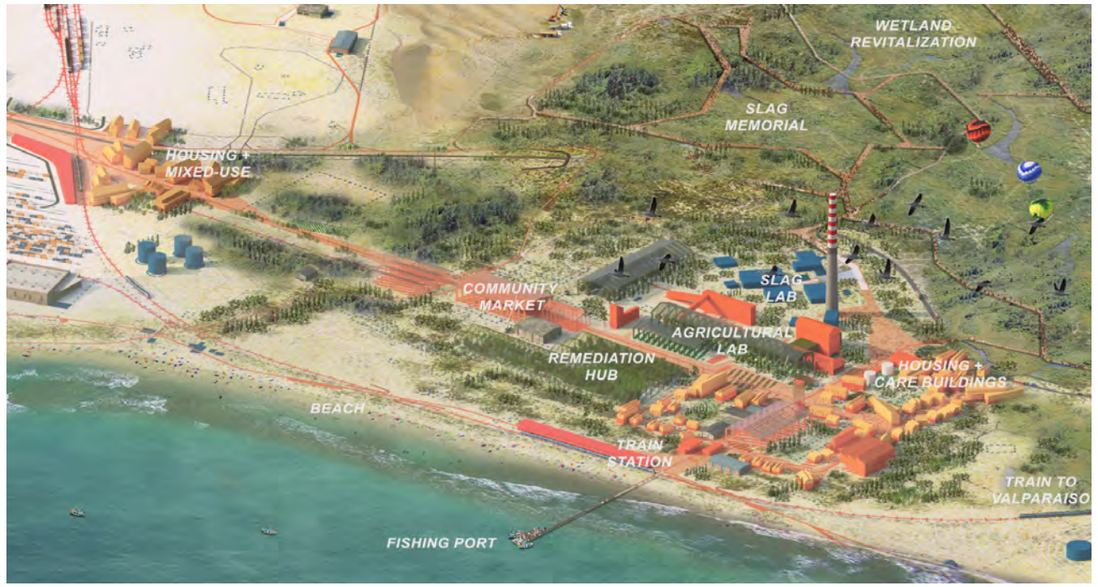
06 | Repurposed Industrial Complex Programming

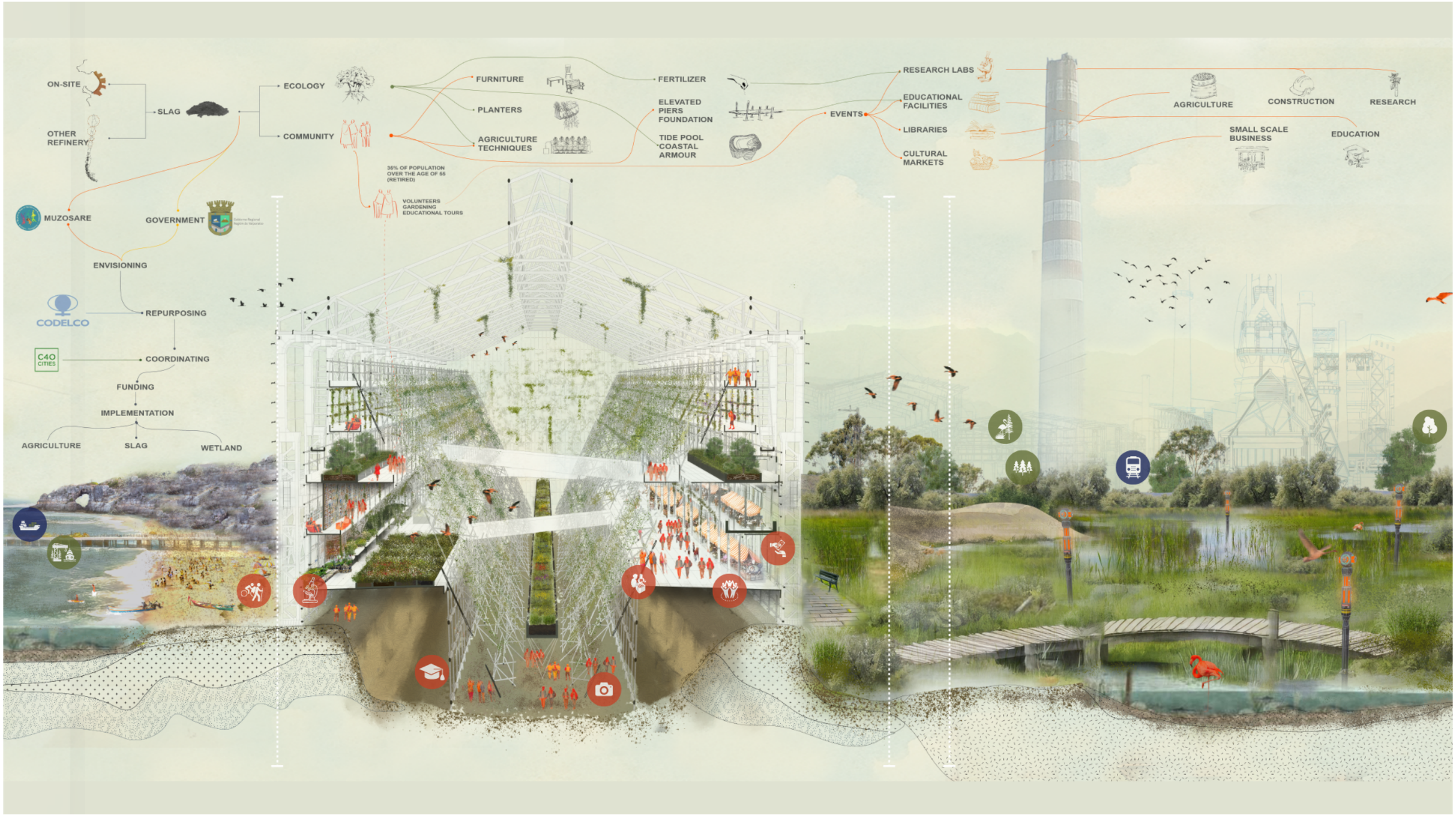
07 | From An Industrial Complex

Currently, people fear these industrial complexes due to the heavy pollution they've caused, leading to disease and high cancer rates. Through our design, we aim to restore the balance by helping the ecology, community, and industry coexist in harmony.

08 | To A Living Ecological & Social Hub

The massive industrial structures will be repurposed into spaces that serve the community and environment creating slag labs and phytoremediation testing sites, supporting both education and ecological restoration, hosting cultural markets that foster local economic exchange.





09 |Transforming Industry For Ecological and Community Renewal


QUILLOTA
ACONCAGUA VALLEY, CHILE
Spatial Visions

ACONCAGUA VALLEY, CHILE

AGUA PARA TODOS

RESTORATIVE URBANISM IN THE ACONCAGUA RIVER VALLEY

Suzanne Alphonse / Tanishka Kelkar / Vaibhav Gurung

SCAN FOR MORE

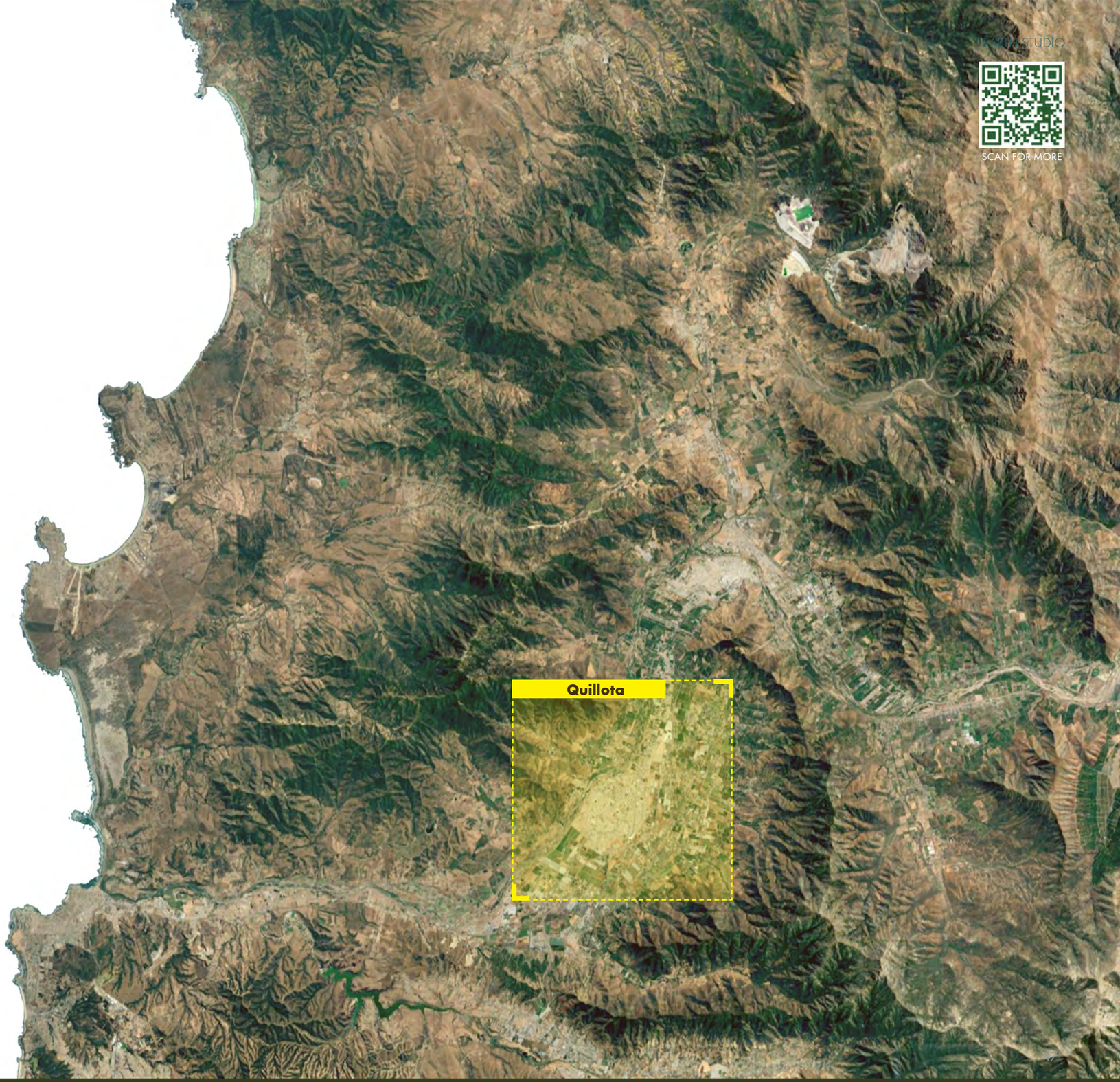
ACROSS THE CHANGING LANDSCAPE OF ECOLOGY, POLITICS, AND ECONOMY, HOW DO WE RESTORE THE RIGHTS OF THE RIVER?

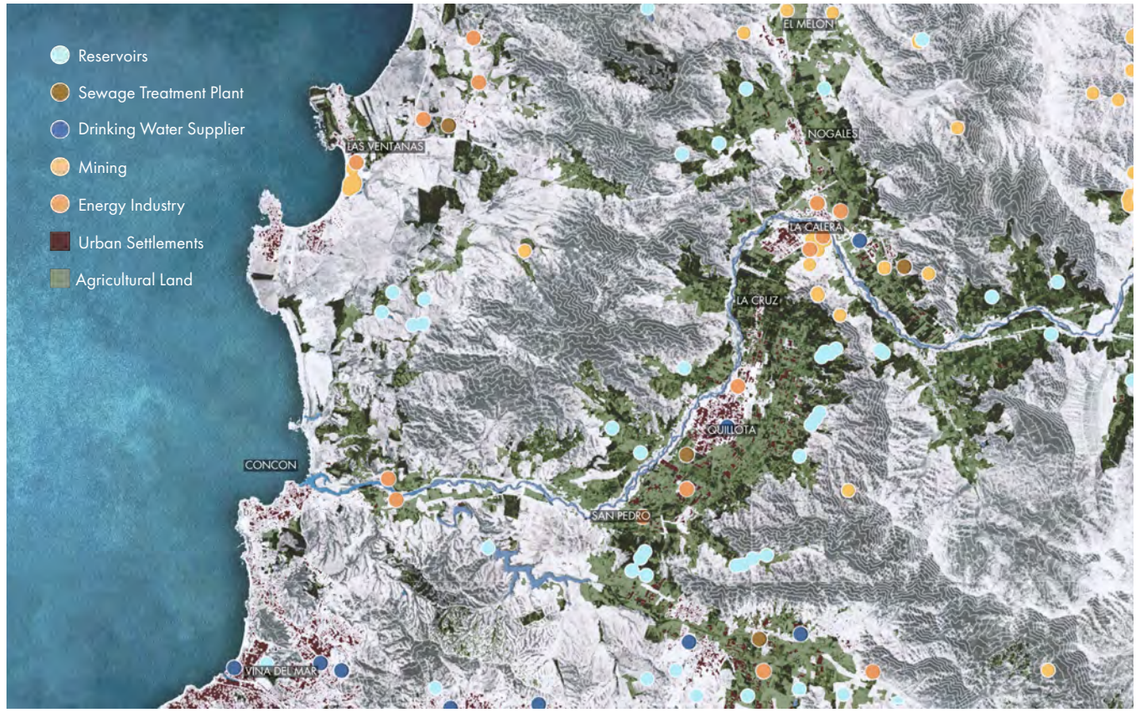
In the heart of Chile's Aconcagua River Valley, the commune of Quillota stands at a critical crossroads. Once home to free-living rivers, today these waterways have been turned into commodities—bought, sold, and squeezed dry. Over centuries, the river's meandering course has shaped settlements, but now the water has lost its flow, creating a disconnect between the water and the communities it fosters.

The Agua Para Todos (Water for All) project proposes a valley-scale alliance and toolkit to restore the minimum flow of the river, restore the wetland, and reimagine industry, not as a drain, but as a partner in resilience. The initiative is a collaborative network of authorities, citizens, and corporations taking collective responsibility for the Humedal making water a shared resource. The Agua Para Todos toolkit includes multi-scalar river-first strategies to restore the agency of the river by stitching together divided lands into cohesive multi-functional spaces.

The proposal also flips the power script to ensure the Aconcagua River gets to flow first, making sustainability not just a memo, but a mandate.Our approach integrates multi-stakeholder partnerships, ensuring a broad and sustainable impact for policy support, infrastructure development, and grassroots activism.

As the strategies get implemented across the valley, the Alliance grows stronger, making each participant an equal stakeholder. The Agua Para Todos project treats the river as a political and legal subject with rights. The project stands in support of the larger national movement to de-privatise water and takes a step forward in rebuilding the flow.





02 | Water Ownership In The Valley

Agriculture dominates the landscape in the valley, using close to 80% of the consumable water available. However, private transactions of water rights are more prevalent, and mining sites pay the highest average amount for individual water rights, even though they own the least percentage. Corporations like ESVAL extract water unchecked and sell it to the urban communities at variable rates.

As per Ecosystem Services Value, it costs the city upto 70 thousand US dollars per hectare of lost wetland, which is around 3.5 - 7 million US dollars annually.

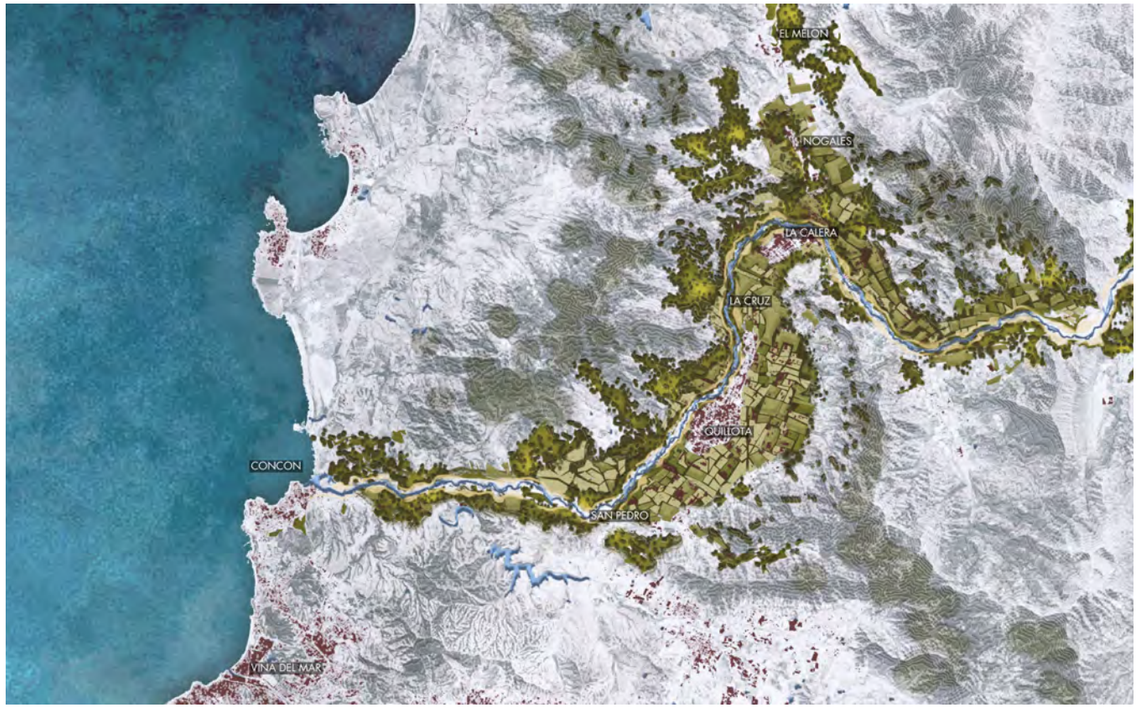
Agricultural & industrial expansion enroaches on the Humedal land

Arid landscape closer to the urban edge of the Humedal

Rivulets of the Aconcagua River remain in the central area of the Humedal

Gated Communities with Rigid Boundaries at the Edge

03 | River Edge Conditions



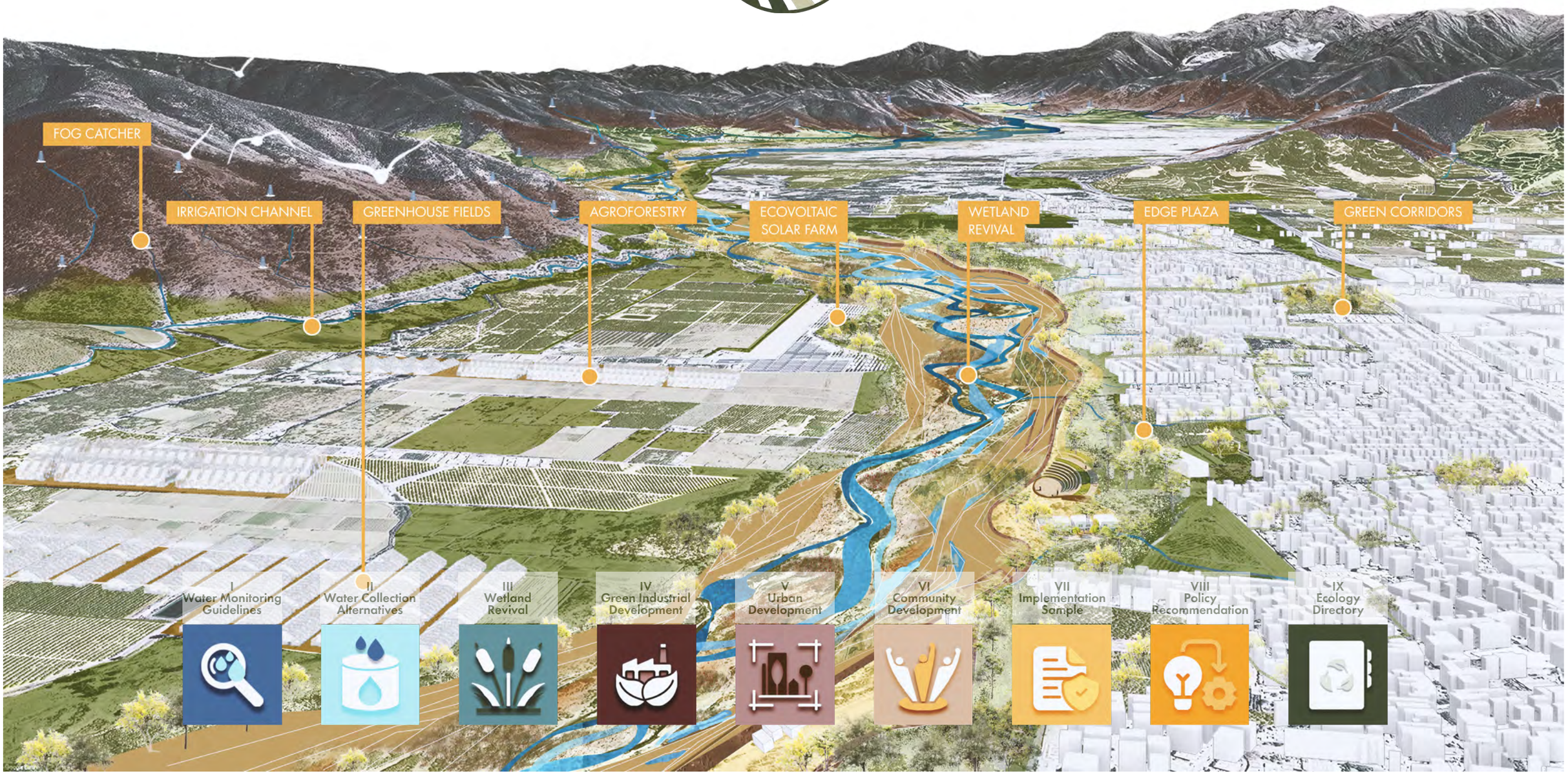
04 |Valley Alliance Plan

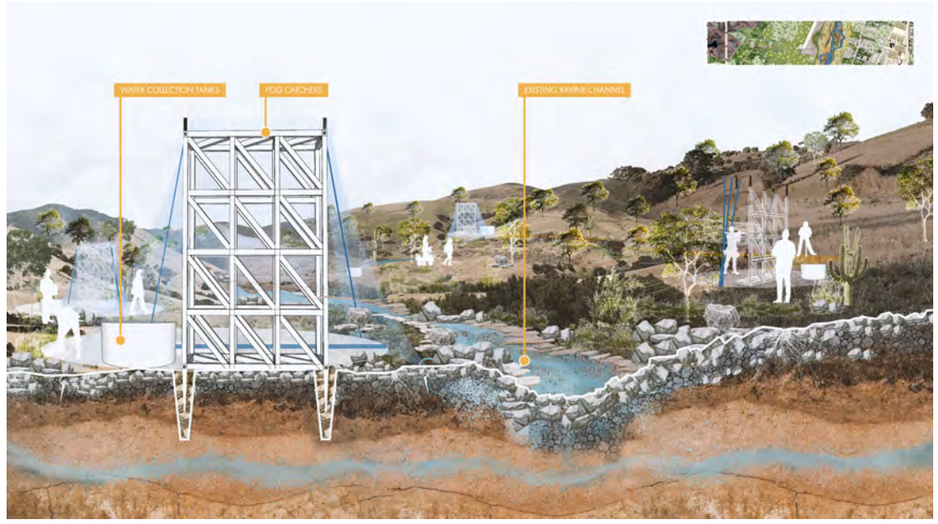
AGUA PARA TODOS

The Agua Para Todos Alliance, a collaborative network of authorities, citizens, and corporations, each takes a collective responsibility for the Humedal at a municipal level to make water a shared resource within their administrative boundaries.

05 | Quillota City Plan

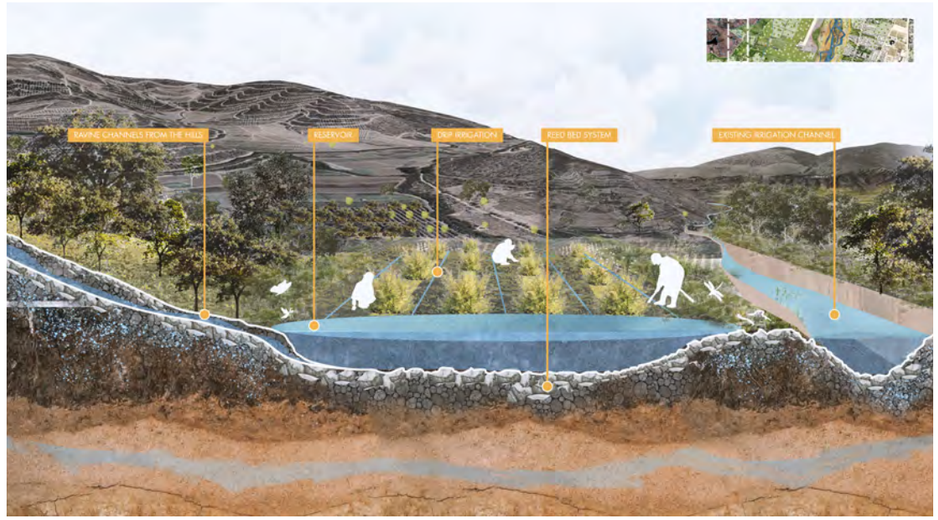
AGUA PARA TODOS





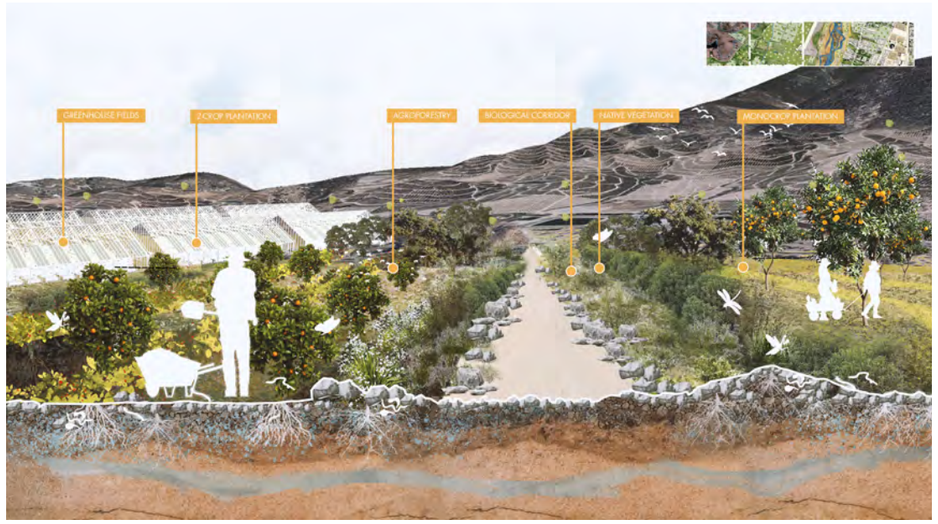
07 | Strategy A: Catching Fog

Fog catcher units located on top of the hills have been designed to produce up to 320 liters of water per day, which may be collected in earthen container pots or directed towards natural ravine channels to flow downhill and recharge the aquifer. The minimal design can be replicated as per demand and built by locals in exchange for social capital credits. The natural ravine channels host native vegetation that can trap additional water from the moisture and help with bioremediation of the channels.



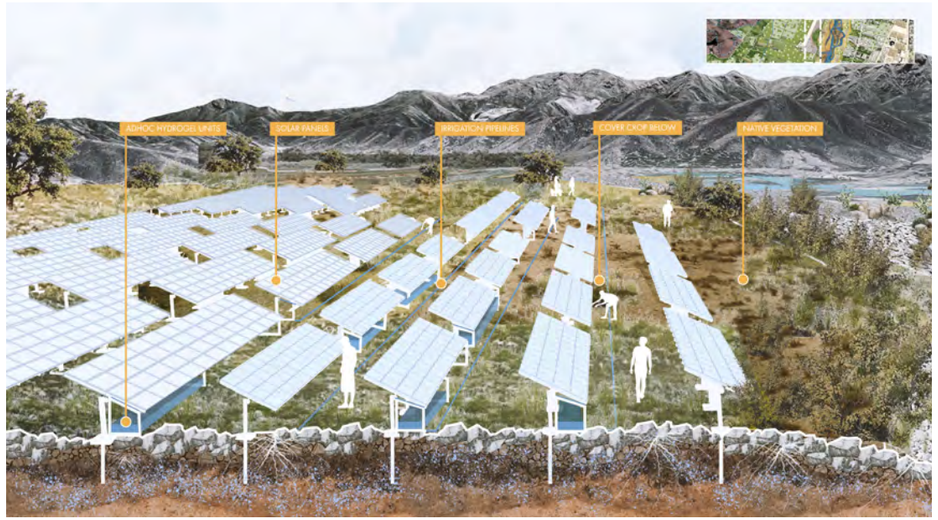
08 | Strategy B: Ravine Irrigation

The water collected is then channelised using the existing irrigation systems at the foothills for agricultural use. The existing reservoir expands to accommodate additional inflow of water and subsequently limits its intake directly from the river. Currently, the reservoir is contained using plastic sheets to avoid percolation. However, we propose a reed bed system underneath the reservoir for slower permeability and a move towards a post-scarcity irrigation network that works in tandem with the natural water cycle.



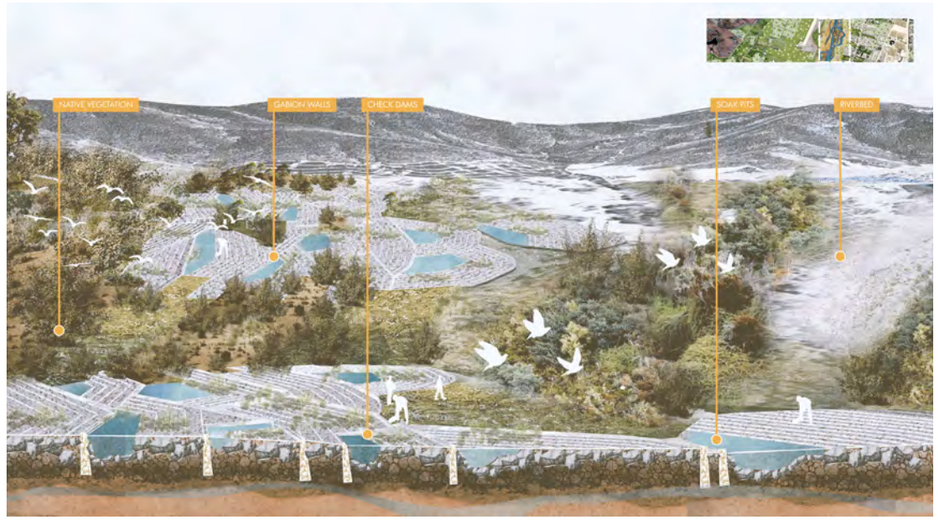
09 | Strategy C: Green Agriculture

Sustainable agricultural practices integrated with agroforestry, strategic crop rotation for soil restoration, hydrogel films for enhanced water retention, and optimised greenhouses to maximize productivity. A biological corridor bordering agricultural fields and irrigation channels enhances wildlife habitats and promotes natural propagation. These practices turn the existing challenges of ecological decline into opportunities for smarter and cleaner innovations in agricultural activities.



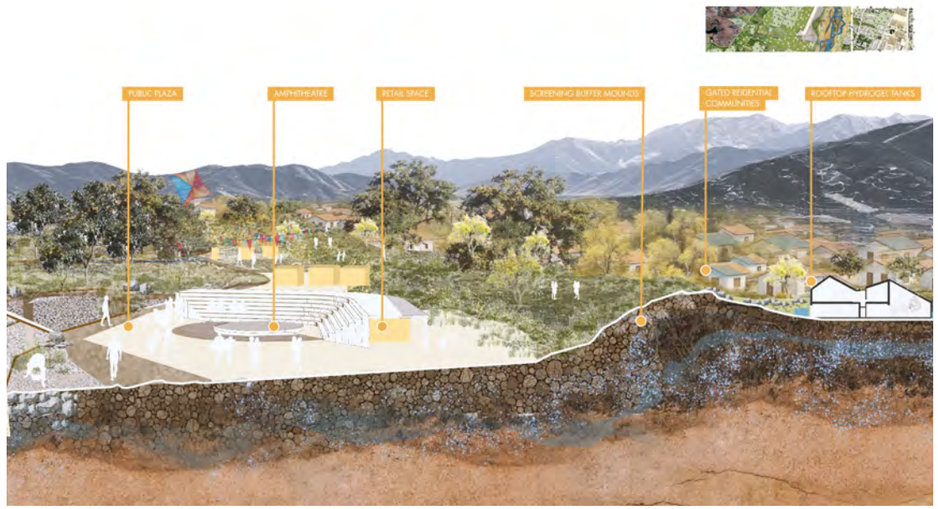
10 | Strategy D: Ecovoltaic Farms

Greener industrial practices extend to the existing solar farm site. With a combination of native vegetation and hydrogel collection units, the solar farm is optimised for greener energy production through eco-voltaic farming. The hydrogel component absorbs water from the air and produces 20 liters per square meter a day. The water collected may be used for irrigation and to regenerate the aquifer. These components also make the solar panels are 9% more efficient by absorbing heat.



11 |Strategy E: Recharge Riverbed

For the main riverbed, the strategies are limited to the edges. With a pattern of check dams, soak pits, and natural landscape, the edges become storage tanks for the river that can contain water during wetter conditions and allow for slower percolation into the groundwater during drier months. Soak pits at the end of the check dams ensure further recharge of aquifers and also create microbiomes for wildlife to thrive on the riverbed.



12 |Strategy F: Urban Edge

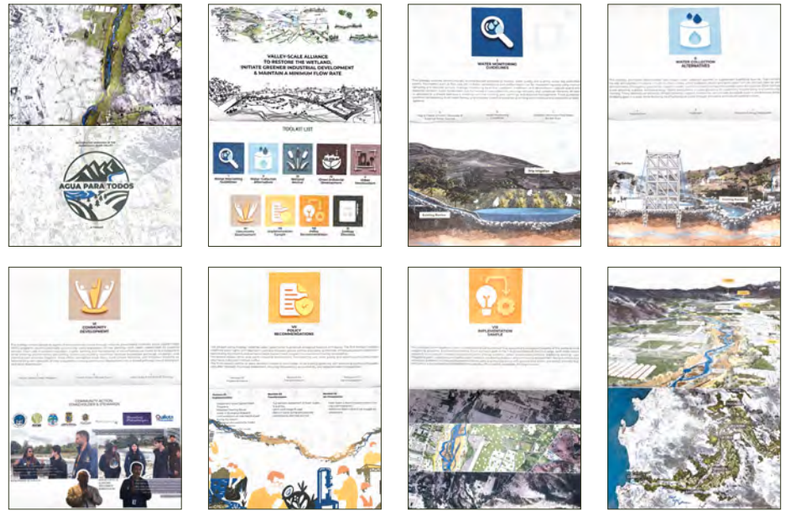
At the urban edge, the residential edges are made more permeable by introducing mounds to maintain privacy while bringing a natural landscape as a feature. Anchor nodes are created for daily activation, like amphitheaters, walkways, retail activities, and play areas. These connect to arterial roads leading into the city. These internal networks connect to existing public spaces within the city. Adhoc rooftop Hydrogel Tanks for private residences may help in meeting household water requirements.

13 | Policy Recommendation

Rather than indefinite water rights, the proposal calls for a fixed period contract for water rights between private organisations and the water authorities. Each revision moves closer to water as a shared public resource.

14| Agua Para Todos Toolkit

The Toolkit poses as a thought starter module that has the potential to engage ecological, political, and social conversations between different cities and communities, forming a Valley-Scale Alliance.



15 | Implementation Sample Plan

CONCON DUNES

ACONCAGUA VALLEY, CHILE

Spatial Visions

SCAN FOR MORE

CONCON, CHILE

LIVING COAST, BREATHING DUNESCAPE

FROM A ROAD THAT BROKE THE LANDSCAPE TO TRAILS THAT BUILD IT

Bimo Wicaksana / Jiali Jia / Rajiv Ribeiro / Seunghu Kim

WHAT IF THE COASTAL ROAD THAT ONCE BROKE THE LANDSCAPE NOW BUILDS IT?

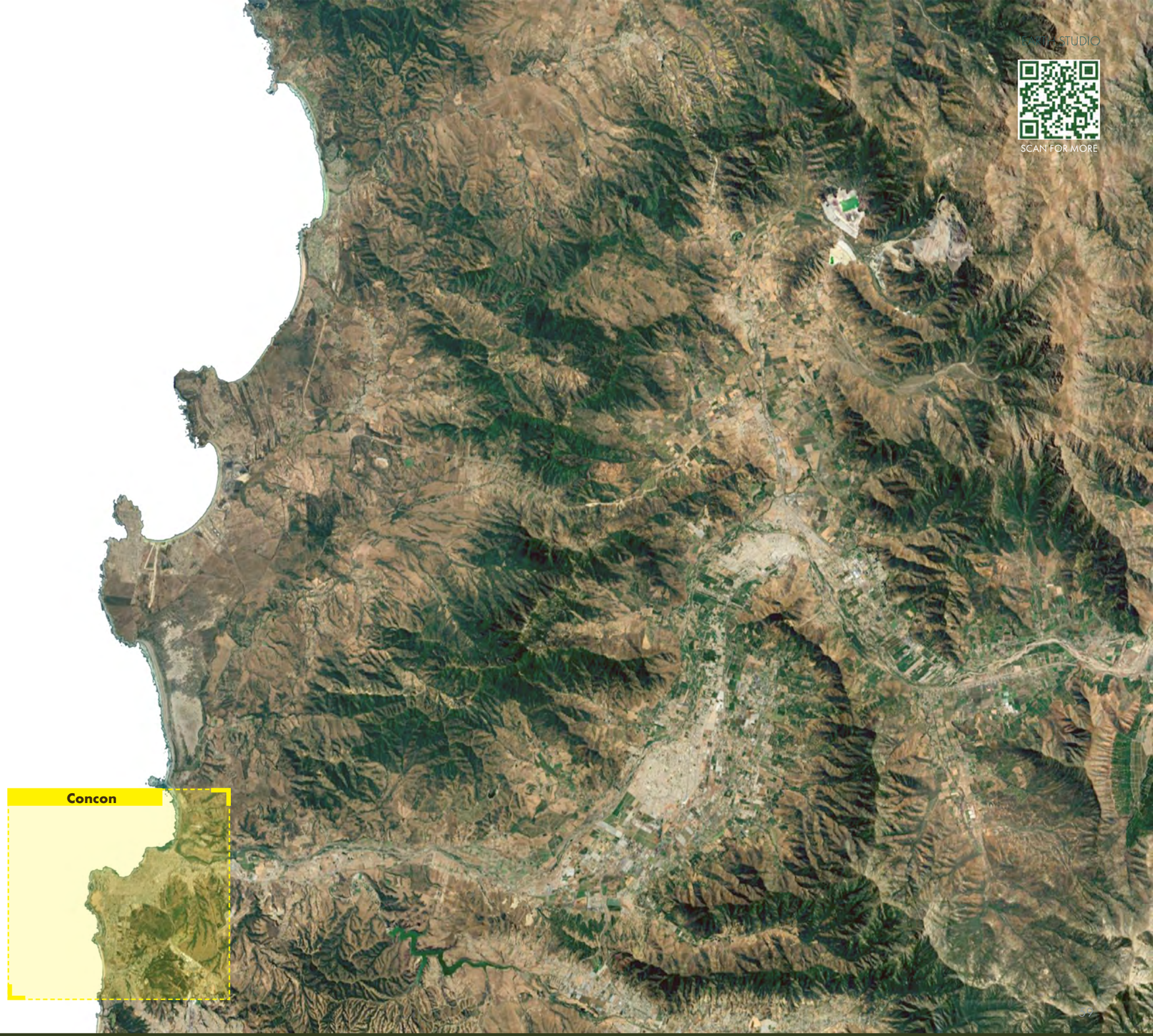
"We believe we are a country, but the truth is we are just a landscape"—Nicanor Parra.

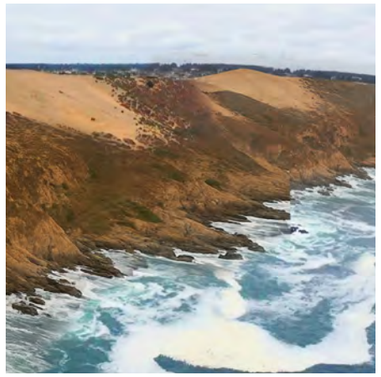
Chile's coastal landscape is sculpted by its volatile political history. Once a vast and continuous geological formation, the coast has been reduced and marginalized by speculative real estate development triggered by the construction of the Concon Coastal Road in 1915. This road catalyzed urban expansion, weakening the coastline and erasing public memory of its ecological value.

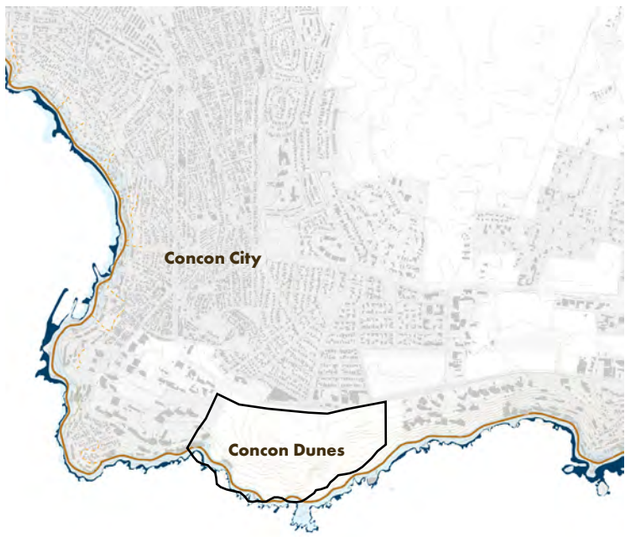
Protecting the weakened coast against climate challenges require a fundamental paradigm shift. What if the act of unmaking become the genesis of change? What if boundaries connect instead of separate? The project aims to transform the same road that fragmented the landscape into a trail and park system that reconnects and regenerates it. This trail will re-purpose abandoned buildings into public spaces, integrate nature education elements, and foster biodiversity through protected no-go zones.

The project begins at Concon Dune where urbanisation has isolated the fossil dune and disconnected it from the city. Through the process of rezoning, the project will re-strategize development away from ecologically sensitive zones and blur the boundary between, the dune and the coastal road. The coastal road will become a park that replenishes the dunes and becomes a public space for the citizens of Concon.

The project will enable equitable socioeconomic dynamic including inclusive urban nodes, shared pathways, and better job opportunities. The creation of a consortium between municipalities, private entities, and local communities will ensure economic and political sustainability through public-private partnership, integrated maintenance framework, and routine community engagement.







01 | The Fragmented Coast

The Pressure of Motorized Vehicles

The introduction of cars a the primary mode of transportation in Chile created an opportunity to connect the connection the cities of Valparaiso and Concon. However, the construction of coastal road disrupted the natural landscape, drawing a harsh line through the environment.

Coastal roads became a catalyst for urban expansion, bringing massive real estate pressure to destroy Chile's coast line. Over time, it slowly consumed nature particularly affecting Concon City and the hanging dune. In light of the global climate crisis, the vulnerable coastal environment, already disrupted by the road, now demands urgent attention.

1919

15km coastal roads was built to connect resorts in Vina del Mar to Concon city.

1976

New coastal road became a catalyst for urban expansion, consuming dunes with luxury second-home apartments.

2017

The lack of protection resulted a poor edge condition, threatening the dune's function as a coastal defense.

2025

A paradigm shift, closure of coastal road became catalyst to living coast and free dunes to benefit the entire coast.

2070

Transformation of surrounding road and abandoned buildings protects the remaining dune.

2100

The initiative rippled out to the entire coast of Chile, creating a coastal network for resilience and recreation.

Coastal Trail

The Coastal Trail runs through a series of scenic nodes along the shoreline. It also acts as a key interface, reconnecting the dunes with the coastline.

‘Sanday’ Trail

The Sanday Trail primarily connects the city with the dune landscape. Here, we focus more on creating interactive landmarks and public play space, like the Sand Catcher.

Biodiversity Trail

Biodiversity education trail that follows natural contours and no-go zones, gently leading people to wildlife and scenic points like a nature park journey through the dunes.

02 | Coastal Braces

Zooming out, Conc n city itself will have a network of experiences—connecting its unique dunescape, Roca Oce nica, and the dismantled coastal road—to weave the city back into the coastal landscape.

The intervention in this pilot project will serve as a spark for change, with its impact rippling along the central coast to neighboring territories such as the Conc n estuary, home to a remarkable nature sanctuary, and the Ritoque dunes, offering a distinct experience that blends forests, dunes, and beaches.

This transformation continues to places like Ventanas, shaped by its post-industrial landscape, and Valpara so, known for its vibrant sense of urban escapism.

03 | A Paradigm Shift

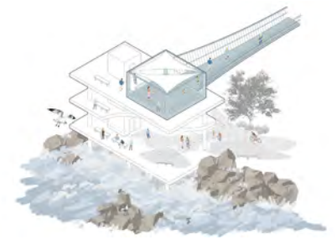
The Coastal Trail runs through a series of scenic nodes along the shoreline. It also acts as a key interface, reconnecting the dunes with the coastline.

Along the trail, we reused the exist vacant coastal buildings. By removing their solid walls, we transformed them into layered platforms for viewing and public activities.

A bridge on the rooftop connects the dune summit with the coast. The closure of the road will enable nature to grow back and will create a place to enjoy coastal views, outdoor activities or just take a stroll. Native vegetation, sand berms and seaside ponds will protect against the ever more frequent storm surges and circulation between dunes and costal park is seamless, creating a vibrant coastal life that integrates the coast and the dune.

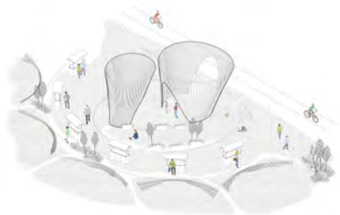
1 Boardwalk

2 Buggy



3 Building

4 No-Go Fences



5 Landmark

6 Pavillion

7 Inter-Tidal Pond

8 'Sanday'

9 Sand Catcher

10 Seating

11 Viewpoint

12 Walkway

“We believe we are a country, but the truth is we are just a landscape” - Nicanor Parra

ACONCAGUA VALLEY & QUINTERO BAY, CHILE

CONCON ESTUARY

ACONCAGUA VALLEY, CHILE

Spatial Visions

SCAN FOR MORE

ACONCAGUA VALLEY, CHILE

REIMAGINING CONCON ESTUARY

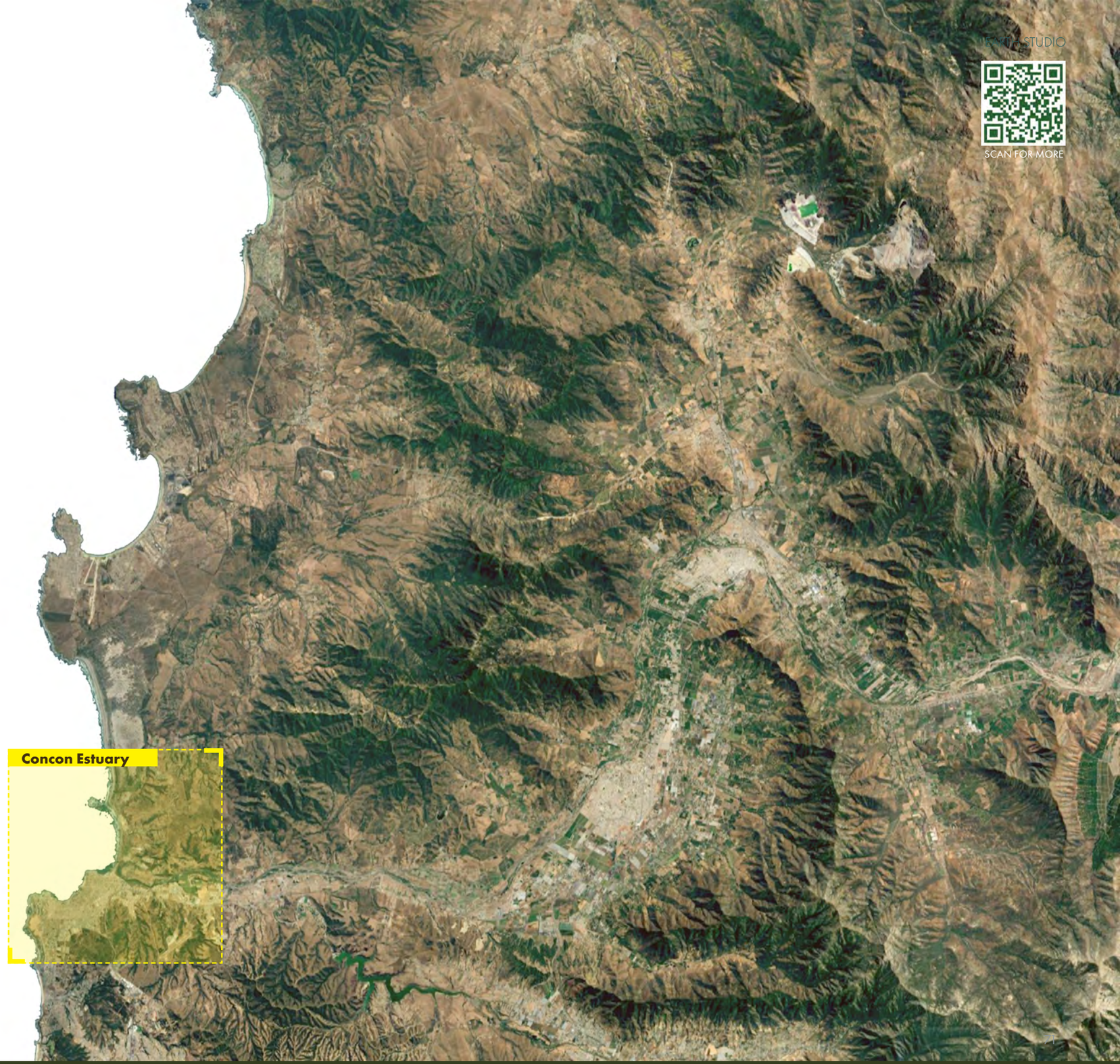
RECLAIMING CONCON WITH COMMUNITY-LED CATALYSTS

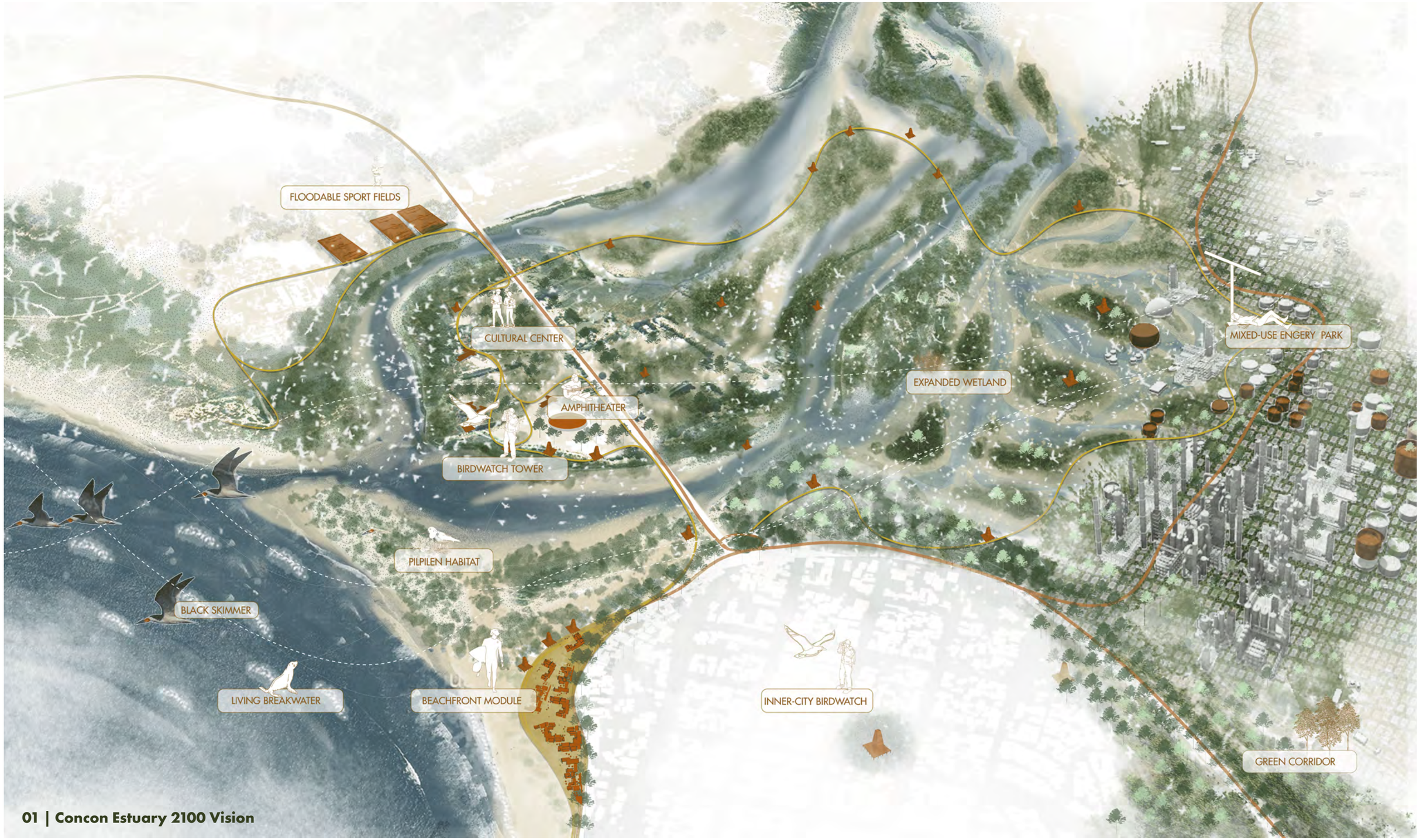
Mutita Ouk / Vicky Sindac / Daisy Castro / Qingyi Gan

WHAT IF THE CONCON ESTUARY AND THE SURROUNDING WETLAND ECOSYSTEM WERE RESTORED TO ENHANCE THE WELLBEING OF LOCAL FLORA, FAUNA, AND COMMUNITY?

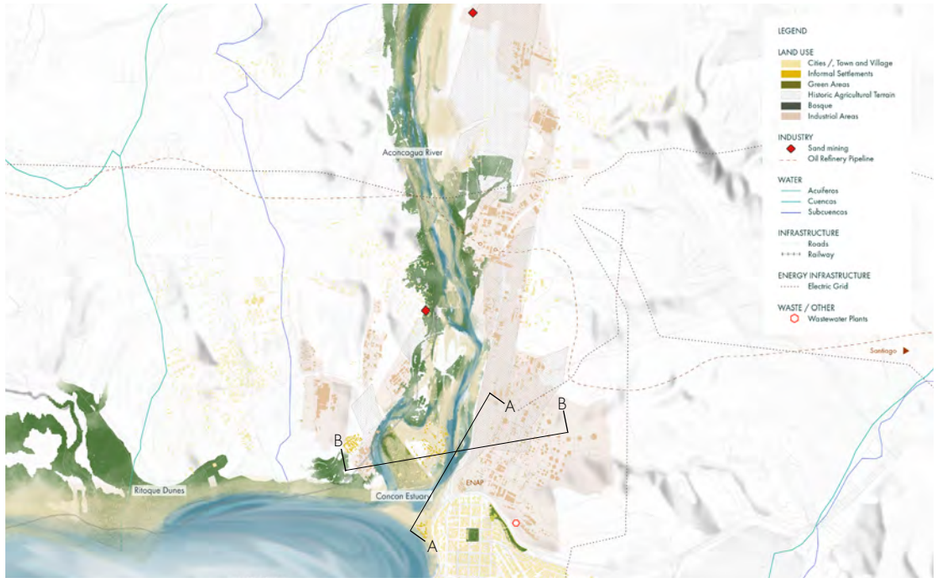
The Concon Estuary, located in the coastal region of Valparaiso, Chile, is a vital transitional zone between the Aconcagua River and the Pacific Ocean. It boasts rich biodiversity and a dynamic landscape that constantly changes throughout the days, seasons and years– where river meanders, ocean tides fluctuate, sediment flows, and birds are free to come and go. However, human activities, including urban development, pollution from the ENAP oil refinery, the Asfalcom cement factory, sand mining, waste dumping, and unregulated recreational activities, have placed significant pressure on the ecosystem. This constant resource extraction and exploitation has led to more frequent and intense storm surges, increased flood risks due to rising sea levels, habitat loss, saltwater intrusion, shifting river course and unregulated activities.

ENAP, the primary polluter, contributes little to the local economy. Locals rely on small businesses along the beach that are poorly constructed and are exposed to flood risks due to the abrupt transition between the coastline and urban area. Given Chile's policy goals of replacing fossil fuels with renewable energy and the risk of sea level rise, we envision a future where ENAP is gradually phased out, paving the way for sustainable energy sources. Throughout this transition, the existing industrial structures and operations will be integrated into the design process to mitigate pollution and environmental impacts. Additionally, sand mining will be banned to facilitate the regeneration of the wetland ecosystem and restore its natural space. This will also create new job opportunities, supporting a more resilient and sustainable way of life for the community.

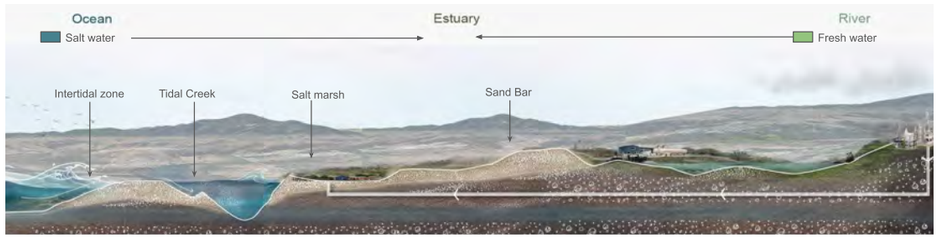




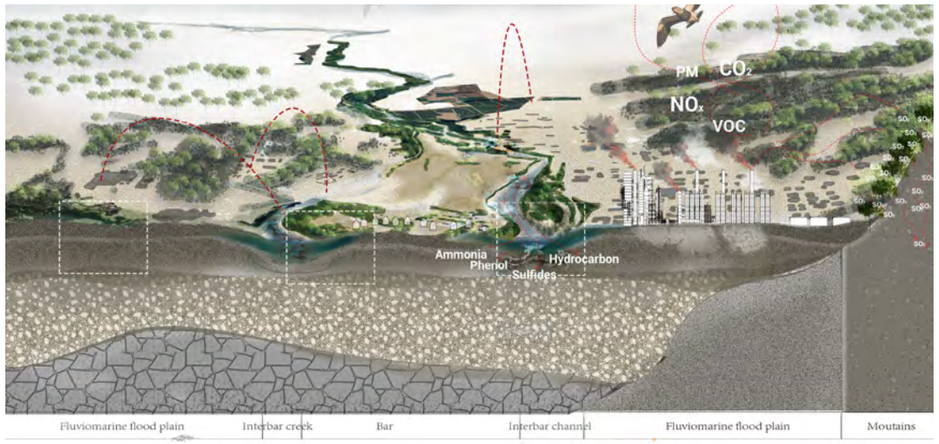
01 | Concon Estuary 2100 Vision



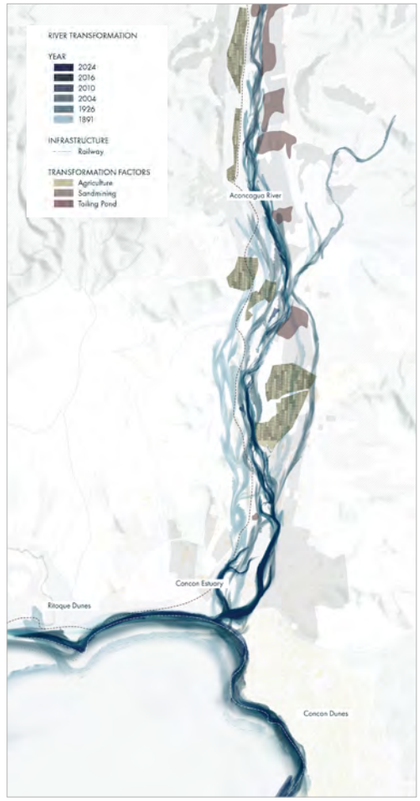
02 | Mapping Human Activities in Dynamic Estuarine Landscape



03 | Transect AA



04 | Transect BB



05 | River Meander And Coastal Erosion (1891-2025)

RESTORE

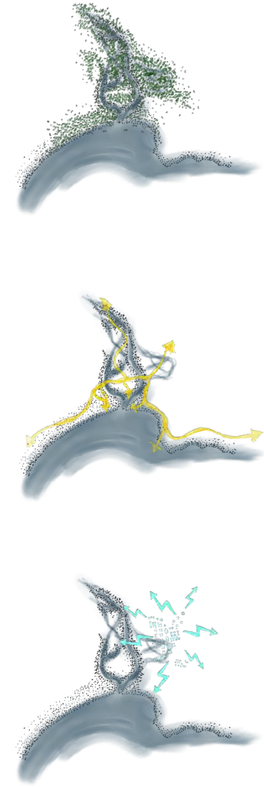
Restore the river's space along with its wetlands, bird and marine habitats; improve salinity gradients, and remediate pollution to support a healthier and more resilient ecosystem.

RECONNECT

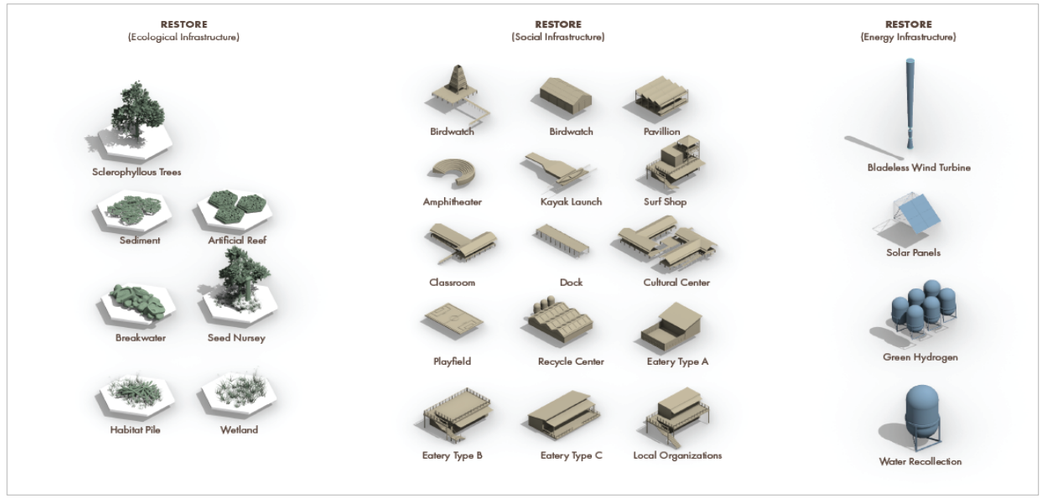
Reconnect the urban areas with nature through educational programming, sustainable recreational opportunities, and proper zoning and environmental regulations.

RENEW

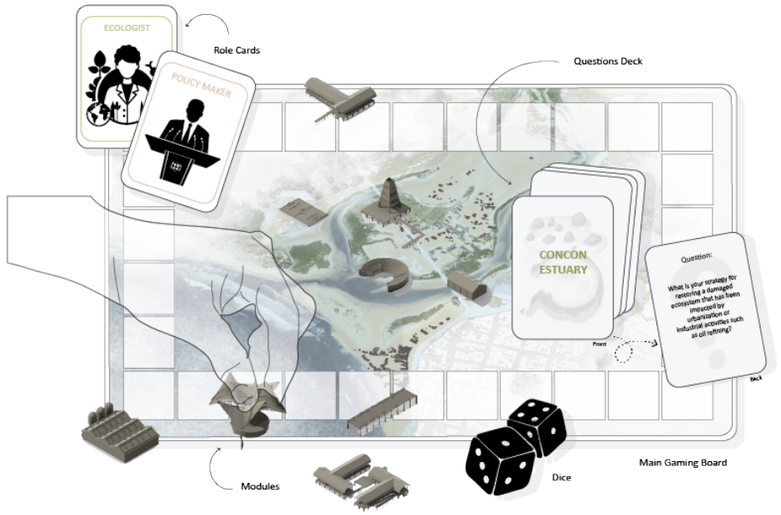
Renew energy sources and revitalize the economy through the creation of green jobs and the adaptive reuse of existing infrastructure.

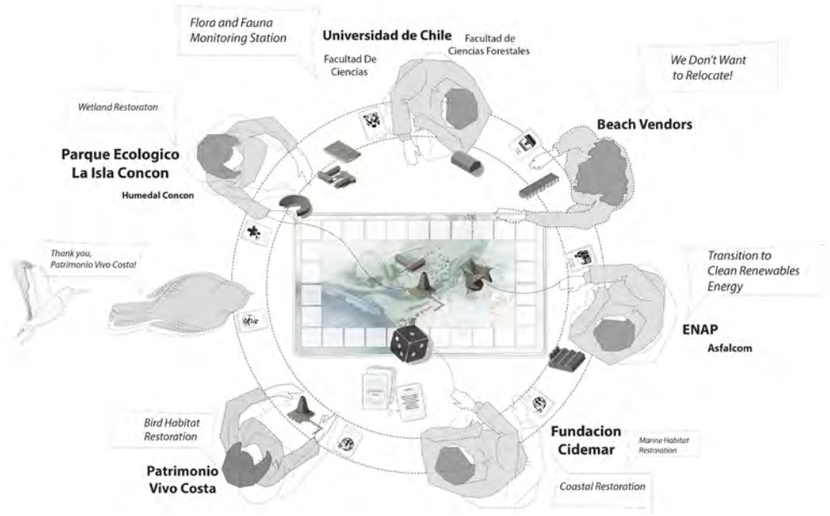


06 | Design Framework



07 | Catalyst Modules: Transitional Multi-functional Urban Acupunctures





The Catalyst Modules, envisioned as units of change, embody flexibility, adapting to different combinations of activities and evolving needs across different times of day, season, and years.

The participatory game is designed to actively engage communities in reimagining the Concon Estuary. It mimics a roundtable process by inviting players to take on roles like beach vendors, oil workers, or birdwatchers and potential key stakeholders and navigate real-life challenges facing the Conc n Estuary. Through playful decisions and "Catalyst Modules," players collaborate, argue, and imagine how to balance human and ecological needs.

There's no single winner—only a shared goal of building a thriving future for both people and nature.

08| Catalyst Modules Board Game: A Community Engagement Tool

09 | Phase I: 2025-2035

10 | Phase II: 2035-2050

11 | Phase III: 2050-2100

12 | Ecological Park: Bird Habitat And Wetland Restoration

13 | Concon Beach: Redefining The Informal Business Ecologies

14 | Oil Refinery: Energy Landscape As Public Space


EL MELON
NOGALES
ACONCAGUA VALLEY, CHILE
Spatial Visions

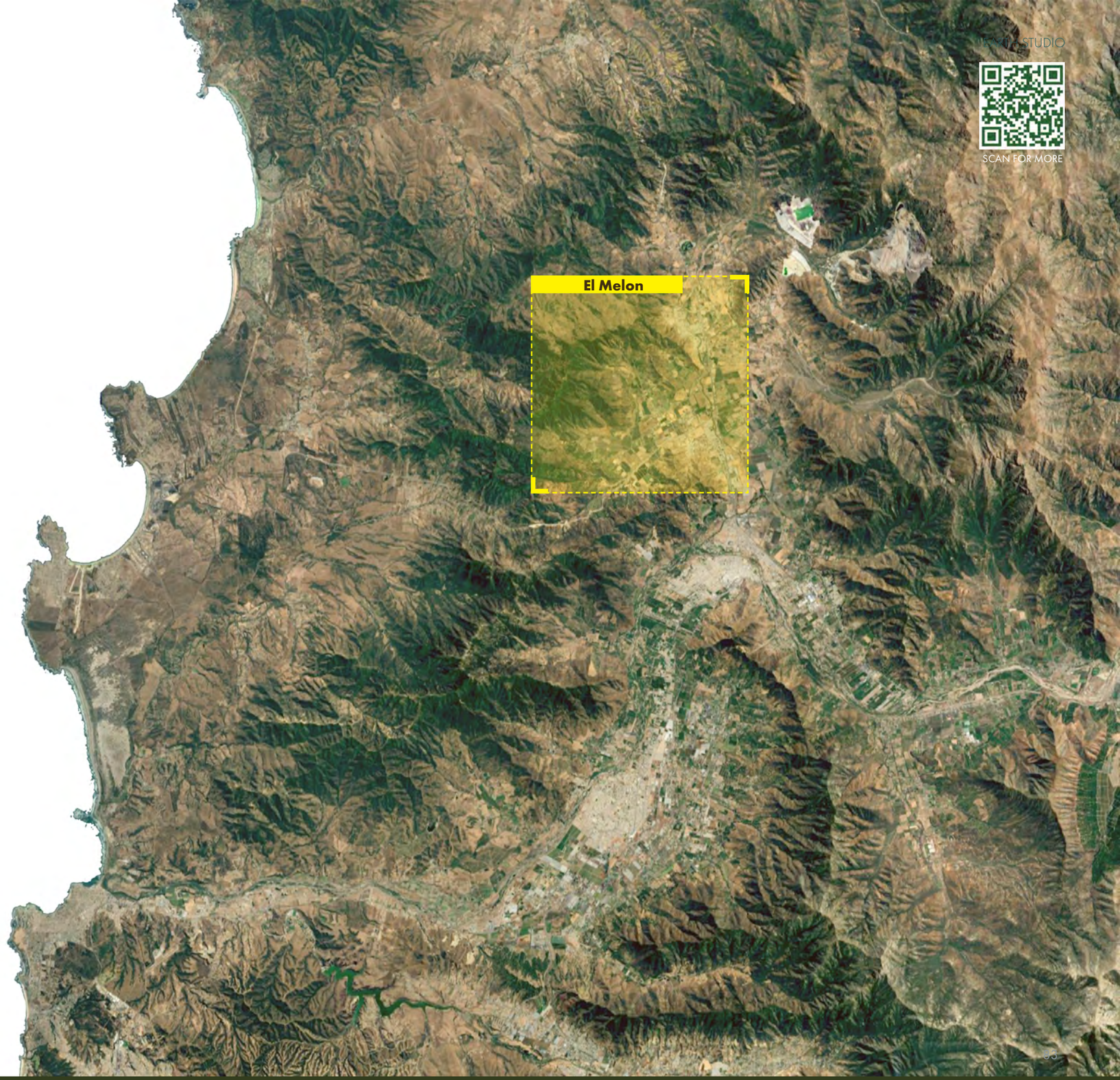
ACONCAGUA VALLEY, CHILE

THE NOGALES VALLEY ALLIANCE

A REGENERATIVE FRAMEWORK FOR POST-MINING FUTURES

Tanvi Ashok / Anirudh Bopanna Iychettira / Bing Li / Chih Hao Liu

SCAN FOR MORE

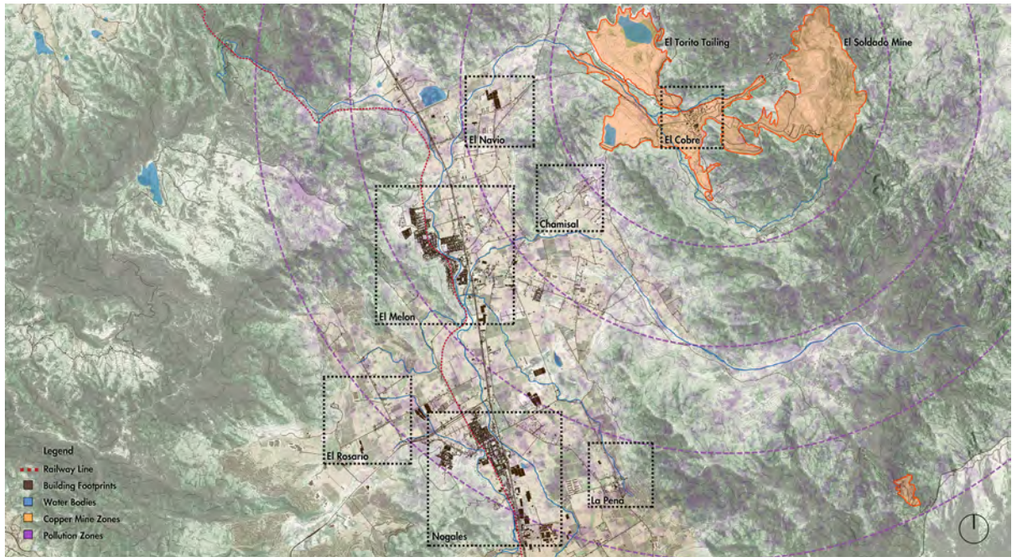


WHAT IF A COMMUNITY-LED ALLIANCE SHAPED A MINE'S CLOSURE PLAN, TURNING A HISTORY OF EXTRACTION INTO A FUTURE OF REPAIR?

Towns like El Melon situated in the Nogales Commune stand at a pivotal moment, where stronger regional communication offers a path toward unity. Shaped by industrial mining, voices from Anglo American and local activists reflect the region's dual narratives. The mining company, Anglo American emphasizes its role in employment, reforestation, and sustainable mining, while communities call for deeper engagement on social and environmental concerns.

Despite pollution, water scarcity, and desertification, momentum is growing to turn these challenges into opportunities for renewal. Even with the potential closure of the El Soldado mine in 2037, its legacy demands urgent attention through strategic regional intervention. Rather than leaving behind obsolete infrastructure, this transition can prioritize long-term community resilience and ecological restoration.

Imagine the Nogales Commune uniting with Anglo American through the Nogales Valley Alliance (NVA), forming a coalition to champion water justice, ecological renewal, and economic reinvention. Through a Community Benefits Agreement, conservation efforts could gain new grant access, supporting environmental monitoring, citizen science, workforce retraining, and restored water access. The commune could leverage these partnerships to transform the Nogales Valley into a model of sustainable post mining development, led by and for its communities.



01 | Pollution, Environmental Degradation, and the Legacy of Mining

Decades of copper extraction at Anglo American's El Soldado mine have polluted the environment, drained water resources, and worsened desertification, deepening social and ecological divides. The Nogales commune must bear these burdens for now, but a unified alliance can confront these challenges and empower them to shape the future.

02 | The Nogales Valley Alliance: Strategies for a Nature-Based Restorative Economy

EARLY ACTION STRATEGIES | 2025-2037

03 | Formal Establishment

The foundation of the NVA begins with establishing neighborhood councils in smaller towns. These councils will empower local voices to shape decision-making from the outset, ensuring that the framework and goals of the alliance are grounded in community needs and led by those most affected.

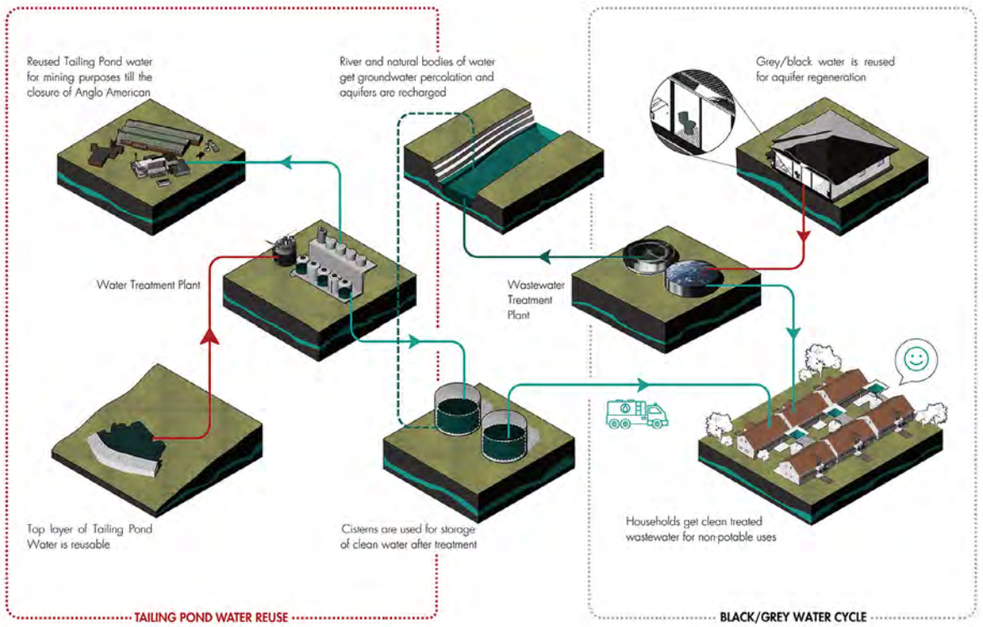
04 | Spreading Awareness

Gathering spaces will become sites for ongoing community dialogue. These public areas will host regular discussions and pollution data from local monitors are displayed openly. Transparent communication will help build collective awareness, trust, and accountability across the community.

05 | Vocational Pathways

Existing public activators will serve as vocational training centers, host vaccination drives and health checkups. This will improve public health resilience and create economic opportunities in green industries, creating a workforce prepared for environmental and social challenges.

IMPLEMENTATION STRATEGIES | 2037-2050



06 | Reducing Groundwater Dependence Through Circular Water Use

Water from the tailing ponds will be treated and reused within the mine, easing pressure on local groundwater. At the household level, a decentralized treatment plant in Nogales, will enable greywater recycling, supporting daily use while helping to recharge the aquifer. Small-scale rainwater harvesting will also provide a valuable supplementary source.

10 | Revitalizing The River As A Thread Between Communities

Initial excavations will improve water retention, create habitats, and remove invasive plants. Native riparian vegetation will be restored, with the riverbed functioning as a wetland in dry seasons and returning to its natural flow in wet seasons, allowing the aquifer to recharge over time. The NVA will define a native plant palette to support this restoration.

07 | Phase 1: Phytoremediation of Hills Surrounding The Mine

08 | Phase 2: Phytoremediation of Land Mine Land Post-Closure

09 | Phase 3: Mine Transformation And Solar Grid Development

LONG-TERM RESTORATION STRATEGIES | 2050-2070+

11 | Cultural Center/Light Rail

The restored railway will help reconnect the towns. Copper slag will support infrastructure, while the cultural center and museum celebrate heritage and craftsmanship. The bike network will further enhance connectivity.

12 | Tailing Pond Restoration

The tailing pond will transform, featuring hyperaccumulator plantings, viewpoints, and eco-trails. El Cobre's current identity as a mining town will shift as former structures are repurposed into visitor centers, maintenance hubs, and rest points, supporting tourism and stewardship.

14 | Restoring Access to the Mountain Trails

13 | Weaving Interventions for a Holistic Transformation of the Nogales Valley

15 | Uniting Communities, Nature, and Industry For A Shared Future

16 | The Nogales Eco-Valley Tourism Experience

The transformation through the NVA will lay the foundation for the Nogales Eco-Valley Tourism Experience, guiding visitors through interconnected transit systems, ecological corridors, and mountain trails through the region.

By strengthening connections between people and nature, the NVA aims to shape a new shared future for Nogales. As many mines across Chile approach closure, Nogales has the opportunity to set a national precedent by showing how Anglo American's responsible transition can become a model for sustainable post mining development across the country.

At its core, the NVA is a framework for regeneration — not only of landscapes, but of relationships, of economies, and of a collective identity.

QUINTERO BAY

ACONCAGUA VALLEY, CHILE

Spatial Visions

ACONCAGUA VALLEY, CHILE

H.E.A.L QUINTERO

RESTORING HEALTH, ENVIRONMENT, ACCESS AND LIVABILITY

In Hwangbo / Chaeyoon Lee/ Yi Lu / Rachana Thokala

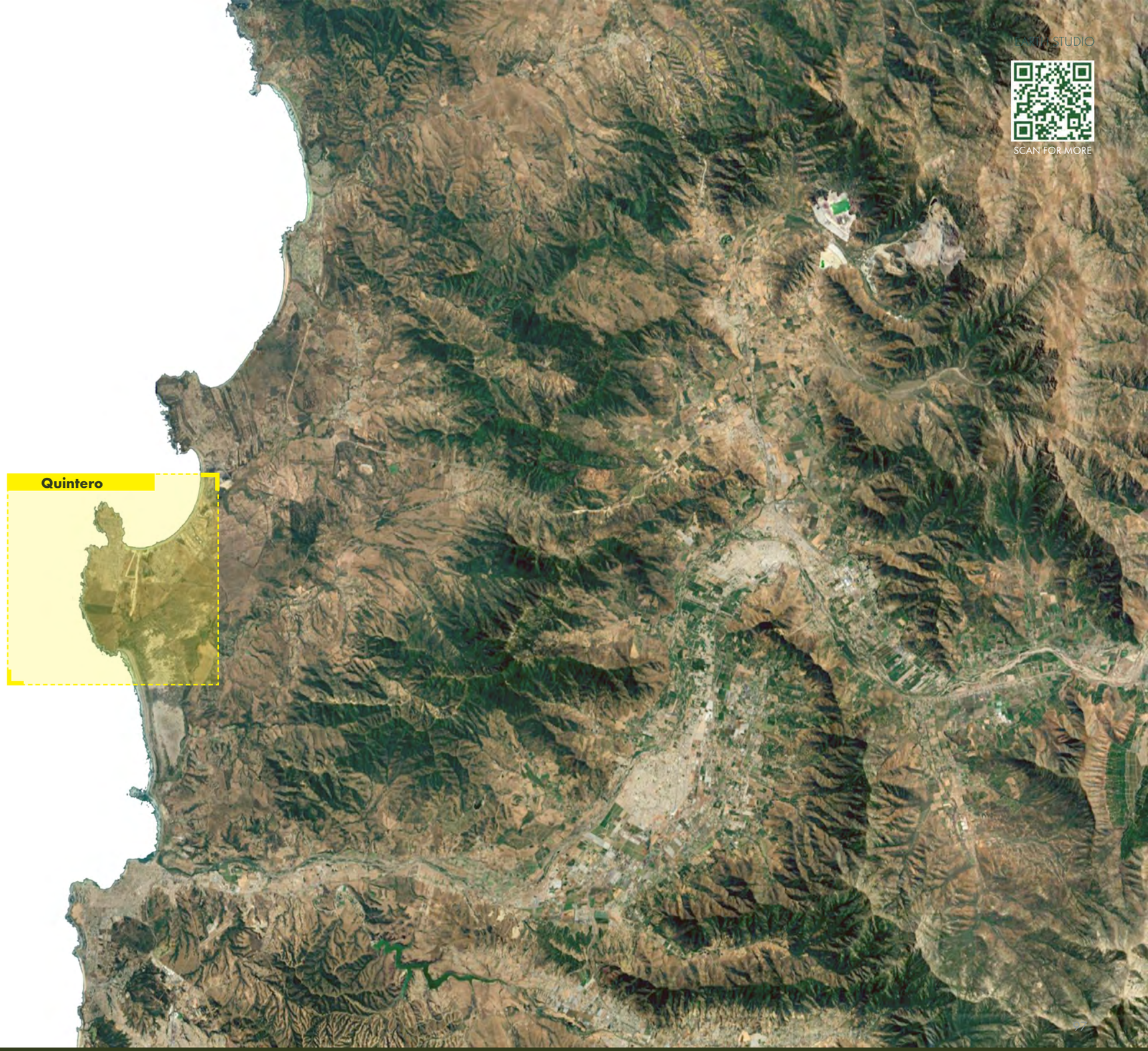
WHAT IF WE CONNECT THE DIVERSE COMMUNITIES OF QUINTERO BY RESTORING ECOLOGICAL ASSETS, ECONOMIC OPPORTUNITIES, IDENTITIES, AND HOPE?

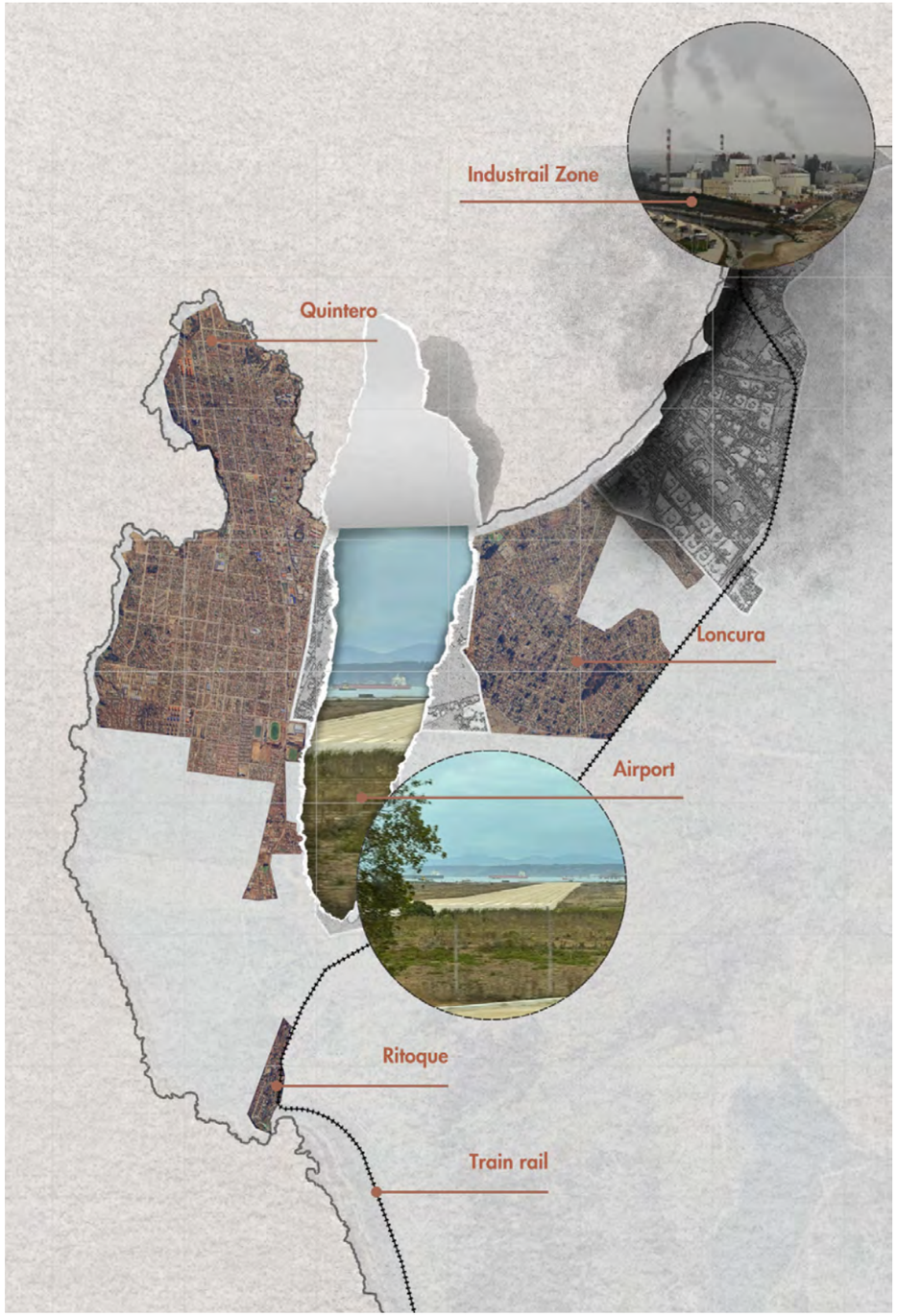
Quintero, once a vibrant coastal town in Chile, now faces severe challenges stemming from pollution, ecological degradation, and social inequality brought by industrial expansion issues that are expected to worsen with future urban development. This proposal imagines a regenerative future by connecting the splintered landscapes of Quintero, Loncura, and Ritoque through ecological restoration and creating inclusive, resilient urban and social infrastructure. It proposes a shift from a sacrifice zone to a model of coexistence and thriving between people, nature, and the economy.

According to interviews with local municipality members and organizations, pollution has severely impacted agriculture, fishing, and tourism in Quintero, contributing to population decline and a worsening ecological and economic situation. This crisis is further deepened by mistrust and a lack of communication between industrial companies, community members, and the Quintero municipality.

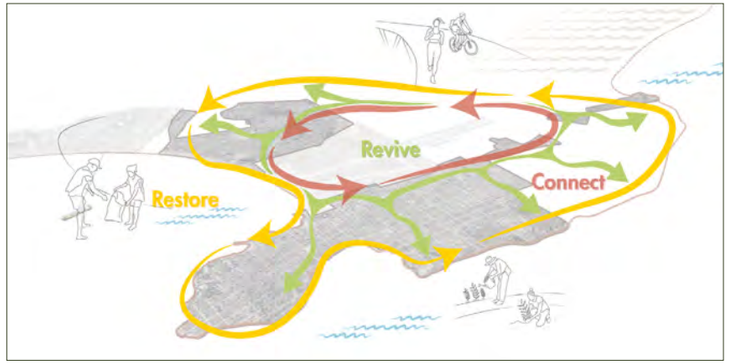
Our strategy proposes a multi-scalar, phased approach co-developed with and for the local communities -- including fishers, women activists, surfers, and municipal workers while also engaging external stakeholders such as ecologists, developers, policymakers, international institutions (UNDP, World Bank), and industrial companies (GNL, Copec..). Through this collaboration, the project envisions a future where all stakeholders can coexist and thrive in a mutually beneficial way. To ensure this vision is realized, we will also propose policies that would mandate industrial companies to implement and financially contribute to programs that benefit the communities they impact.

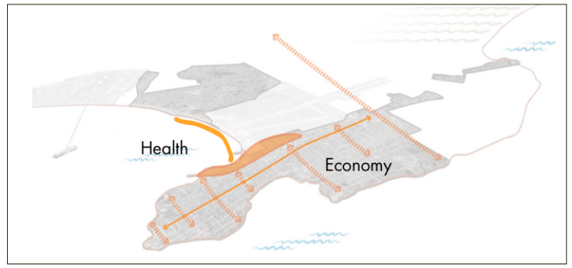
SCAN FOR MORE



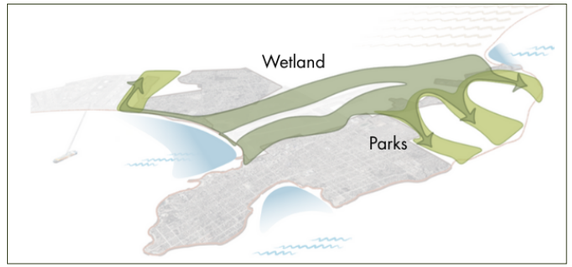


01 | Poor relationship between Quintero and its neighboring communities

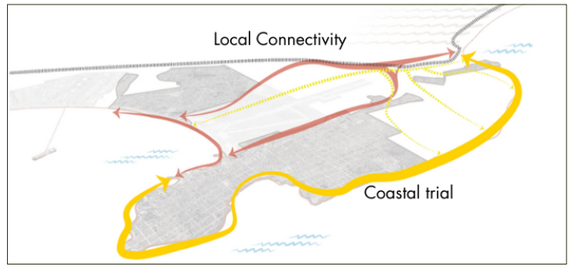




Restore Quintero Community



Revive Ecological Assets



Connect Diverse Communities

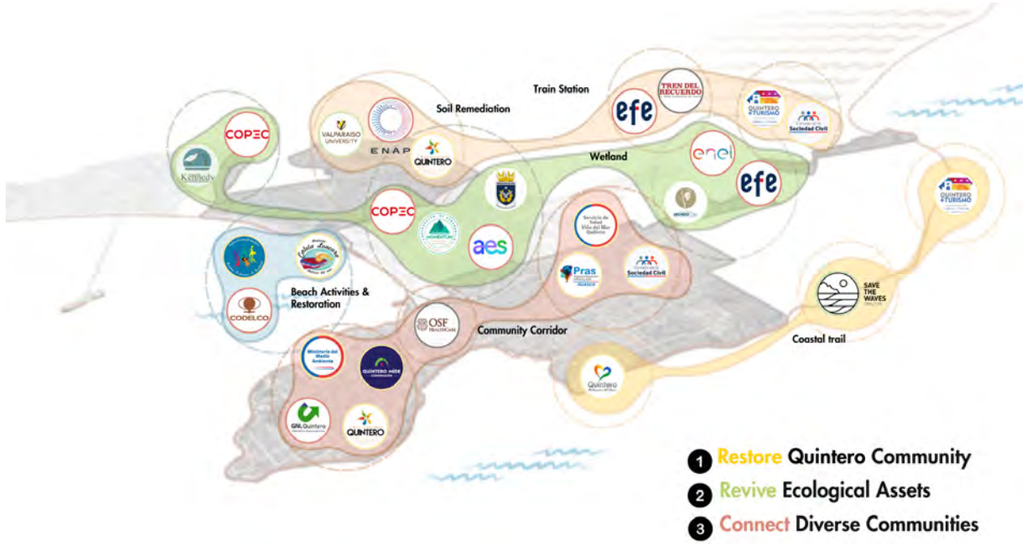
02 | Vision

The vision is to connect and empower Quintero by addressing its most pressing challenges. Through a unified approach built on three pillars Restore, Revive, and Connect. This will breathe new hope fostering a vibrant, resilient, and inclusive future for the region.

03 | Strategies

Quintero's transformation begins by restoring economic opportunities, reviving ecological assets, and connecting its diverse communities. Each of these goals is deeply interconnected. Progress in one area supports and strengthens the others, creating a holistic path forward. The strategic plan outlines targeted interventions across key zones: a Community Corridor to foster social and commercial activity; Wetland Trails that promote environmental education and ecotourism and Coastal Trails that reconnect people with the shoreline. Together, these initiatives form a cohesive, place based strategy to empower and renew Quintero.

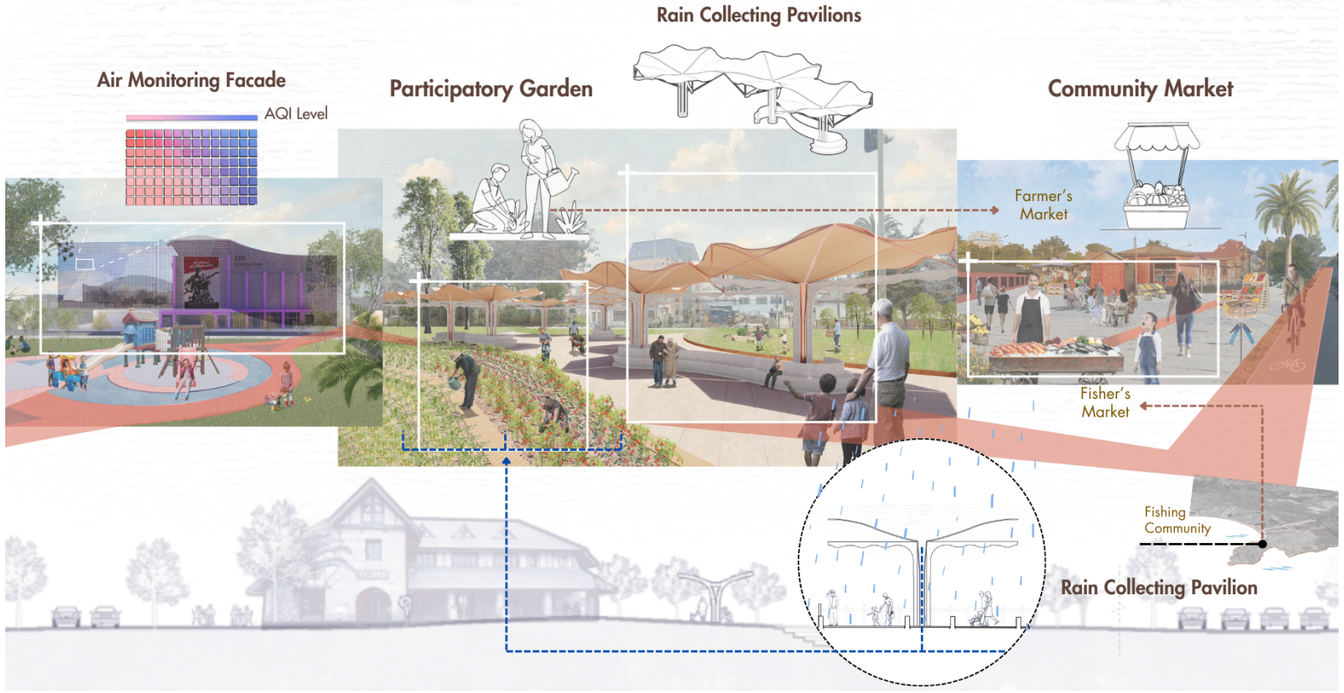

Proposed
Train Station
Soil
Remediation
Wetland Trail
Heavy
Industry Area
Airbase
Beach Activities
& Restoration
Coastal Trail
Community
Corridor
Ecological
Assets
Train Station
School
Clinic
Plaza
Park
Tour Spot
Community Market
Fishing Industry
Hotel
Restaurant



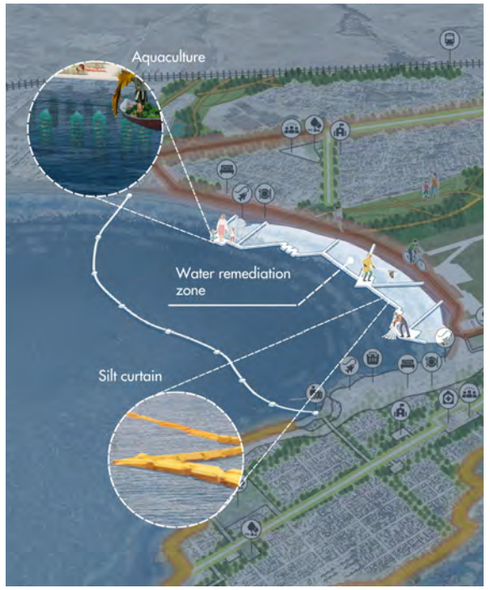
05 | Stakeholder Map

07 | Proposed Community Market

06 |Participatory Garden



08 | Community Corridor



09 | Water Remediation Zone

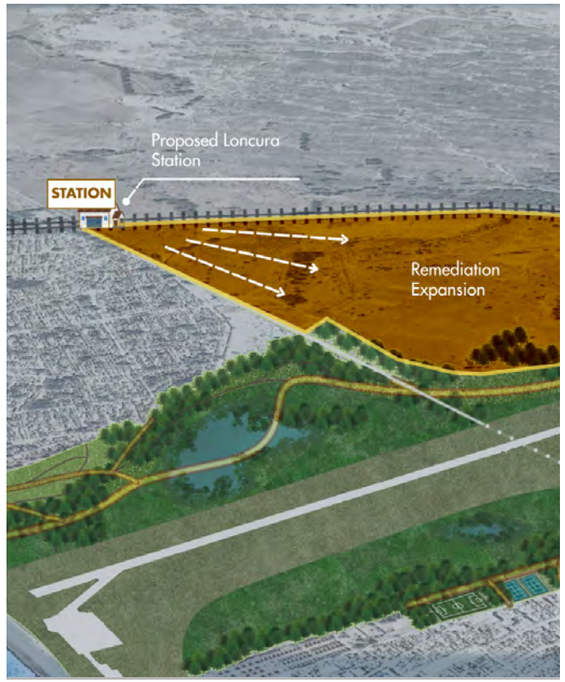
The initial phase of waterfront development integrates several natural strategies, including a filtering system, floating pathways with a floating treatment garden, and an aquaculture farm to rebuild the ecosystem.

10 | Water Monitoring Zone

A broader water monitoring zone with buoys, which collect real-time data for long-term monitoring. The water monitoring buoys and silt curtain make beach activities safer for everyone.

11 |Participatory Restoration

12 | Beach Activities & Restoration



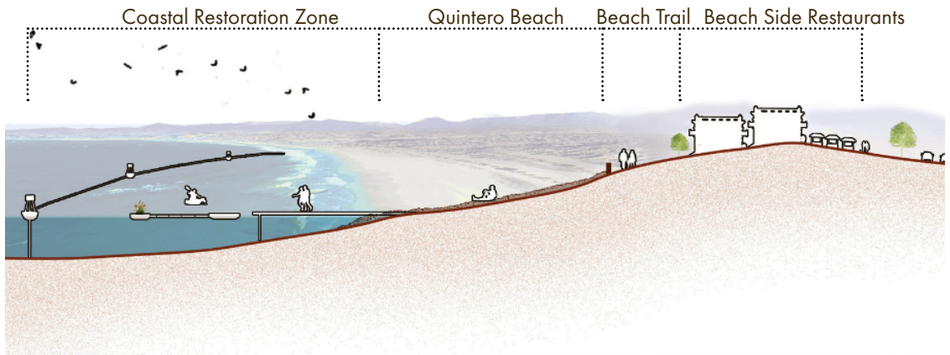
13 | Soil Remediation

Planting Miscanthus x giganteus as a biofuel crop which can bring in more economic benefits. This clean up process is then further expanded to the contaminated zone, pairing this with a new train station at the intersection nearby Loncura, promoting eco-tourism and regional accessibility.

14 | Grid sampling

With grid sampling, dividing the land into small, equally sized sections to systematically test soil contamination levels. This helps identify the most polluted areas and monitor how effective the remediation process is over time.

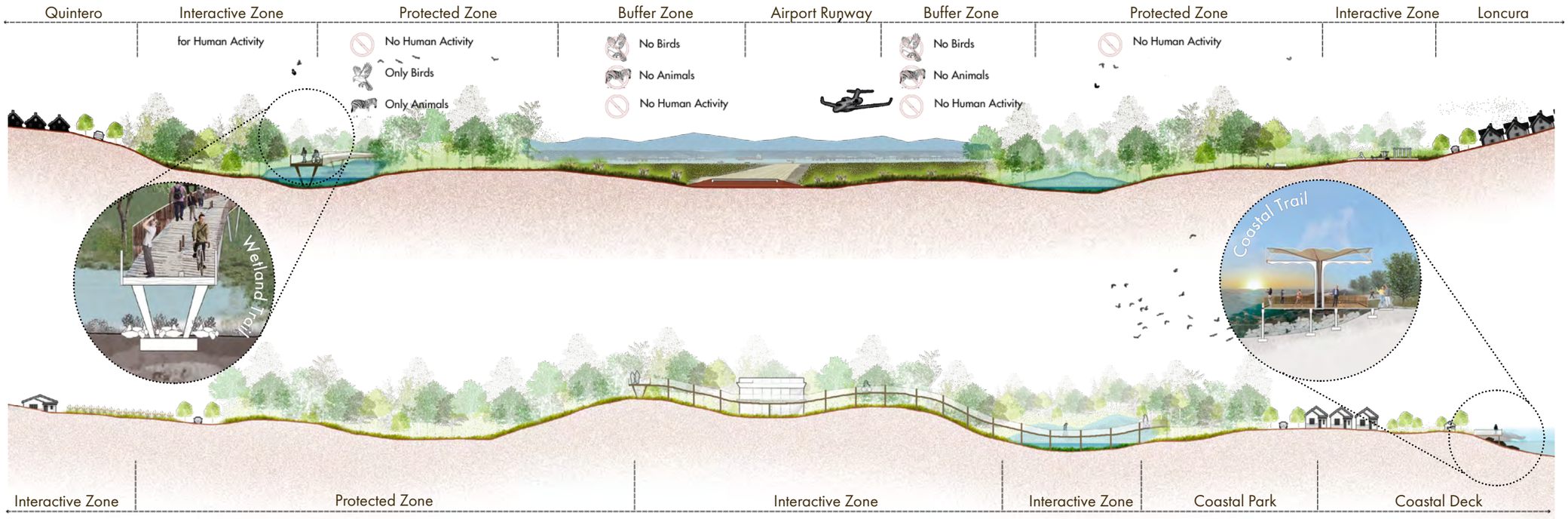
15 | Proposed Train Station



16 | Beach Restoration & Activities

17 | Wetland Trail

18 | Coastal Trail & Park



19 | Urban Section

20 | Wetland Ecosystem

21 | Coastal Trail