

Spring 2026

EARTH STUDIO

SOFT INFRASTRUCTURES FOR CALI-BAJA



San Diego | Tijuana

COLUMBIA
GSAPP
URBAN DESIGN

 COLUMBIA CLIMATE SCHOOL
Climate, Earth, and Society

In Collaboration With:

Southwestern College, SWC
School of Arts, Communication, Design & Media
Chula Vista, CA

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EARTH STUDIO

Earth Studio is an inter-school collaboration and travel course situated in partnership with Columbia Climate School, GSAPP's Urban Design Studio, and place-based stakeholders. Each year it brings together design, policy, and science to explore the most urgent climate challenges shaping communities and landscapes today.

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San Diego Regional Climate Collaborative

San Diego Coastkeeper

4Walls International

Otay Valley Regional Park

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INTRODUCTION AND FRAMING



SOFT INFRASTRUCTURES

This studio is an exploration of the notions of *soft infrastructure* as they impact the environmental, social and economic systems for the Cali-Baja binational region, a transboundary territory between Mexico and the United States.

Its two major cities - San Diego and Tijuana - form a continuous metropolitan conurbation with an estimated population of 5.6 million. Defined by a constant flow of people, goods and services across the border, and a shared ecosystem of rivers, estuaries and coastal landscapes, the region functions as a unique biocultural system increasingly strained by the presence of hard infrastructures. The border wall and its associated surveillance apparatus not only constrain human mobility but also disrupt ecosystemic functions. These hard physical barriers cause localized habitat destruction by interfering with hydrological flows, fragmenting ecosystems and disrupting wildlife migration patterns.

In addition, other forms of hard infrastructures, such as for car-oriented transportation, fluvial control systems involving channelized rivers and streams and large-scale industrial complexes, exert additional pressure on both the ecological functioning and social fabric of the region.

Collectively, these infrastructures operate within a global framework of commodity and capital flows that exploit local conditions of inequality and the vulnerability of underserved communities, groups heavily affected by economic and political turbulence as well as environmental changes. Functioning largely in a monofunctional manner, these hard infrastructure systems exacerbate and

reproduce environmental problems across the border. For instance, deficiencies in Tijuana's sewage infrastructure result in high levels of water pollution in Imperial Beach in the U.S. Conversely, discarded materials, trash, and waste from California are partially reused locally in Tijuana, where they are reintegrated into local circular economies.

Cali-Baja challenges us to devise new conceptual tools capable of reimagining and re-imaging design processes. It calls for a rethink of infrastructures as dynamic systems, incorporating uncertainty, ambiguity and change over time to design resilient urban environments. The concept of *soft infrastructures* invites us to work at the intersection of social, environmental, financial and health needs of the region.

We paid particular attention to the roles that related concepts such as green, blue and social infrastructures play in making the region a more resilient and healthy place to live and work. At the border, *soft infrastructures* serve as a provocation to blur boundaries and strengthen the dialogical relations that operate in the region, allowing us to interpret these as an integrated and interdependent whole.

In collaboration with our academic partners, we examined not only the harms caused by unsustainable and inequitable urban development, but also identified where regenerative design, multifunctional infrastructure, and climate-adaptive urban strategies may be implemented. The region offers a fertile ground for a new urban design, landscape, and political vocabulary, one that acknowledges the messy but powerful entanglements of climate, culture, capital, and community.

The Studio endeavored to design for a transformative future of climate adaptation, infrastructural equity, ecological reciprocity, and political imagination. Students worked with local partners including universities, NGOs, and community groups, to explore the following issues:

How can urban design heal ecological damage and reimagine cross-border systems?

What are some binational governance and co-design models that can emerge in shared watersheds?

How can climate action and adaptation focus on displaced and historically excluded communities?

How can *soft infrastructures* be reimaged as systems of care, reciprocity, and justice?

STUDIO DESIGN PRINCIPLES

Landscapes of Repair: Designing with rather than over complex environmental and social histories and cultivating systems of healing for people and ecologies.

Critical Urban Infrastructure: Critically examining and imagining water, waste and transportation infrastructure.

Justice-Oriented Imagination: Proposing scenarios that center those most affected, i.e. informal settlers and migrants, not as recipients of design, but as co-authors of futures.

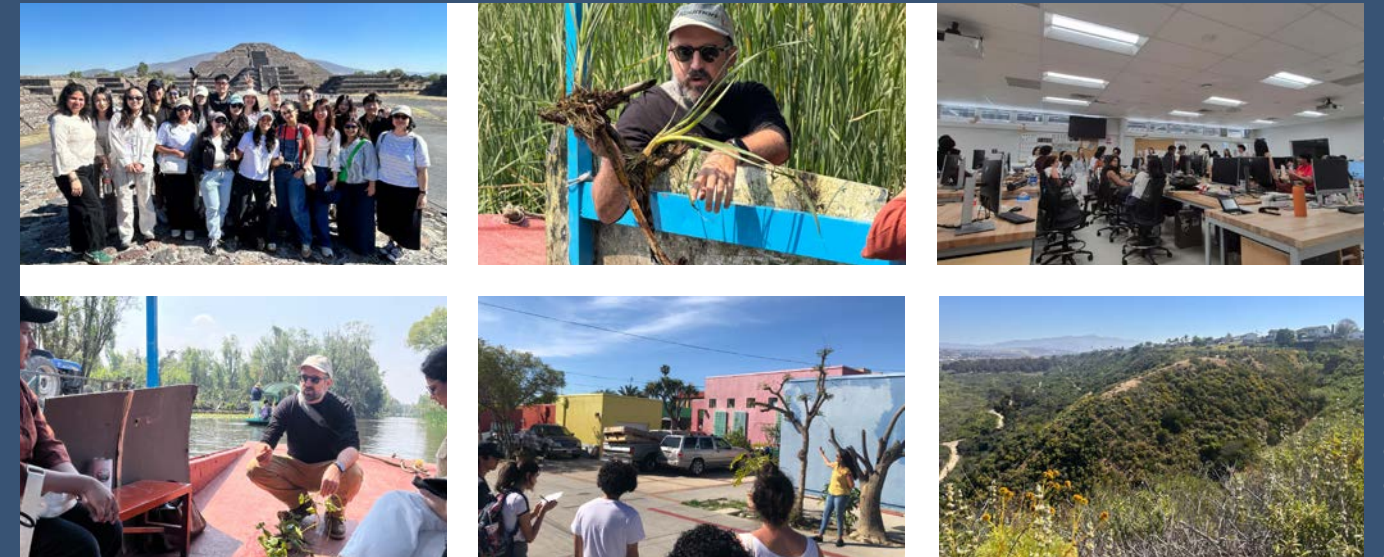
Spatial Social Storytelling and Policy Prototyping: Producing layered spatial analyses, speculative futures, and implementable recommendations for cross-border urban resilience.

ABOUT THE EARTH STUDIO

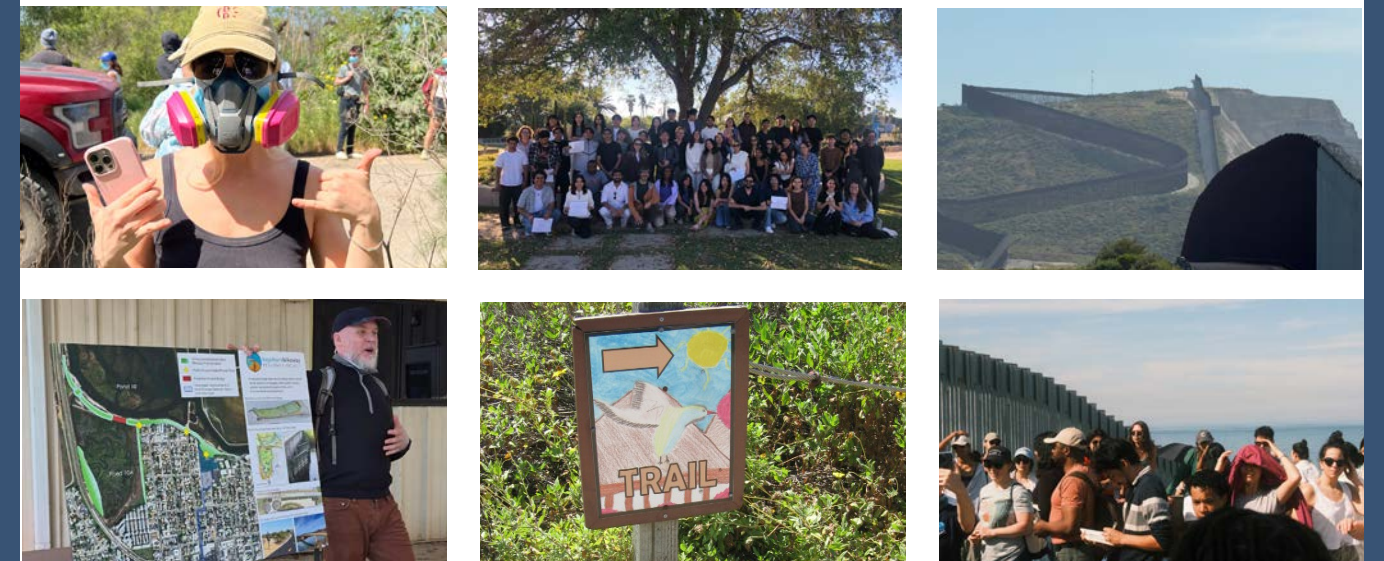
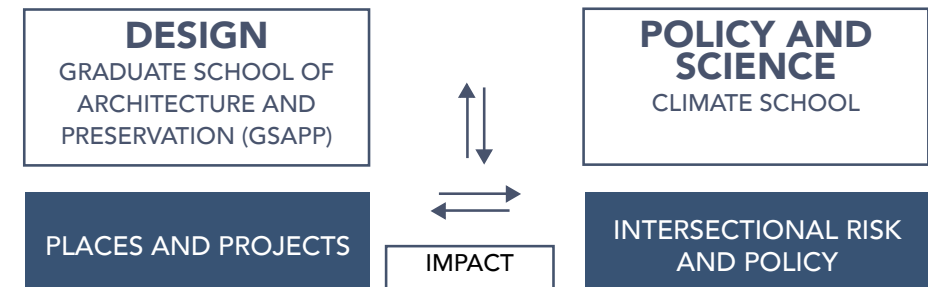
Earth Studio is an inter-school collaboration between Columbia GSAPP's Architecture and Urban Design Studio and Columbia Climate School's Master of Climate and Society program, along with MS Climate program. Offered jointly each spring, Earth Studio brings together students across climate science, policy, urban design, and communication to explore urban design and climate action in places confronting profound environmental and social transformation. Through an immersive, place-based methodology, students work across disciplines to understand how climate risk is shaped by, and experienced, through the built environment, governance systems, ecological change, and uneven social conditions.

This year's studio focused on the CaliBaja region—the interconnected landscapes of Tijuana and San Diego, with particular attention to the Tijuana River watershed and estuary. A place defined by deep ecological interdependence and political divisions, CaliBaja presents urgent questions around water, pollution, housing, border infrastructure, extraction, mobility, and environmental justice. The students and faculty also visited the region, conducting on-site investigations, and worked alongside local governments, community organizations, researchers, and practitioners. tudents explored how climate change intersects with systems of urbanization, infrastructure, and governance, while examining opportunities for adaptation, repair, and more just futures across the border region.

While the thematic and geographic focus of Earth Studio changes each year, its pedagogical model remains constant: multidisciplinary, collaborative, and grounded in real-world engagement. Over the course of the semester, students developed workshop and facilitation skills, conducted applied research, and translated complex systems into actionable insights through visual storytelling, policy provocations, spatial thinking, and design inquiry. The work presented in this document reflects both a process of learning and an invitation to think critically about climate action across scales, to engage complexity with humility, and to imagine new pathways for resilience grounded in place, partnership, and reciprocity.



LOCALIZED CHALLENGES AND PARTNERSHIP



CLIMATE X DESIGN FRAMEWORK

Grounded in the shared ecologies and tensions of the Cali-Baja borderlands, this studio explored how climate action might emerge through overlapping systems of spatial stewardship, governance, story telling and investment. Informed by local stakeholders and developed collaboratively over the course of the semester, the diagram here organizes a set of spatial design principles and frameworks, alongside provocations for action across the watershed.

Together, they offer potential pathways toward resilience through the lenses of spatial storytelling, binational belonging, and adaptive capital.

SPATIAL STORYTELLING

w. CoastKeeper

How can spatial storytelling make invisible environmental and narrative systems legible and actionable?

ADAPTIVE CAPITAL

w. 4Walls International

How can finance and governance be aligned to support long-term stewardship of a binational watershed?

BINATIONAL BELONGING

w. Otay Valley Regional Park

How can shared landscapes anchor stewardship, opportunity and belonging between safety, housing precarity and ecological protection?

ATLAS OF CALI-BAJA

CALI-BAJA REGION OVERVIEW

The Cali Baja region, a shared landscape and metropolitan area between the United States and Mexico, is a dynamic and highly complex site where climate futures, economic forces, ecological threats, and border politics collide. Stretching a conurbation of approximately 1,700 km² from Oceanside, north of San Diego County to Rosarito beach, south of Tijuana, this agglomeration and surrounding territory presents a unique opportunity for urban and landscape design at multiple scales: hydrological, territorial, infrastructural, and human.

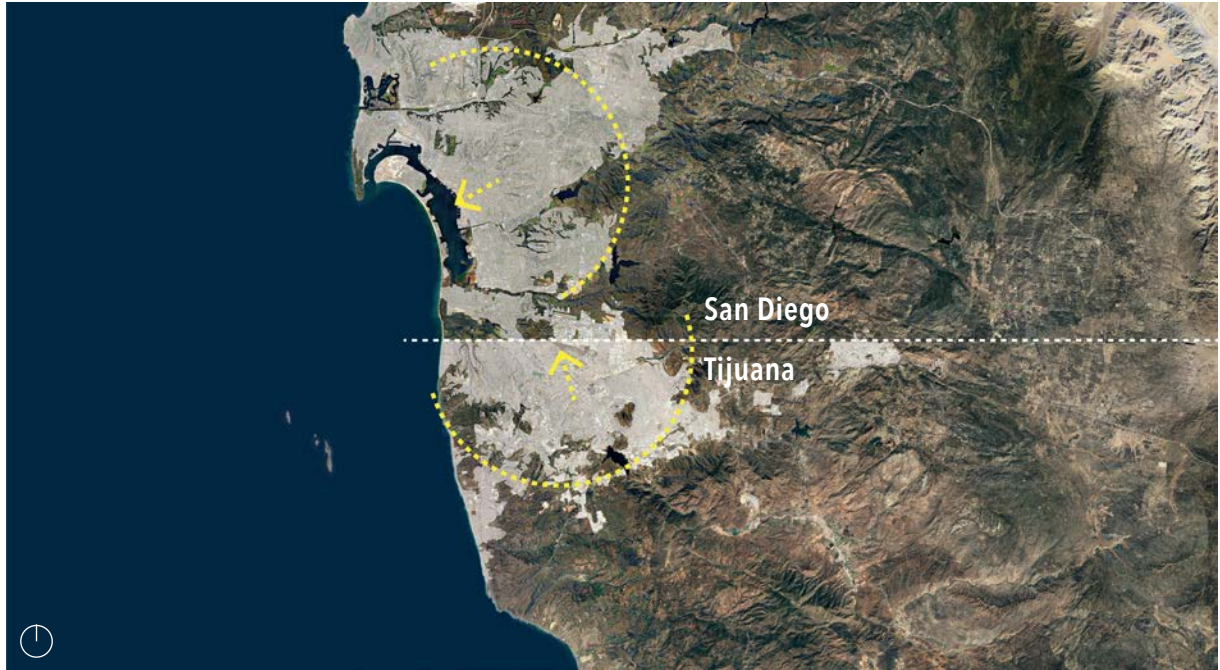
This ecologically endangered watershed acts as both physical and symbolic infrastructure dealing with sewage, dwindling biodiversity, human movement, and jurisdictional conflicts. The quest for sustainability, resilience, adaption and cooperation here must intersect with communities living in extreme precarity. These include informal settlements on both sides of the border including indigenous communities and refugee populations navigating ever-shifting political landscapes.

The regional ecosystem unfolds along a series of parallel watersheds, including the San Diego, Sweetwater, Otay, and Tijuana Rivers, with the latter being the only basin divided by the artificial national border between the USA and Mexico. Born in the mountain ranges to the west, each of these rivers discharge into the coastal ecosystems of the Pacific Ocean. San Diego, located along the bay that bears its name, functions as the region's principal port. It is a city oriented toward the sea, where much of its coastal area holds a big portion of the region's economic wealth and infrastructure investment.

Tijuana on the other hand, extends from the margins of the Tijuana River through an intricate network of canyons occupied by maquiladoras serviced by a large number of workers, and a mix of formal and informal settlements.

The economic asymmetry between the two cities is legible in their respective urban morphologies: while San Diego faces the ocean, Tijuana grows toward the border wall, expanding along a linear edge in a continuous effort to remain in proximity to the border.

Climate change in this context exacerbates existing vulnerabilities, sea level rise impacts estuarine ecosystems, while intensifying storms and droughts strain water access in upstream settlements. Yet, climate change is only one of the layers that overlay on histories of aquifer extraction, transboundary urban sprawl, migration and militarized border enforcement.



SAN DIEGO - TIJUANA URBAN FOOTPRINT

MAP OF CALI-BAJA REGION WATERSHEDS AND RIVER SYSTEMS >>>



URBAN DESIGN LAYERS

In the Earth Studio, we used **ten thematic layers** as a point of departure for analyzing, researching and understanding the Cali-Baja region. Each layer, from history to infrastructure, offers a distinct lens onto the territory, though none stands alone: history shapes housing, housing shapes migration, migration shapes economy, until the layers reveal themselves as facets of a single, interconnected system. Our methodology asks student teams to research each layer independently, developing their own insights and guiding questions, before situating that knowledge within the region as a whole. What follows, then, is not a set of isolated topics, but a systemic approach to a complex region.



01 | HISTORY AND CITY CHANGES

The U.S.-Mexico border was formalized by the 1848 Treaty of Guadalupe Hidalgo. Yet this was Kumeyaay land long before the border, and their people remain today. Since then, Cali-Baja has become one of North America's fastest-growing metropolitan regions.

02 | ART, CULTURE AND SOCIAL LIFE

Cali-Baja is shaped by cultural exchange, where Indigenous and Catholic traditions merge with influences from migration. This has fostered a distinct Chicano culture, expressed through artists, chefs, Chicano Park, and border art that reclaims infrastructure of division as spaces for culture.





03 | BINATIONAL ECONOMIES & GOVERNANCE

Cali-Baja's \$250 billion maquiladora economy (Canedo et al., 2022) relies on intense cross-border exchange while producing informal housing and infrastructure deficits in Tijuana. The Studio explores new relationships between maquiladoras and colonias there.

04 | LANDSCAPE, ECOSYSTEMS AND BIOTA

Cali-Baja's coastal, chaparral, and desert ecosystems are increasingly threatened by wildfires, urbanization, pollution, and the border wall, driving biodiversity loss and habitat fragmentation. This layer reimagines ecological restoration and connectivity.



05 | HOUSING AND URBAN MORPHOLOGY

Cali-Baja's urban form reflects migration, topography, and inequality. Self-built settlements dominate Tijuana's hillsides, while unaffordable housing and extractive development on stable land reinforce spatial and social divisions.



06 | WASTE MANAGEMENT AND ENERGY

Rapid urbanization has overwhelmed Cali-Baja's water infrastructure, sending sewage, sediment, and waste into the Tijuana River Estuary and across both coasts. This layer explores ecological restoration, new waste management systems, and alternative energy futures.



07 | MIGRATION AND CITIZENSHIP

The San Diego-Tijuana border is the Western Hemisphere's busiest land crossing (U.S. General Services Administration, 2019), where daily mobility intersects with global migration. This layer examines care, asylum, security, and climate displacement.

08 | TOPOGRAPHY AND HYDROLOGY

The Tijuana River basin's canyons shape formal and informal urbanization while channeling pollution into the binational estuary. This layer reimagines the landscape through arroyo restoration, aquifer regeneration, and climate risk adaptation.



09 | CLIMATE DYNAMICS

Climate change is intensifying water scarcity, flooding, landslides, wildfires, and extreme heat. This is exposing the region's dependence on imported water and vulnerable coastal ecosystems. This layer proposes adaptive strategies for water, risk, and ecological resilience.

10 | INFRASTRUCTURE

Cali-Baja challenges conventional definitions of infrastructure. This layer asks whether the current infrastructure responds to inequality, migration, climate change, and informality, or produces them, and explores new soft, hard, and hybrid models.



MAP OF SYSTEMS

ISSUES AND OPPORTUNITIES FOR SOFT INFRASTRUCTURES

ESTUARY

Healing strategizing for ecosystems threatened by untreated water, sediments and trash pollution.

CANYONS

Improving self-built settlements, reducing landslide risk and addressing lack of sewage and water infrastructures.

COAST

Addressing ocean pollution, coastal erosion and sea level rise risk.

BORDER

Conceptualizing ways to stitch the fragmented and divided ecosystems and social fabric.

ARROYOS

Strategizing to save ecosystems threatened by untreated toxic water, rapid urbanization and river channelization.

TIJUANA SOUTH

Maquiladoras and economic opportunities for social and ecological equity.

LAYERS OF PLACE, CLIMATE AND POWER

[By Climate School Students]

The following collection of papers and maps represents student-led research developed through Earth Studio's engagement with the CaliBaja region – a dynamic landscape shaped by interconnected ecological systems, infrastructure, governance, migration, culture, and climate risk. Drawing from field visits, interviews, mapping, archival research, and interdisciplinary analysis, students explored how climate impacts are experienced unevenly across place and how histories, policies, and power shape present-day conditions.

Guided in part by anthropologist Arjun Appadurai's understanding of objects as **"congealed moments in a longer social trajectory"**, students approached landscapes, systems, and material conditions not as static backdrops, but as living records of social, political, ecological, and economic change. A river channel, informal settlement, border crossing, wetland, road, seawall, or wastewater pipe can reveal histories of migration, extraction, governance, care, exclusion, adaptation, and resistance.

Collectively, this research asks how climate risk is produced, experienced, and contested – and how resilience is shaped through institutions, infrastructure, ecosystems, and community action. The work foregrounds the idea that place is not passive; rather, landscapes actively participate in shaping possibilities, vulnerabilities, and futures. Students were encouraged to examine not only what is changing, but also what remains stuck, who benefits from current conditions, and where opportunities for transformation might emerge.



01 | FOOD AND AGRICULTURE

Who Gets to Grow? by Amara Leazer



This paper examines communal agriculture through a case study of the Tijuana River Valley Community Garden. Here, informal food systems are shaped by contested land access, climate stress, binational infrastructure failures, & contentious governance. Climate impacts increasingly threaten these agricultural systems and weaken local food security. These pressures intensify environmental health, land tenure, governance, and resource allocation inequalities. Ultimately, this project asks how access to land & water, power, policy, & environmental change, determine who can cultivate, eat, & remain in place.

02 | URBAN MORPHOLOGY AND HOUSING

Exploring the Value of Informality, Leyre Jimenez



Social cohesion often succeeds when formal system fails. This work asks the question, Why do many formal housing projects fail socially, while informal settlements remain active and cohesive? This paper is focused on informal settlements (specifically, "Cartolandia") centering on how marginalization and resilience is shaped by climate dynamics and by a current moment of migration and housing policy shifts. This paper argues that informality in Tijuana should not be understood as a planning failure, but rather as a spatial product of border urbanism, market-driven housing systems, and climate injustice.



03 | HEALTH & COMMUNICATIONS

Transient Beings, Cassie Kise

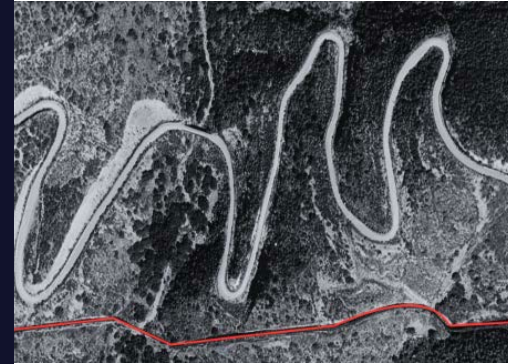


Tracing the embodied impacts of slow violence across the Calibaja region, this work examines how pollution, climate instability, and institutional neglect converge to produce intergenerational physical and mental health crises through the contamination of air, water, and soil. Referencing environmental justice and radical care ethics, it argues that while policy frameworks such as Healthy Border 2030 signal emerging shifts, the primary barrier to transformation remains the absence of an operationalized ethic of care within leadership, systems design, and resource allocation.



04 | HISTORY AND URBAN CHANGE

The Border: Imagining an Alternative Citizenship, Siddhi Vora



The border between San Diego and Tijuana is a dynamic site of urban transformation, historical violence, and evolving notions of citizenship. The material partition disrupts environmental, hydrological, economic, and social flows that have long defined the Cali-Baja region. This project asks: what might a cross-border citizen look like, and how could such a framework address shared challenges including climate change, environmental degradation, and urban inequality? infrastructure project.

05 | WASTE AND ENERGY

From River to Sewer: Band-Aid Policies and Escalating Water Crisis, Ines Mauduit

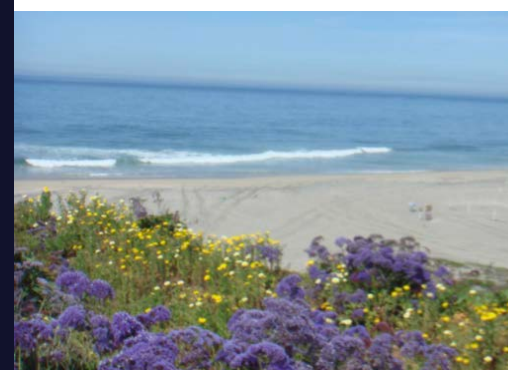


The cross-border wastewater system shapes environmental risk and public health concerns for communities located near the Tijuana River Watershed. This study tracks wastewater flows across the region, and investigates how rapid urbanization, industrial expansion, anthropogenic changes, extreme rainfall and extended droughts all apply increasing pressure to wastewater infrastructure. This study provides an overview of the region's policies in an attempt to understand decades of fragmented binational governance, underinvestment, and uneven accountability.



06 | CLIMATE DYNAMICS

Climate Histories and Futures, Antonio Mochmann



To put modern and future climate change into perspective, there is a particular focus on human impact, examining how climate dynamics have shifted over the course of thousands of years. The project also looks into climate data predating human impact to better understand modern and future climate dynamics of Calibaja. The project contextualizes how communities in Calibaja have adapted—or are still adapting—to the climate as well as how long term weather events complicate human made borders lines and vice versa.



07 | ART, CULTURE, AND SOCIAL LIFE

Protest Border Art as Cultural Infrastructure: Resistance, Hope, and Capital in Tijuana, Daria Richman Price



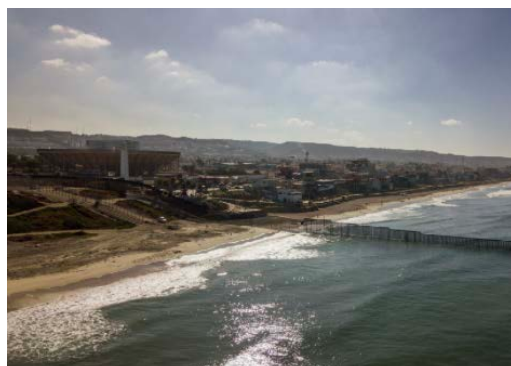
Protest border art in the Tijuana River Watershed functions as both cultural expression and infrastructure. It reflects the region's overlapping flows of people, ideas, water, and migration while also responding to the increasing fortification of the wall and the growing pressures of climate change. Ultimately, border art demonstrates that culture and ideas continue to flow in both directions despite the wall.

08 | BINATIONAL ECONOMIES AND GOVERNANCE

One Regional Economy, Jacob Benoist



Centered on the structural pollution imbalance, a trans-border impact fund has potential to address watershed degradation and economic disruption in San Diego. Grounded in binational water governance frameworks, the fund would leverage existing systems to align incentives across industries and municipalities, supporting long-term environmental remediation and shared economic resilience.



09 | MIGRATION AND CITIZENSHIP

When the River Crosses the Border: Differential Mobility, Climate Risk, and Uneven Belonging, Fabricio Correa Lara



The Tijuana River channel at the international boundary is less a line than a filtering system, sorting flows of water, sediment, pollution, species, and people through law, infrastructure, and enforcement. Territory is rewritten as the river crosses jurisdictions, while legal and migratory status unevenly shapes mobility: a deported Mexican and a deported Haitian inhabit fundamentally different legal and social terrains, determining who moves smoothly, who moves through danger, and who is immobilized. The channel accelerates some flows, trade, capital, select bodies, while obstructing others: asylum seekers, polluted water, wildlife. This differential mobility is not incidental to the border; it is the border's function, linking local governance dynamics to planetary climate pressures that intensify risks across the watershed.



10 | TOPOGRAPHY AND HYDROLOGY

From Concrete to Coast: Hydrological & Political Flows at the Tijuana River Border Transition, Dara Towriss



The Tijuana River Valley's hydrology and topography have been altered by colonization, boundary creation, urban flood control, and conservation, evident in its concrete-to-natural river channel transition at the U.S.-Mexico border. The river flows through engineered channels, steep canyons, and ephemeral arroyos that direct contaminants downstream. Climate change amplifies flood risk, ecological stress, and inequitable exposure to pollution. These tensions are unfolding in a moment of cross-border management with the International Boundary and Water Commission's Minute 333, the most recent sanitation infrastructure project.

11 | BIODIVERSITY & ECOLOGY

Weaving the Watershed, Ryann Busillo



This paper traces Kumeyaay basketry as a living system of place within the Tijuana River Watershed, arguing that biodiversity and cultural continuity are not parallel concerns but the same concern, produced by the same conditions and threatened by the same forces.



12 | INFRASTRUCTURE

Maquiladoras: The Heartbeat of Tijuana, Emily Su



The Mexican maquiladora industry has long been a cornerstone of the country's economy. However, since its inception, it has raised persistent concerns around worker welfare, environmental degradation, and labor inequity. My research examines the maquiladora industry in the context of the Tijuana River Watershed, investigating how binational politics and trade agreements shape labor migration, housing, and climate dynamics. This project critically examines the local, cross-border, and national forces that sustain this industry, asking 'who truly benefits?', and 'at whose expense'? It concludes with a call to (re)imagine binational governance and accountability structures for the maquiladora industry to produce equitable, mutually beneficial, and transformative outcomes across the broader Cali-Baja region.

AGENTS OF CHANGE

CaliBaja is a complex landscape of people, place, and practice. Solutions to the climate crisis affecting this region are as complex. Through interviews, site visits, workshops, and on-site design explorations with stakeholders, we built a complex picture of climate risk and the transition.

The Agents of Change collection brings together student visual narratives developed through fieldwork across the CaliBaja region. It captures encounters with local leaders, practitioners, residents, and landscapes, the Story Maps document diverse perspectives on climate risk, resilience, justice, and pathways for change.

This work is only possible because of the generosity of those who invited us into their communities, shared expertise and lived experience, and challenged us to see the region with greater complexity and care.



1. Bordering Risk



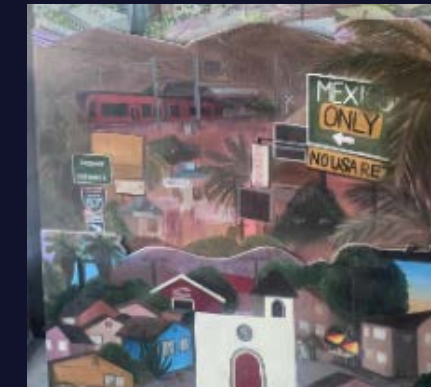
2. Who gets to grow?



3. Belonging in the Borderlands



4. A crisis of accountability



5. Misaligned Flows



6. To See & Be Seen



7. The Politics of a Transboundary Crisis



8. Systems Collide



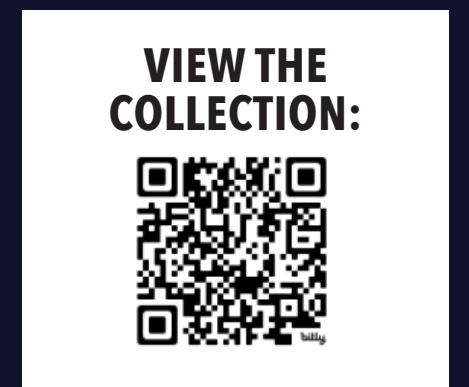
9. One Regional Economy



10. Shared Crisis, Divided Risk



11. Healing as a Future History





SPATIAL VISIONS FOR THE CALI-BAJA REGION

PROJECT SITES



ESTUARY

SPATIAL VISIONS FOR THE CALI-BAJA REGION

BUILDING GROUND

SEDIMENT INFRASTRUCTURE FOR THE TIJUANA ESTUARY

Ting Chu / Yiting Li / Sunghwan Park / Haoyang Chang

What if sediment was not viewed as waste, but as an infrastructure builder of the estuarine landscape over time?

The Tijuana Estuary receives episodic pulses of sediment, debris, and stormwater from upstream canyons during seasonal storm events, while remaining dry and ecologically vulnerable throughout much of the year.

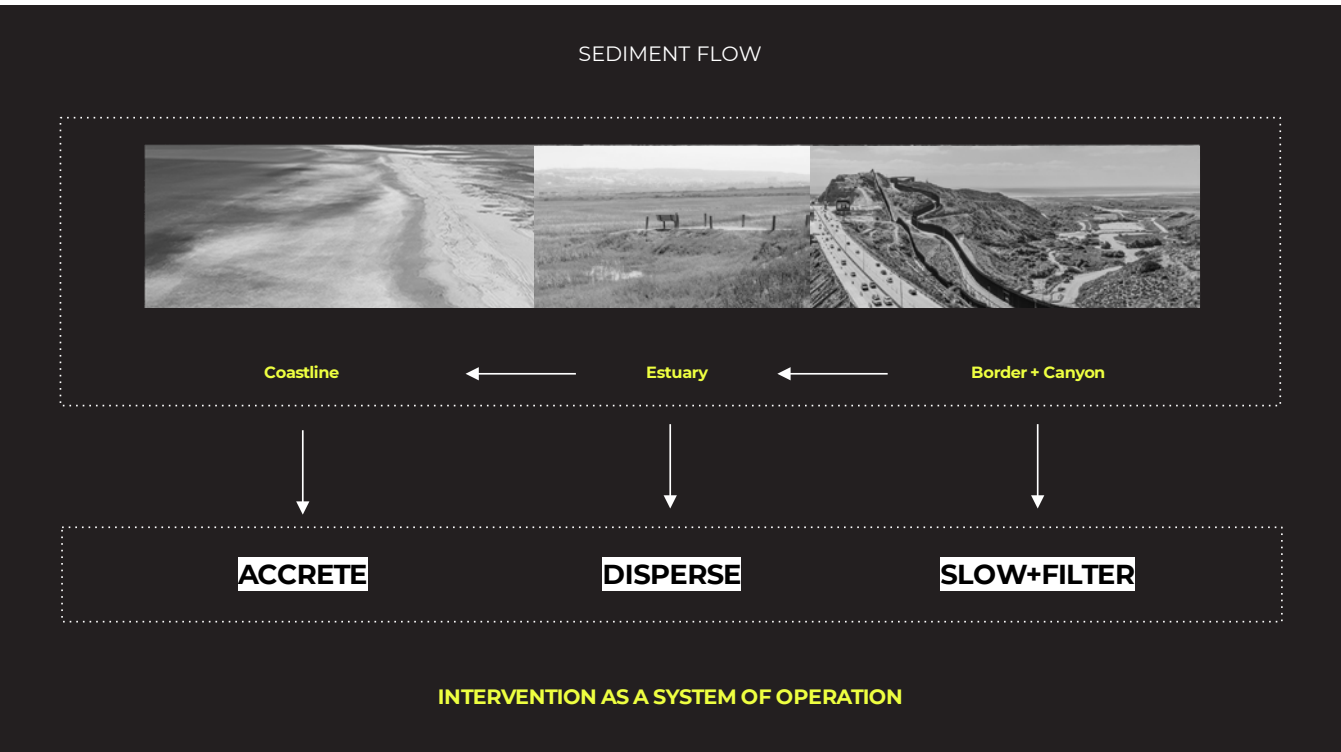
Existing infrastructure rapidly channels these flows through the landscape, accelerating erosion, habitat degradation, and the loss of sediment before it can contribute to ecological recovery.

This project reframes sediment not as waste, but as a seasonal territorial resource to be slowed, filtered, dispersed, and accumulated across canyon, estuary, and coastline systems.

Through a series of adaptive landscape strategies operating in both wet and dry modes, the proposal stabilizes runoff, restores habitat conditions, supports surface formation, and builds long-term estuarine resilience in response to climate change and coastal instability.





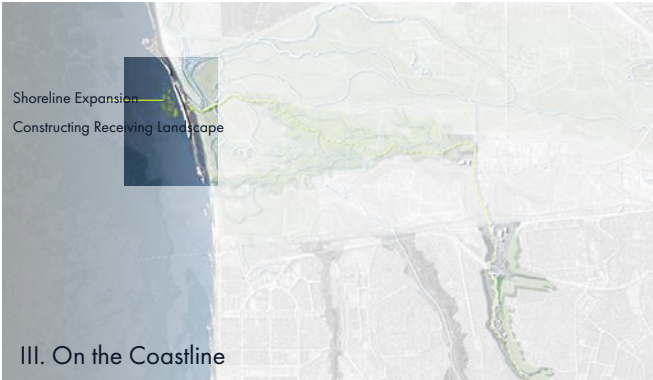
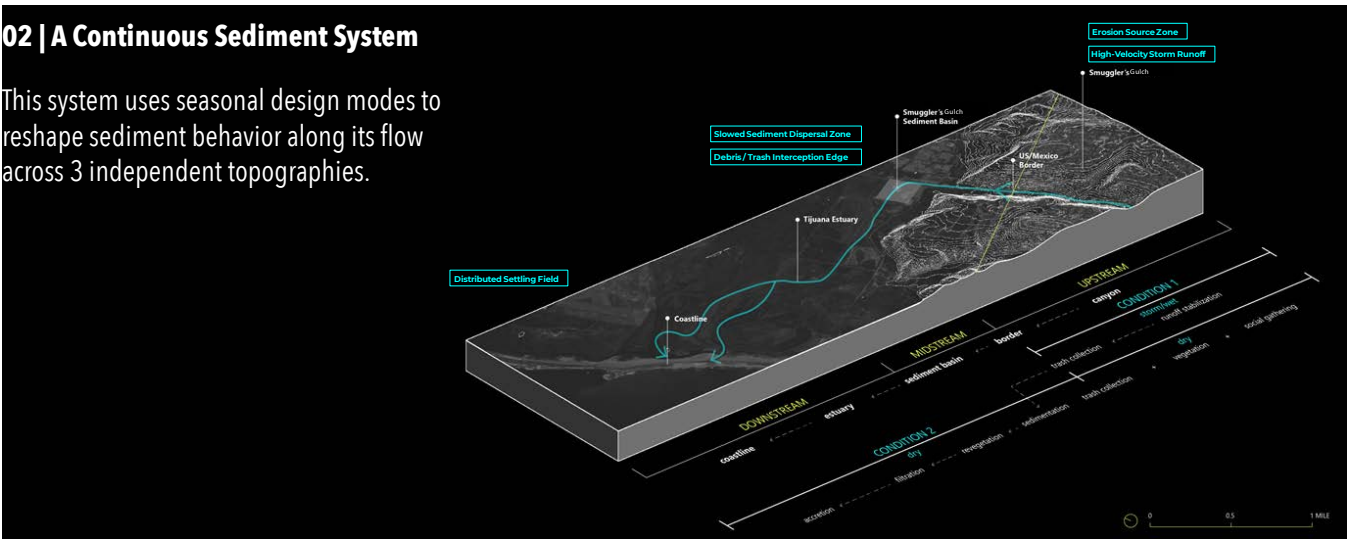


01 | The Source of Sediments

Sediment in the Tijuana Estuary originates from upstream canyon watersheds, with Smuggler's Gulch contributing the most extreme erosion and sediment production during intense rainfall events. These episodic storm-driven flows lead to the estuary "smothering," with an average 1.2 cm annual surface elevation gain that gradually alters hydrology, habitat, and tidal exchange over time.

02 | A Continuous Sediment System

This system uses seasonal design modes to reshape sediment behavior along its flow across 3 independent topographies.



03 | Sediment Reduction & Filtration

Slow and clean sediment utilizing terraced solar gardens and check dams to stabilize the slopes and capture debris.

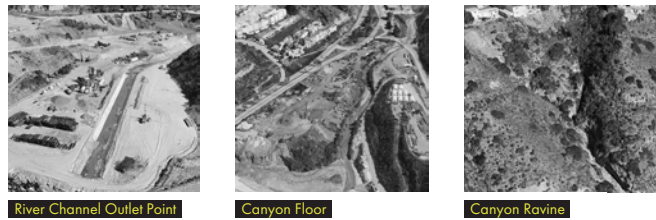
The flatlands at the canyon floor will be repurposed into community markets, orchards, and nurseries, creating a sustainable loop of agricultural production and environmental filtration.

04 | Sediment Dispersion & Filtration

Restored marsh networks and tributary channels will slow high-energy storm flows and allow finer particles to settle across vegetated surfaces. These distributed pathways will increase restorative time, reduce erosion, and transform sediment from a concentrated load into a structured material that supports wetland accretion and surface formation.

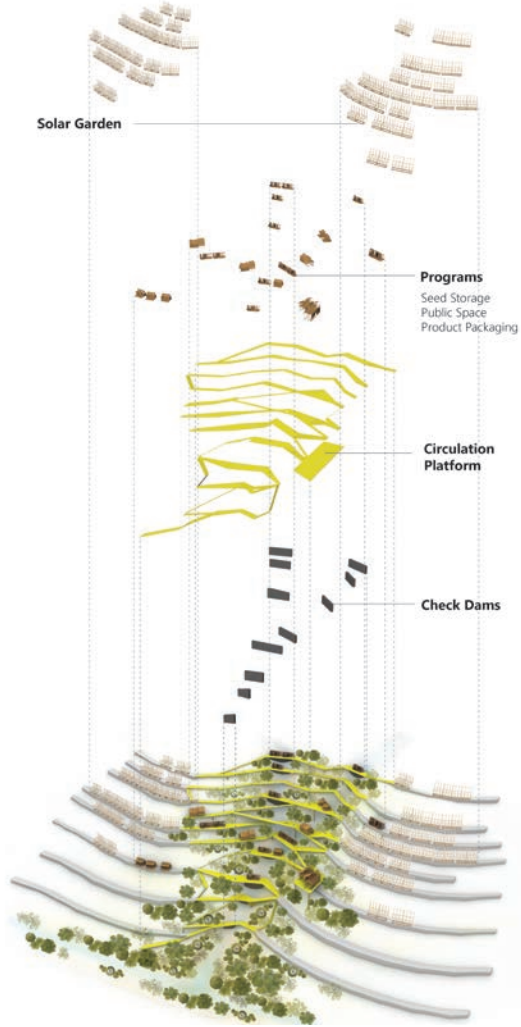
05 | Sediment Accumulation & Coastal Formation

This accumulates and redistributes sediment; will form protective barrier islands by capturing sediment pulses and reorganizing them along low-energy coastal zones. These deposited formations will gradually build elevation, shift shoreline geometry, and create adaptive landforms that respond to changing tidal and wave conditions.

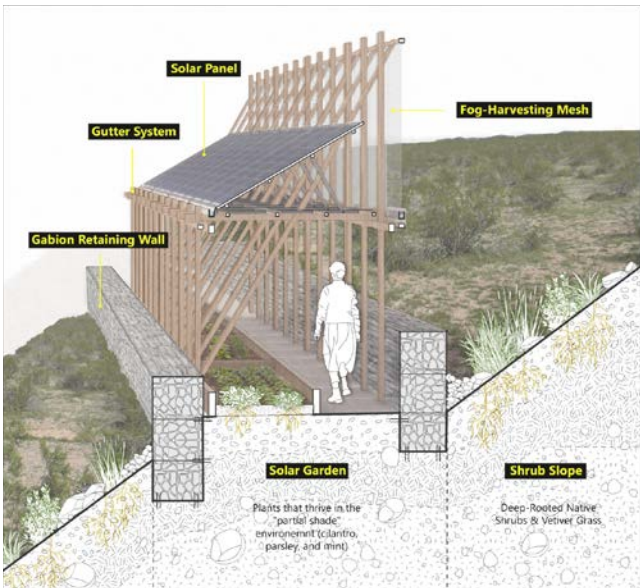
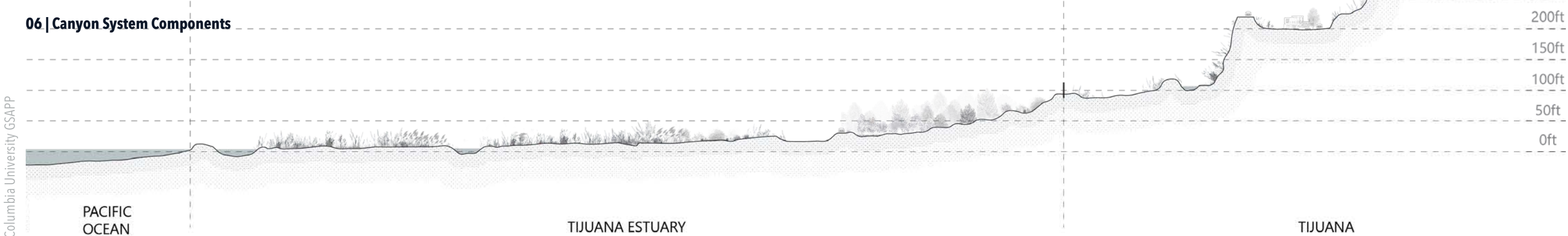


07 | Canyon as a Living Infrastructure

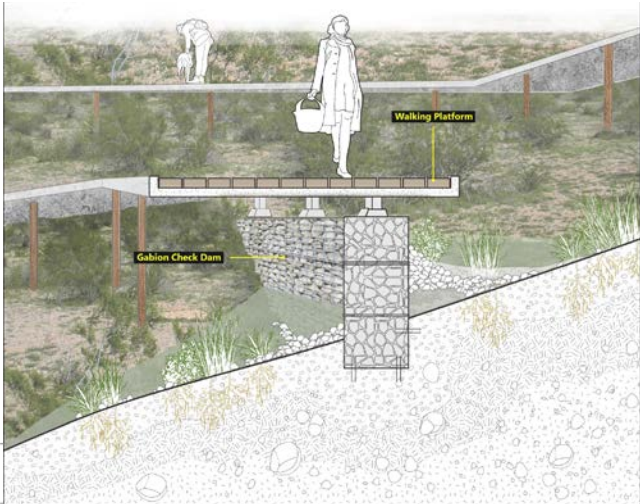
The integrated design will transform the canyon into a resilient landscape where agrivoltaic terraces will combine renewable energy production with shaded cultivation to sustain native ecology. Anchoring the slope will be a multifunctional vertical spine that will act as a gravity-fed water system and social corridor, utilizing built-in check dams to strategically slow stormwater and capture sediment during heavy rains to protect the canyon floor.



06 | Canyon System Components



08 | Solar Garden Structural Detail

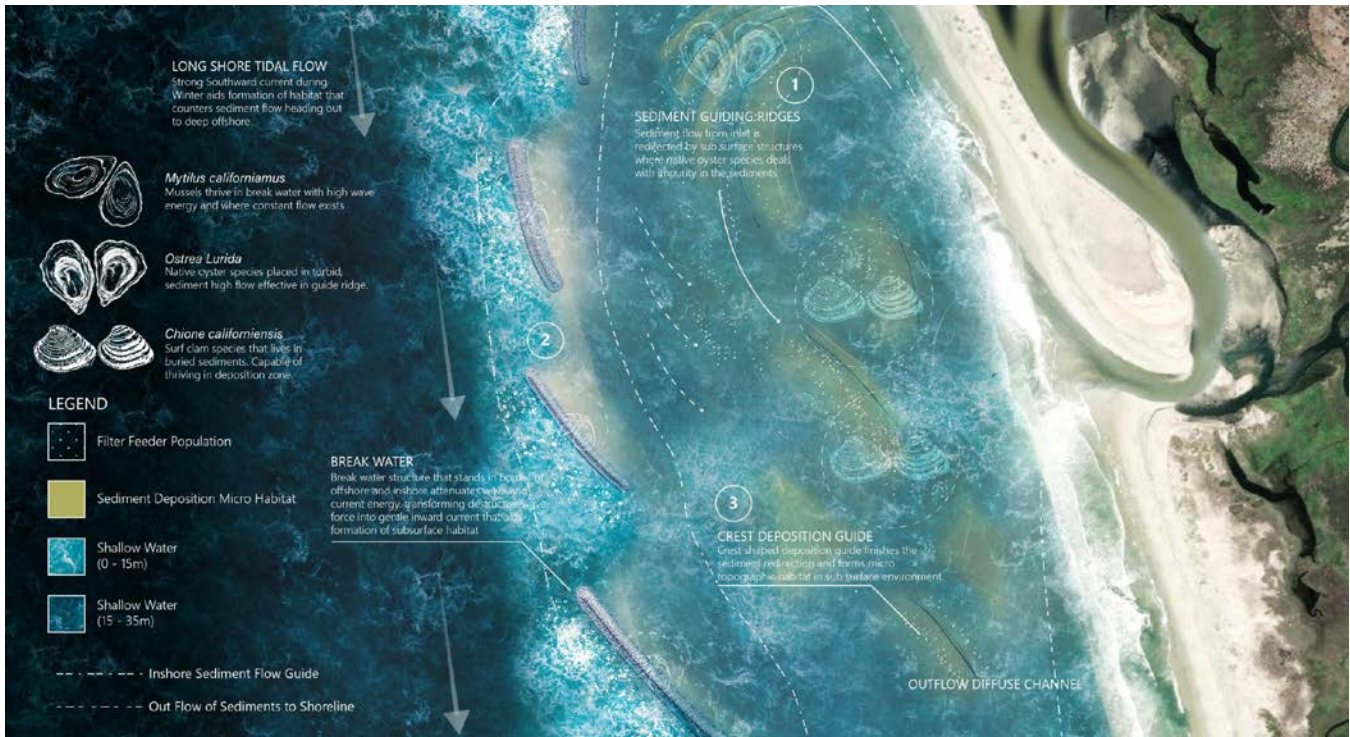
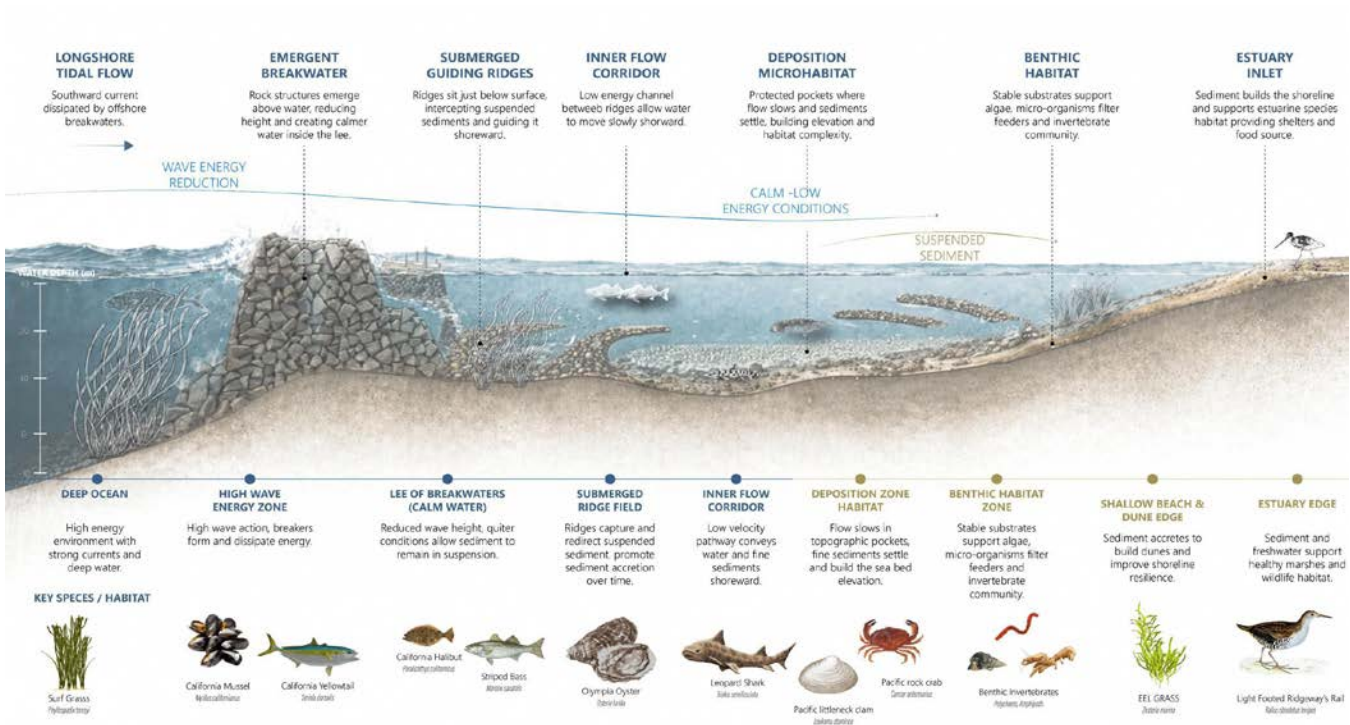


09 | Check Dam Structural Detail



10 | Estuary as a Sediment Transition Field

The estuary will act as a transitional field where sediment is slowed, filtered, and redistributed through a network of shallow channels and vegetated berms. These interventions reduce water velocity, allowing finer particles to settle and build gradual landform accumulation over time. Planting strategies reinforce this process by trapping sediment while supporting a resilient wetland ecology that adapts to seasonal flow changes.



11 | Coastline as a Dynamic Sediment Buffer

Along the coastline, sediment will be reactivated to stabilize and extend the shifting edge between land and water. Layered deposition zones and edge structures will guide sediment build-up while responding to wave action and tidal movement. This system will allow the coastline to continuously evolve, balancing erosion and accretion as a dynamic protective process.

COAST

SPATIAL VISIONS FOR THE CALI-BAJA REGION

FLUJO T.I.R

REPARATIVE INTER-INTERMODAL TRANSPORTATION SYSTEM

Deepanksha Gillakamsetty / Manuela Hurtado/ Susana Chinchilla / Yi Jou (Zoe) Lin

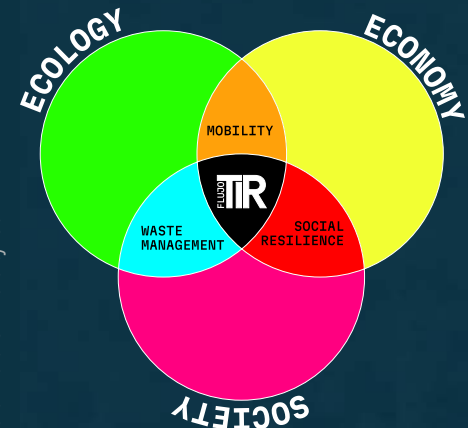
What if transportation could repair more than just mobility?

Prioritizing social and ecological urban development, Flujo TIR aims to co-locate social programming, waste management, and transportation hubs to fill urban and civic gaps in Tijuana.

Our project operates as a reparative platform for connectivity, running on an alternative social currency that simultaneously creates systems of ecological awareness and civic repair.

The first action of our intermodal reparative system focuses on three core actions, collect, participate, and exchange, to build social resilience through the earning and spending of reparative TIR points.

By exchanging knowledge, collecting resources, and participating in the construction of social infrastructure, communities are incentivised to care for and maintain their neighborhoods, while promoting coastal culture in Tijuana.



01 | Collaboration Model, Playas

RESIDENT INITIATIVES





ROLE

- System Maintainer

Power

- Adopts Stations
- Adapts infrastructure to local needs
- Prevents system decay

GOVERNMENT





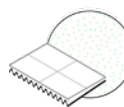
ROLE

- Unlocks mobility infrastructure

Power

- Funds Ferry Network
- Builds Cable Car System
- Enables cross-border

PRIVATE /PUBLIC





ROLE

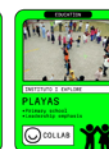
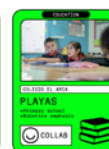
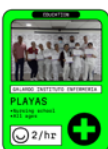
- Activate economy + public life

Power

- Activates coastal economy
- Enhances user experience
- Operates hybrid spaces

EDUCATION



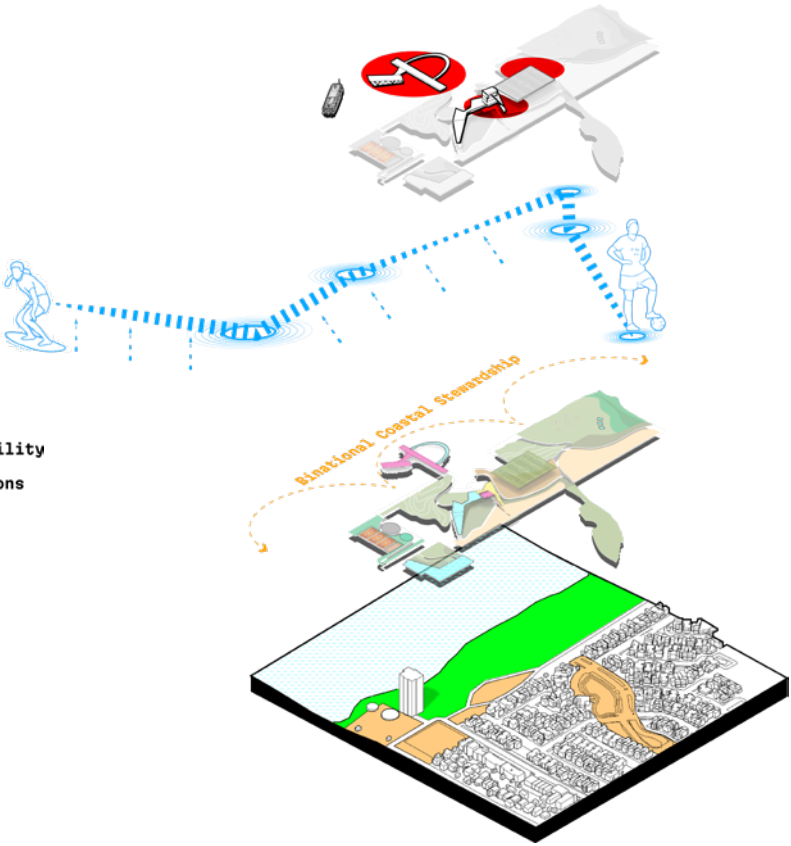


ROLE

- Ecology impact

Power

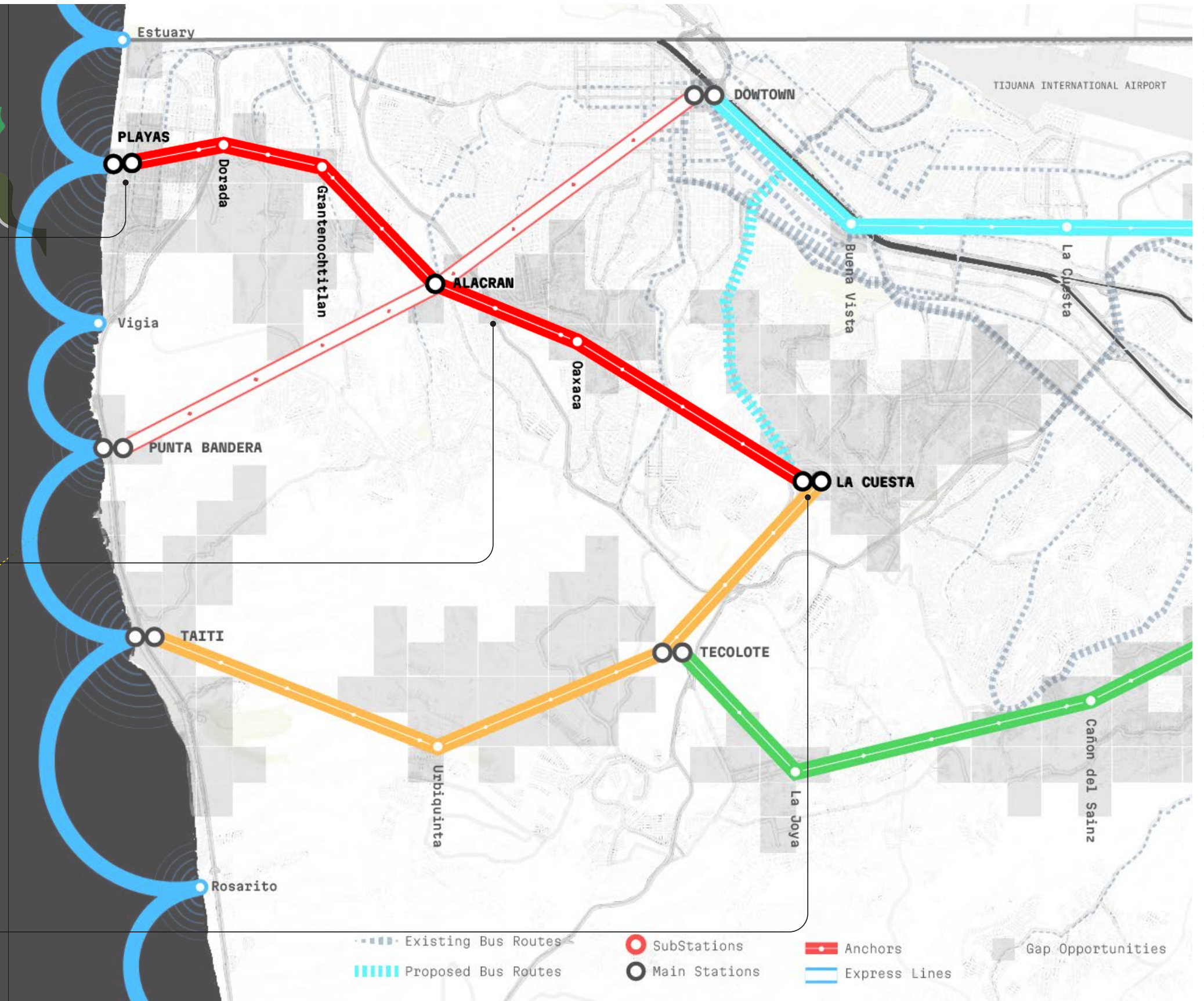
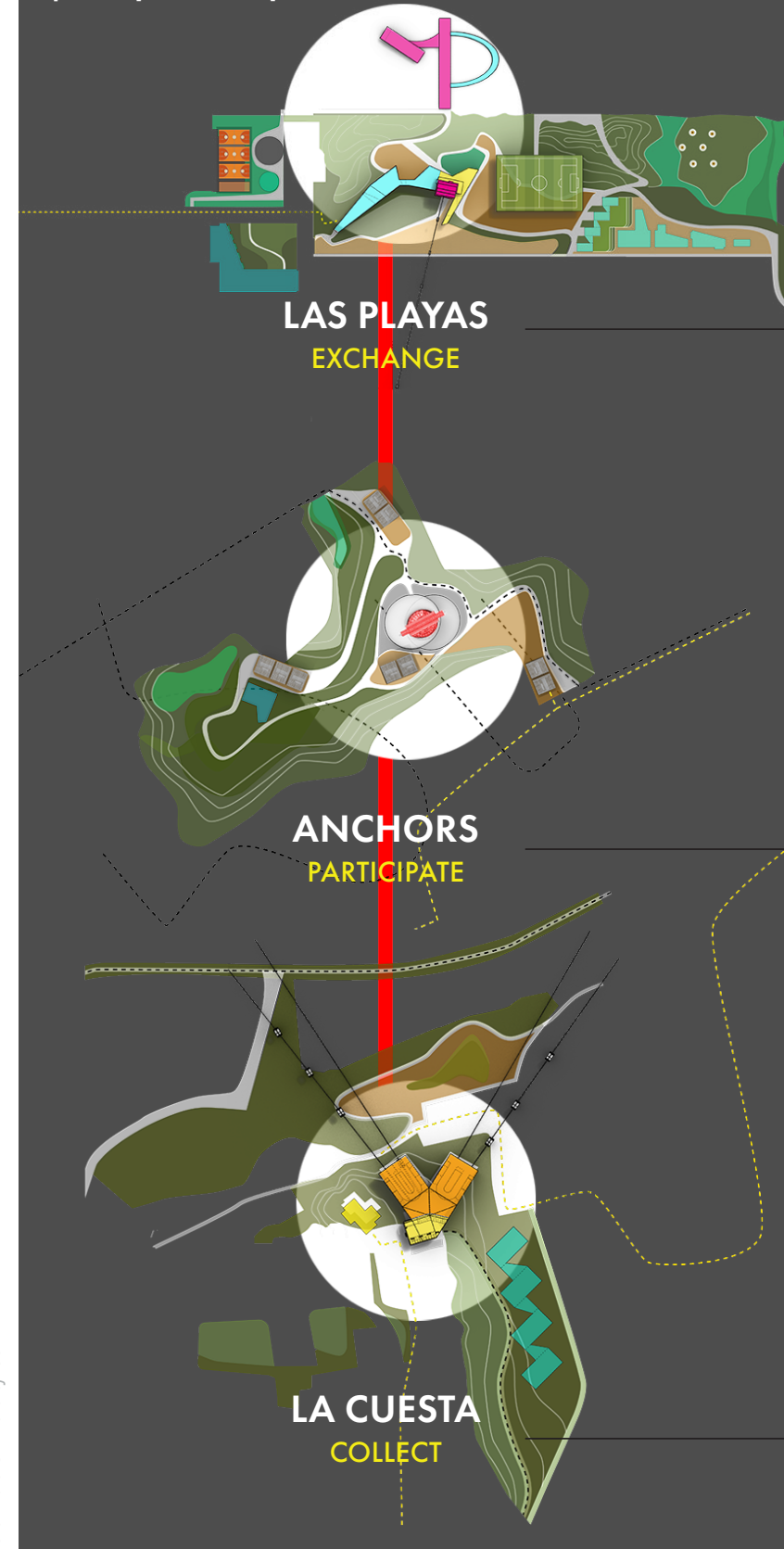
- Boosts long-term sustainability
- Increases system awareness
- Reveals ecological conditions



02 | Playas Intermodal Station



03 | The Reparative Loop



04 | Social Repair Through Alternative Currency

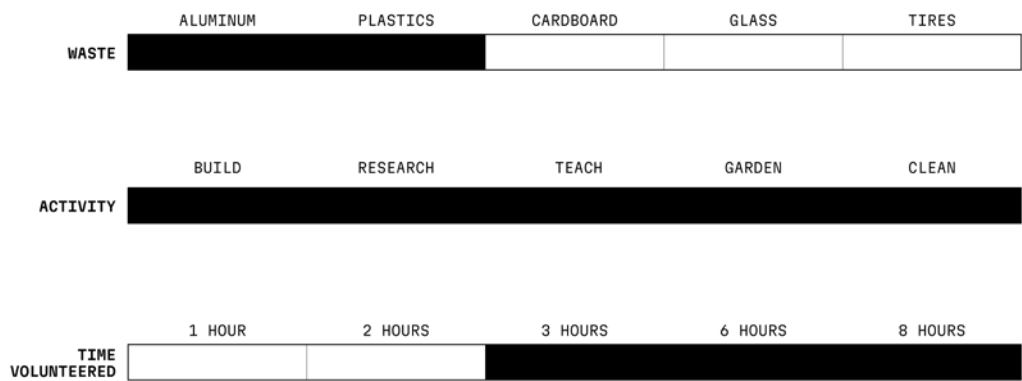
The first action of our intermodal reparative system focuses on three core actions, collect, participate, and exchange, to build social resilience through the earning and spending of reparative TIR points, our community currency.

The project proposes a collaborative framework in which state and federal governments in Baja California provide support to NGOs and institutions through existing public funding mechanism while redistributing funding from reactive care to preventative care, resident initiatives stabilize and activate local nodes, private entities transform collected waste into economic value, and government agencies structure and connect regional systems of mobility and waste management. In this way, TIR functions as a bridge between existing transportation infrastructure and localized systems of ecological stewardship.

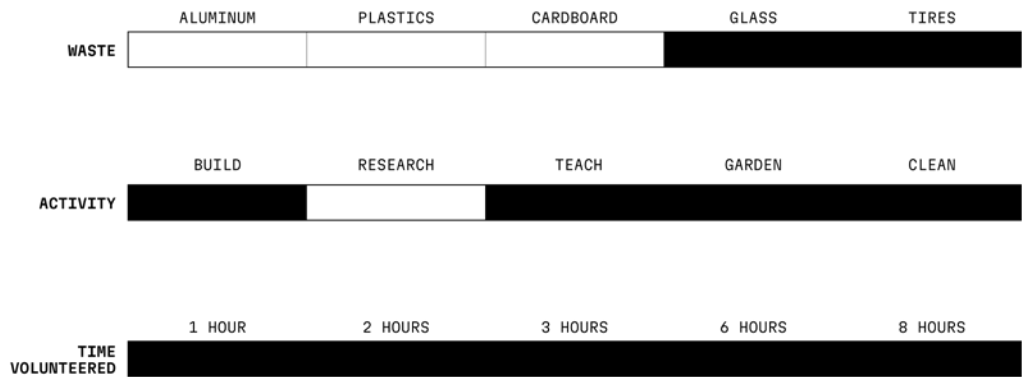
Visit our Website >>>



05 | Playas: Point System



06 | Anchors: Point System



07 | Playas de Tijuana



08 | La Cuesta Station, Interior

09 | La Cuesta Station

Our first station, La Cuesta, operates as a reparative intermodal recycling center focused on collecting material waste directly from the sources, allowing residents to earn TIR points through recycling and other forms of community participation. The station was strategically selected for its proximity to existing waste treatment plants, local NGO initiatives, and active resident-led organizations, positioning it as a support system that strengthens rather than replaces existing infrastructure in Tijuana. Like all TIR stations, La Cuesta is located on abandoned public greenspace adjacent to highly dense residential neighborhoods seeking greater civic and economic opportunities.



RESIDENT INITIATIVES



LOCAL MANAGEMENT AGENCIES



PUERTAS AL PACIFICO

TOWARDS A CONNECTED COASTAL COMMUNITY

Vritti Bhamri / Ambika Kannusami / Elsa Paas / Romina Quinn

How can the coast reconnect Tijuana to its people, ecology, and identity?

Puertas al Pacifico reimagines the coast of Tijuana as a continuous public space and a defining urban identity. Rather than a fragmented edge, the project establishes a network of access points, gathering spaces, and ecological corridors that connect residents to the Pacific Ocean.

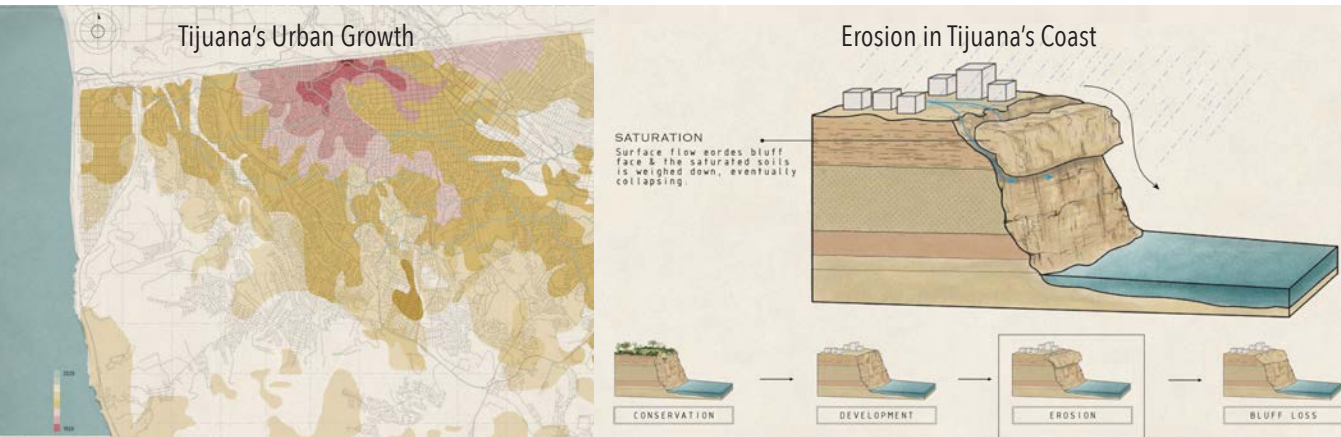
Working across beaches and cliffs, the project starts by identifying where inland water channels meet the ocean and turning these points into key access locations. We then propose regreening the coast by removing hard surfaces and restoring native landscapes.

Finally, a network of connections, bike paths, walking routes, canyon trails, decks to the water, and new transit will support everyday life along the coast. Each entry point acts as both destination and connection to a larger system.



PUERTAS AL PACIFICO

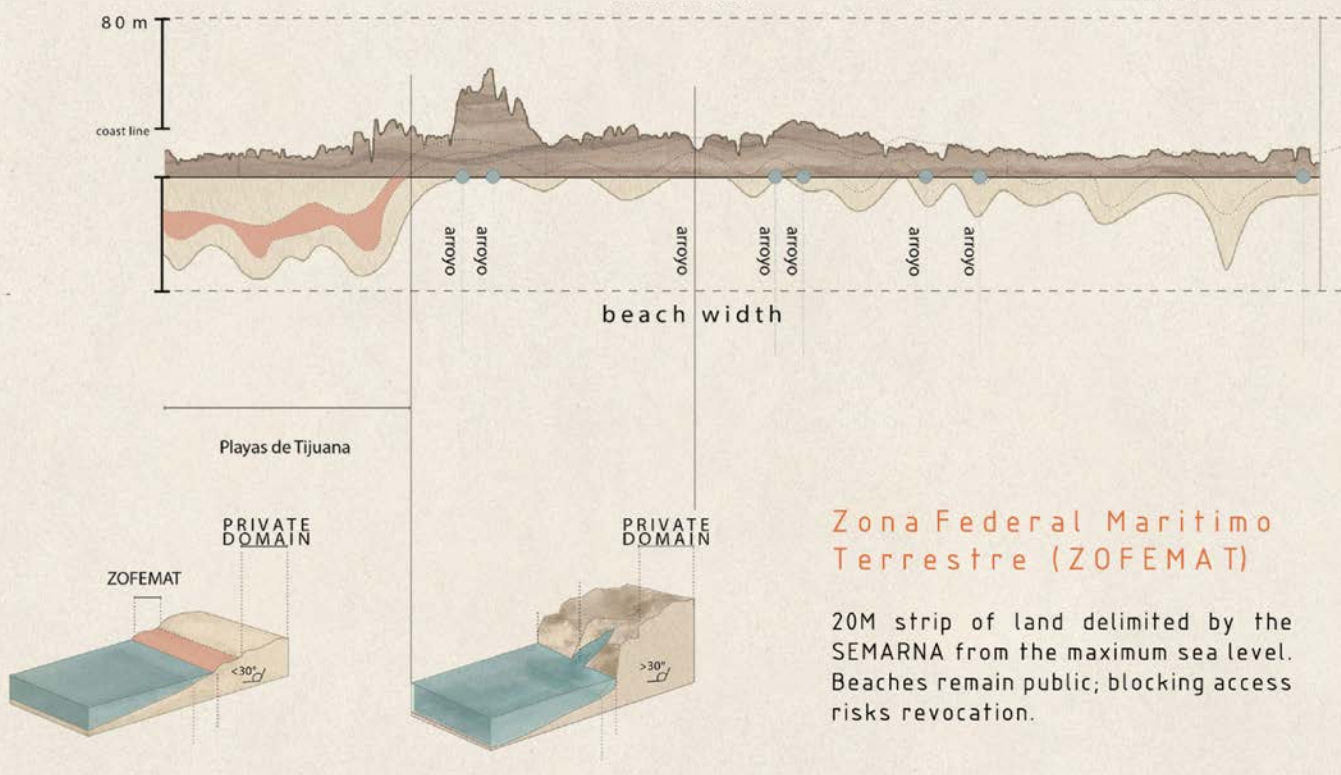
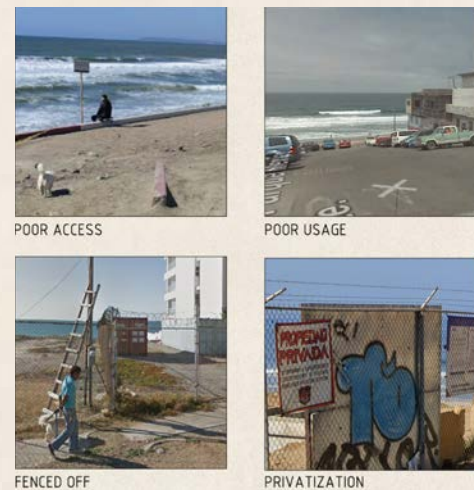




01 | Mexico's Public Beach Access Regulation

Tijuana developed around its river rather than its coastline, leaving much of the Pacific edge disconnected and underused for decades. Today, rapid informal growth and weak regulation continue to pressure protected ecological zones and limit public access to the coast.

Erosion along the coastline is intensified by development that removes vegetation, weakens cliff systems, and increases runoff through impermeable surfaces. As climate change brings heavier rainfall and storms, these conditions make the landscape increasingly vulnerable to collapse.



02 | Strategies on Hydrology, Ecology, and Access

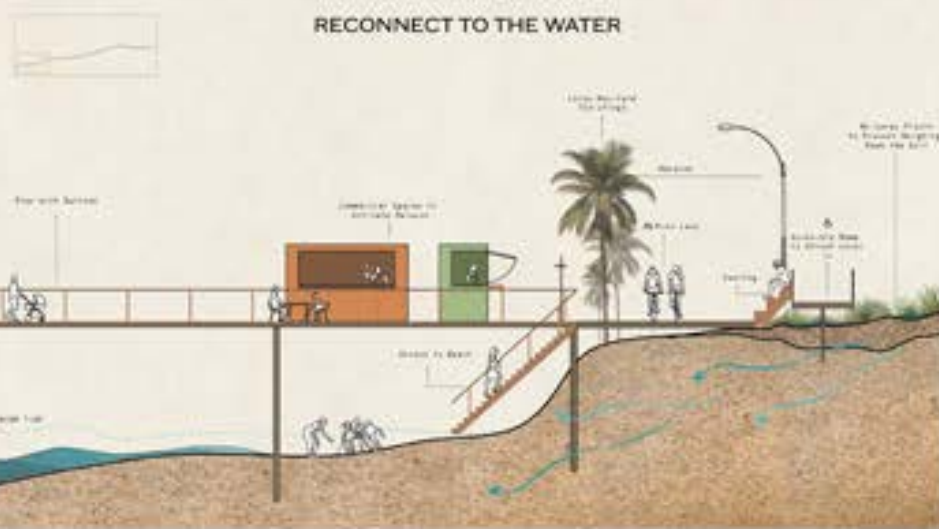
By restoring vegetated corridors along water channels and improving public connections through trails, bike paths, and public transit, the project strengthens ecological resilience while reconnecting people to the Pacific Coast.

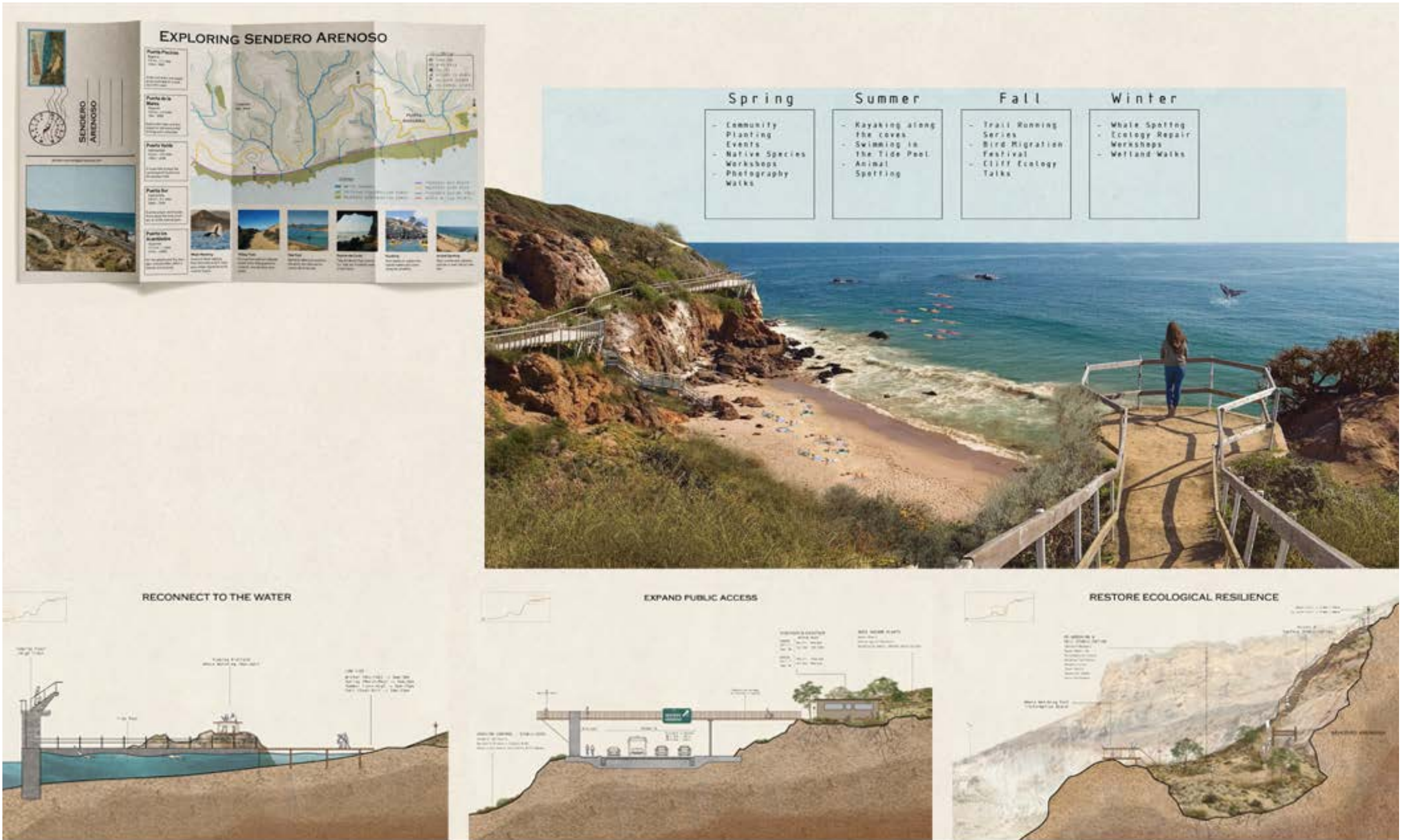




03 | Restoring Tijuana's Beach Access

In Playas de Tijuana, the proposal focuses on improving public access and everyday coastal life through expanded pedestrian connections, bike lanes, transit routes, and redesigned beach entry points. New public spaces, seating, vegetation, and accessible pathways reconnect people to the water while strengthening the relationship between the city and the coast.





CANYONS

SPATIAL VISIONS FOR THE CALI-BAJA REGION

TOPO STABILIZATION

DESIGNING BY CONTOURS TO TRANSFORM RISK INTO A THRIVING CANYON SYSTEM

Guoguo Chen / Vera Sofia Leon / Geethika TS / Atharv Bhole

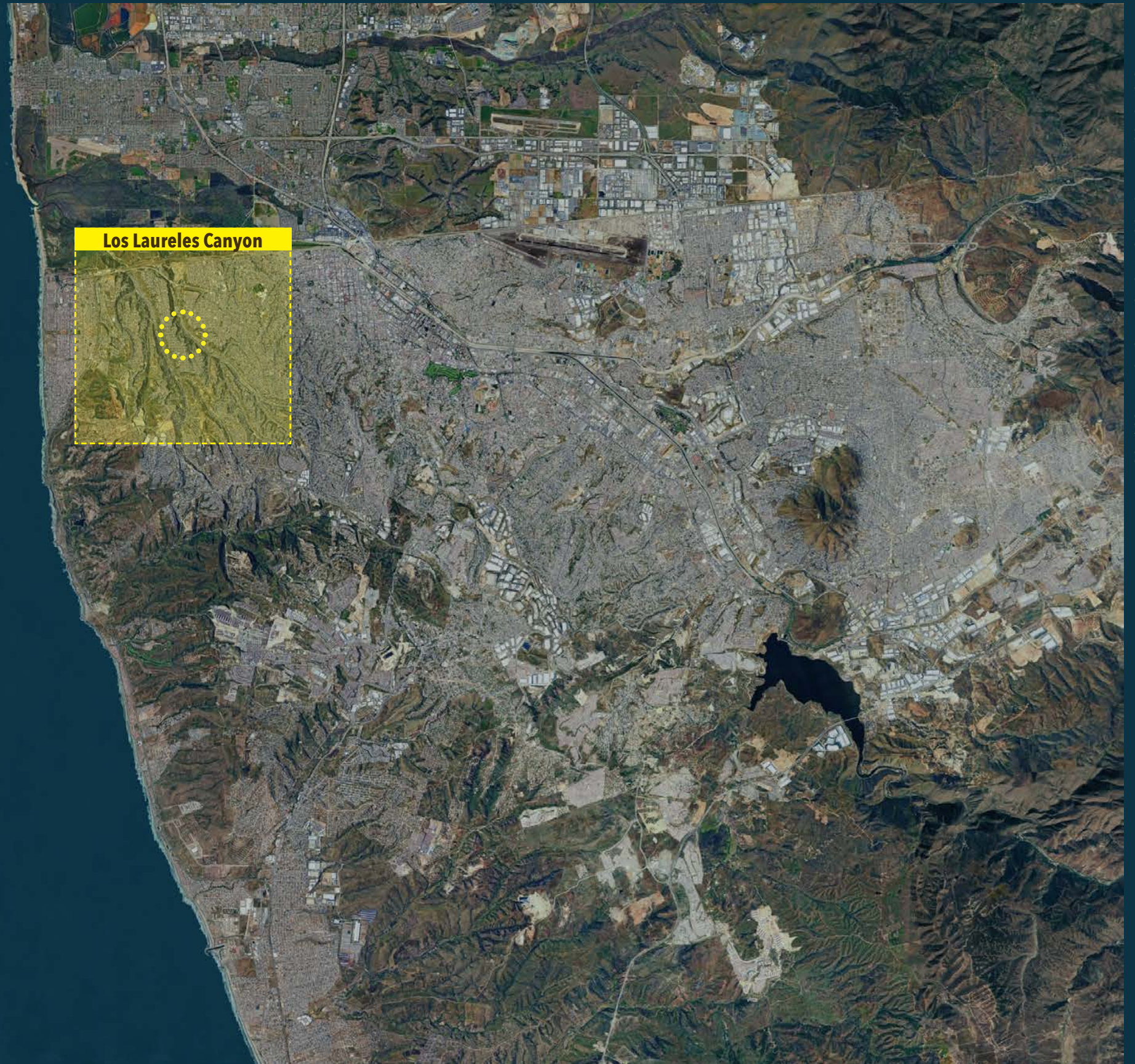
How can safety in Tijuana's canyons be redesigned as a process of stabilization, care, and community growth?

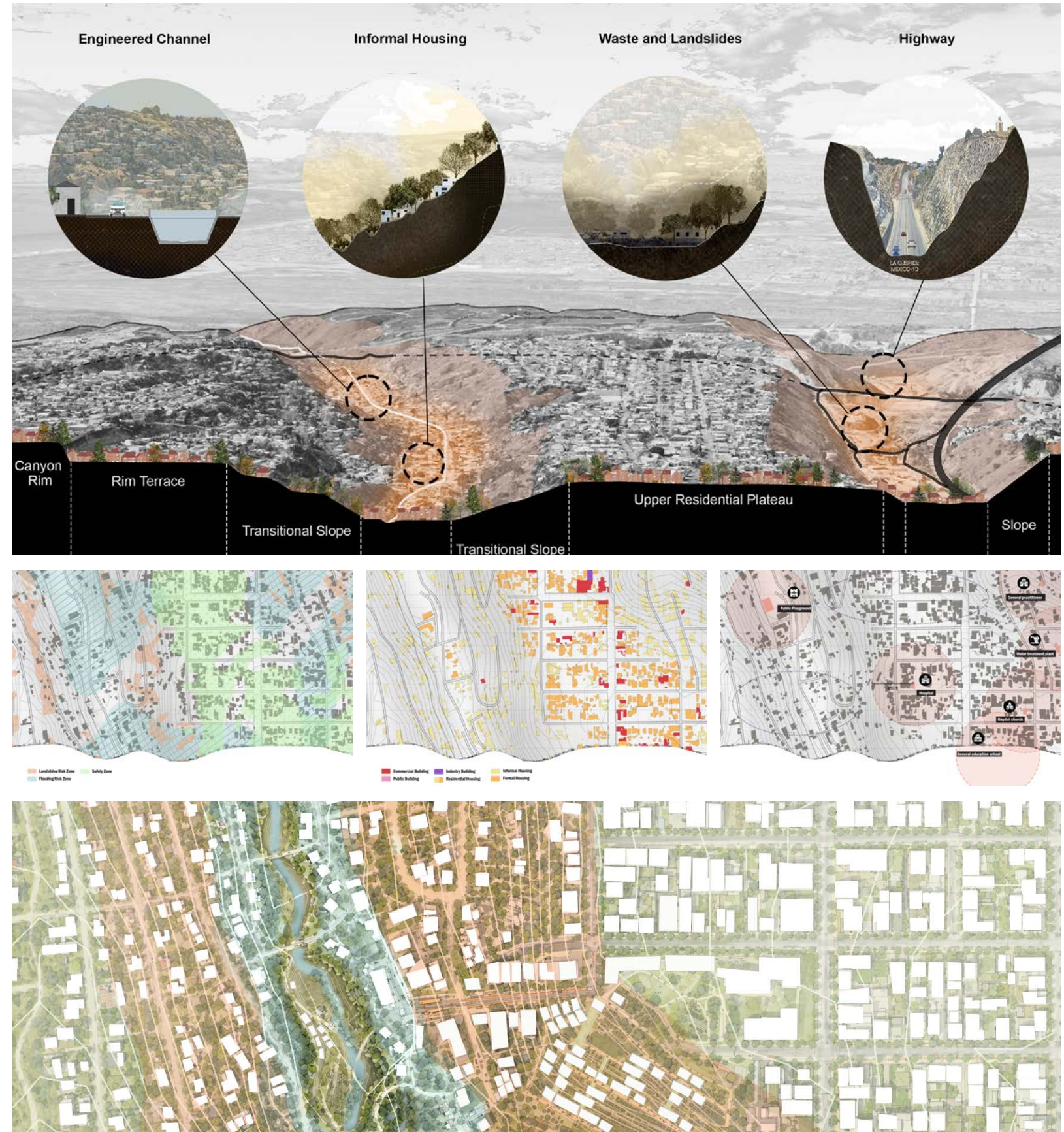
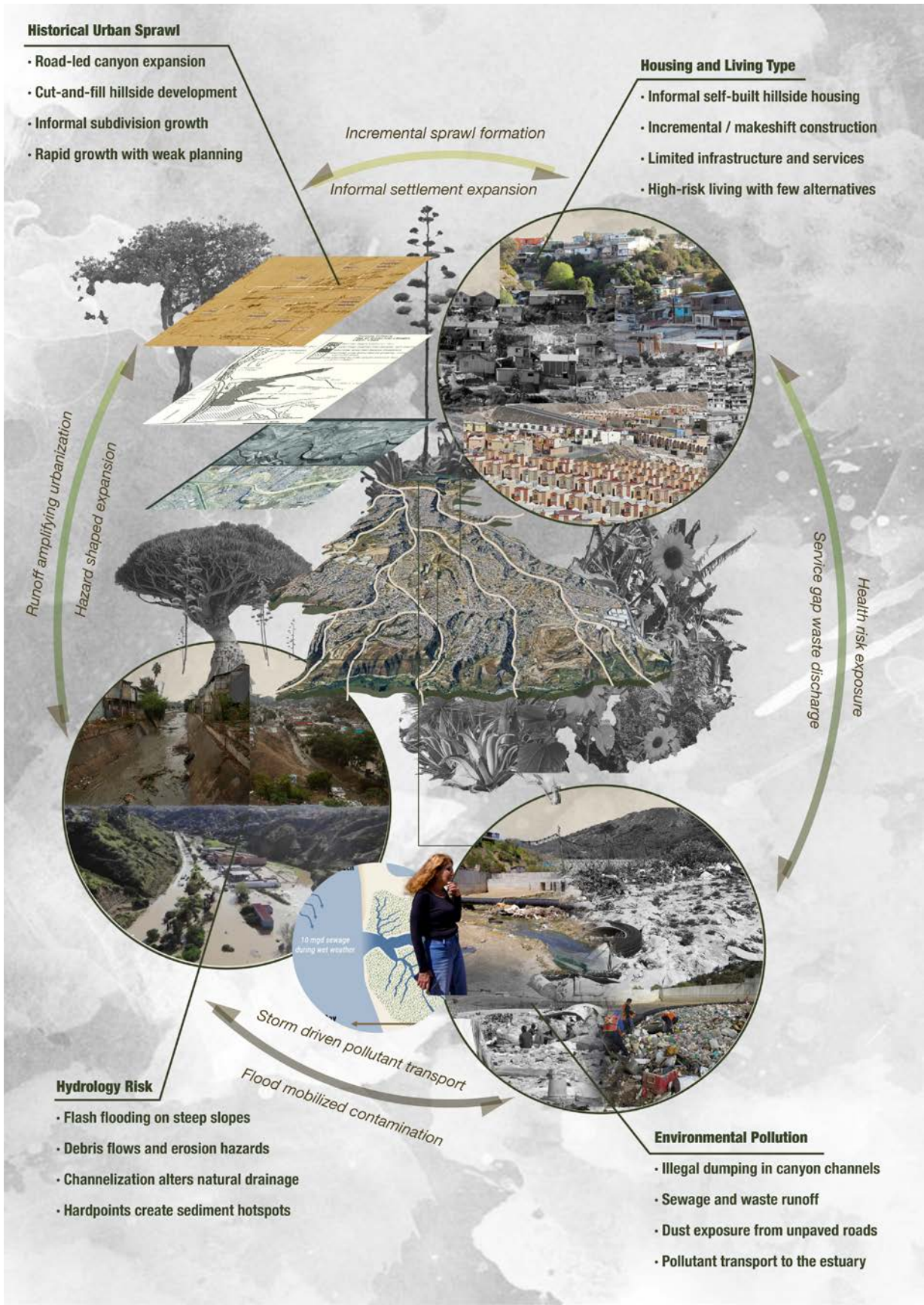
This project rethinks safety in the Tijuana canyons by shifting from reactive emergency response to long-term, context-adaptive prevention.

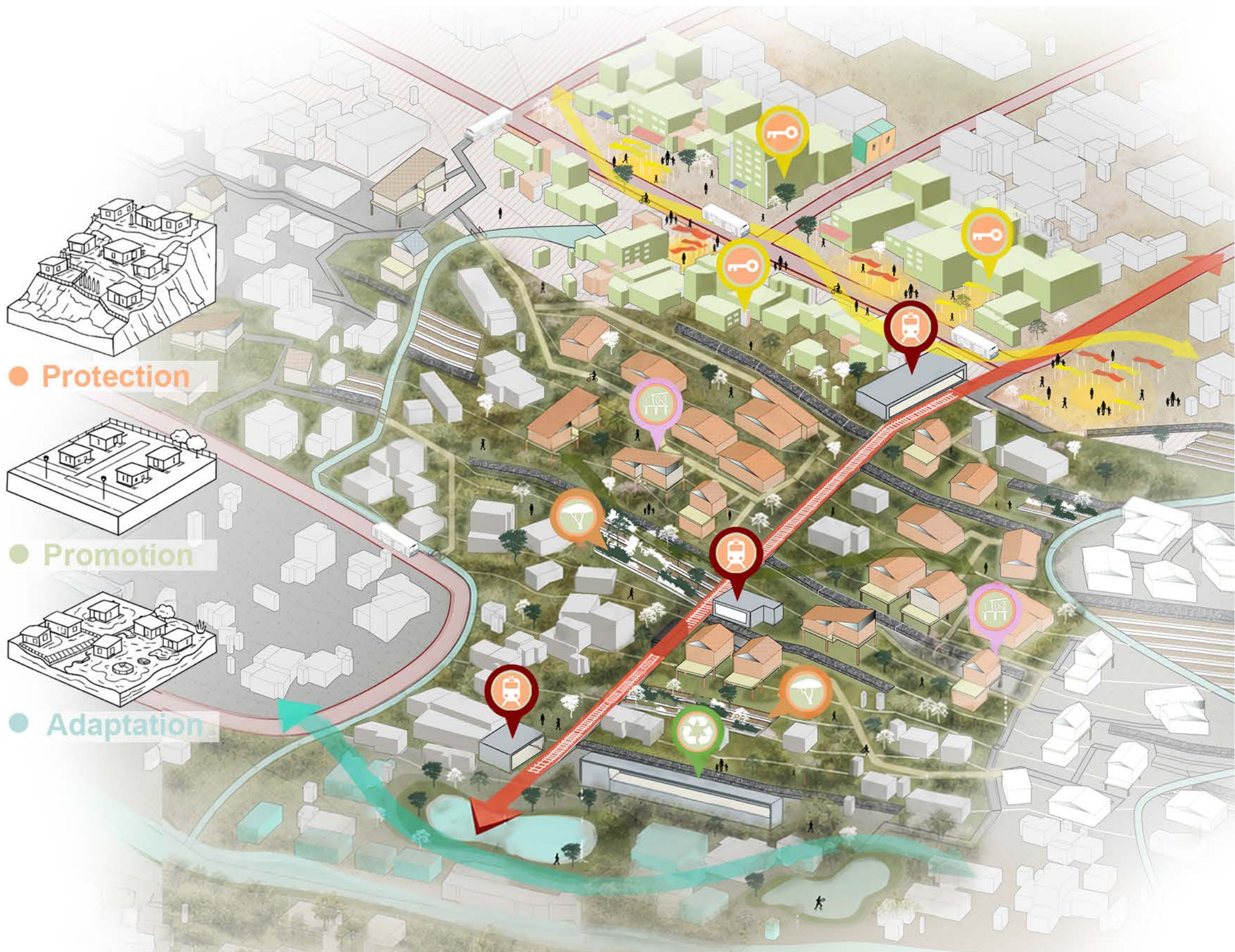
Instead of treating self-built settlements as temporary problems to be removed, it recognizes them as communities-in-form with the right to safety, infrastructure, and dignified living.

Through slope stabilization, better drainage, vegetation, terrace gardens, and alternative mobility networks, the proposal seeks to strengthen the land while supporting everyday life. At the same time, it imagines gradual pathways toward land security and collective resilience, allowing these communities not only to remain, but to grow, adapt, and thrive.

Topo-stabilization turns canyon development from reacting after risk into preparing before risk.







FUNDING + COMMUNITY INPUTS

1 FORMAL MECHANISMS



2 INFORMAL INPUTS

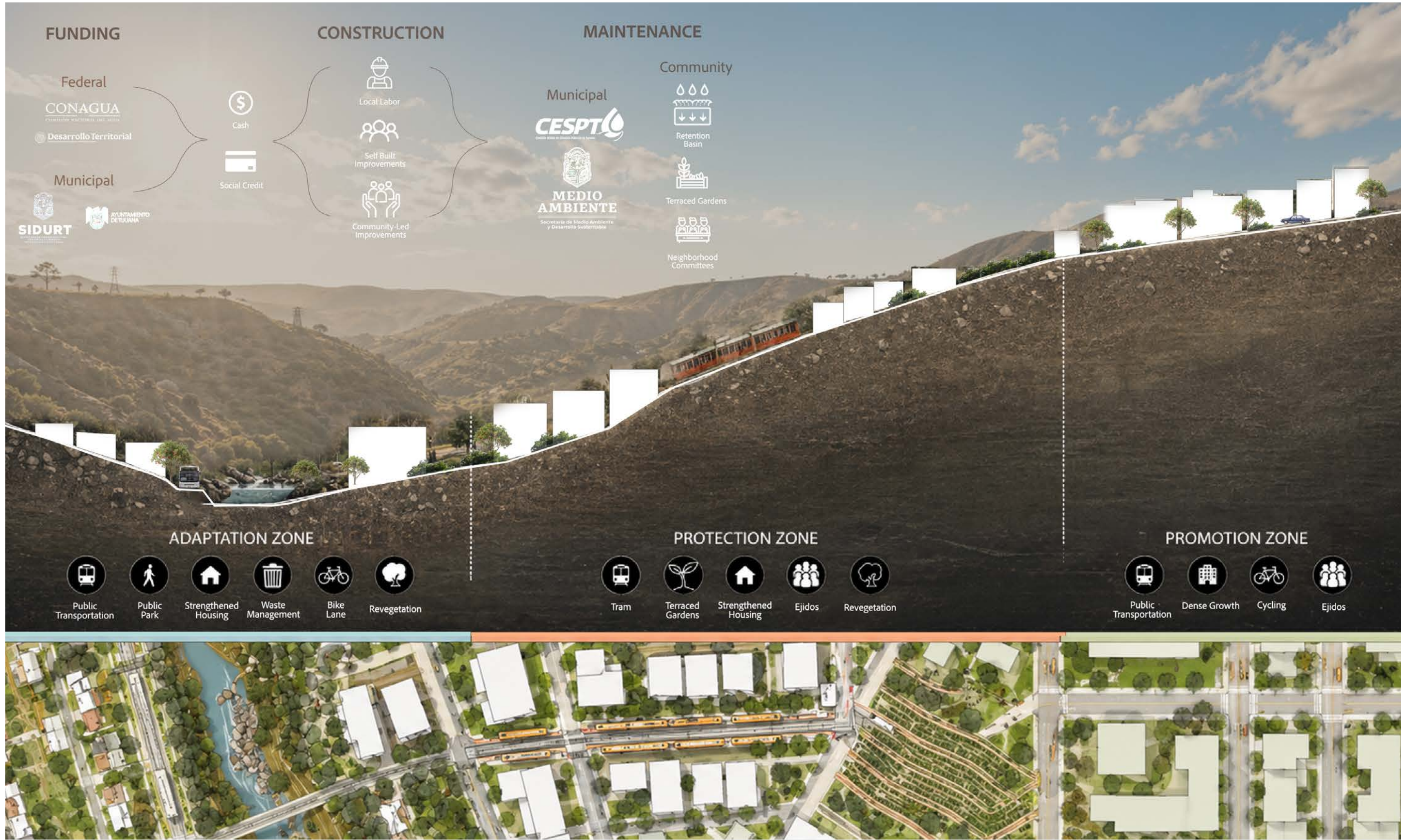


3 OUTCOMES



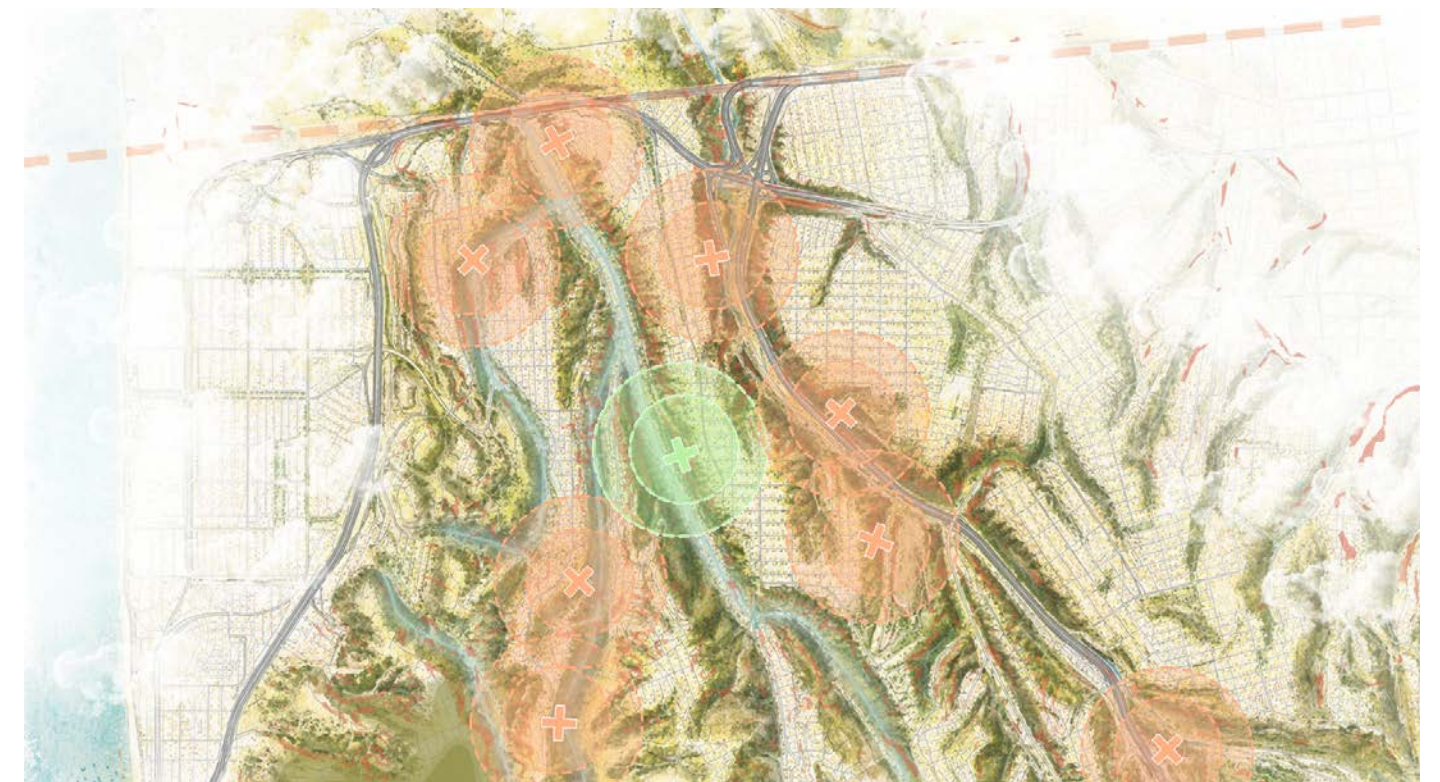
4 LAND TENURE







Topo-stabilization turns canyon development from reacting after risk into preparing before risk.



TALENT IN ACTION

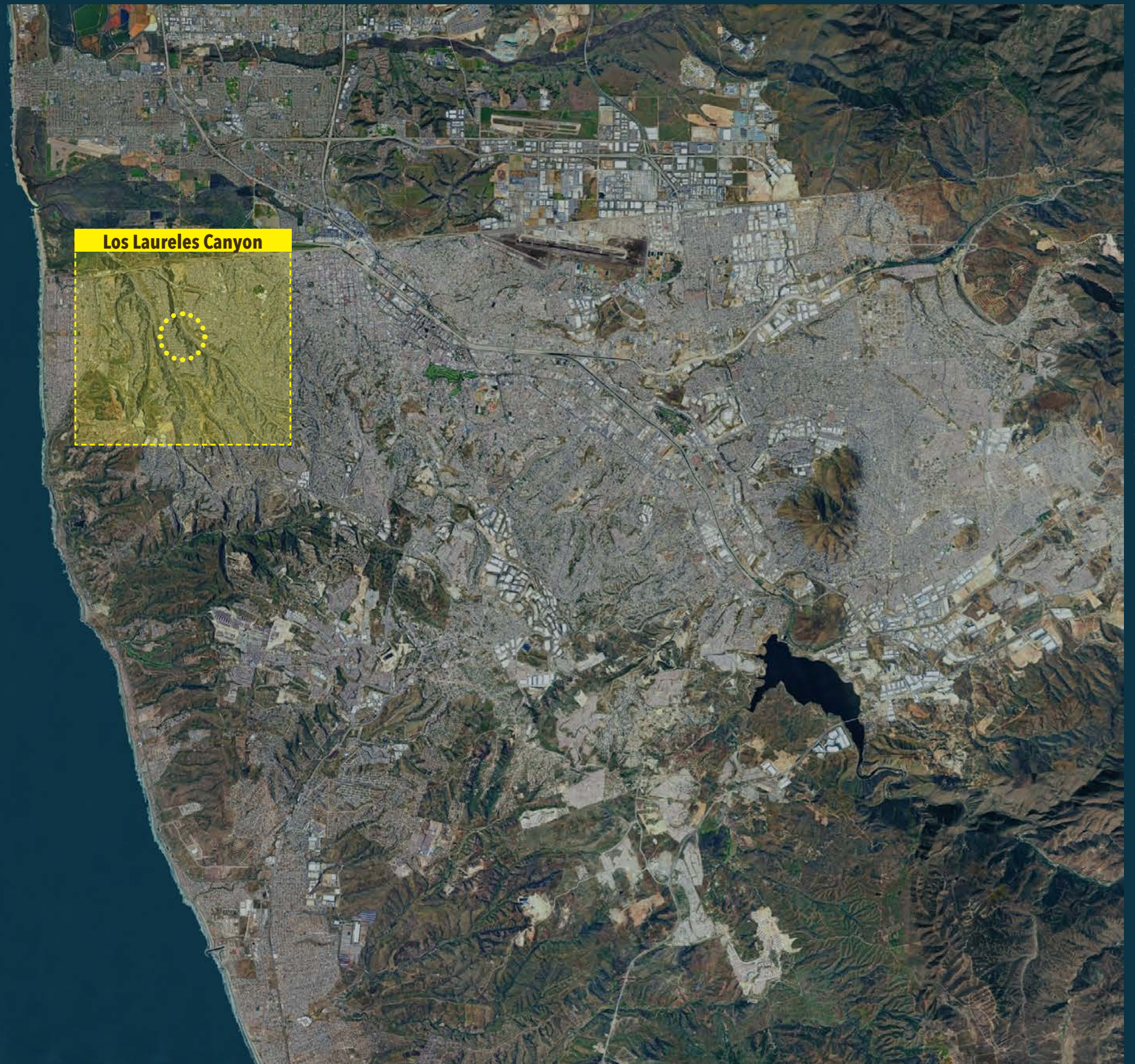
A CANYON POWERED BY MOBILITY

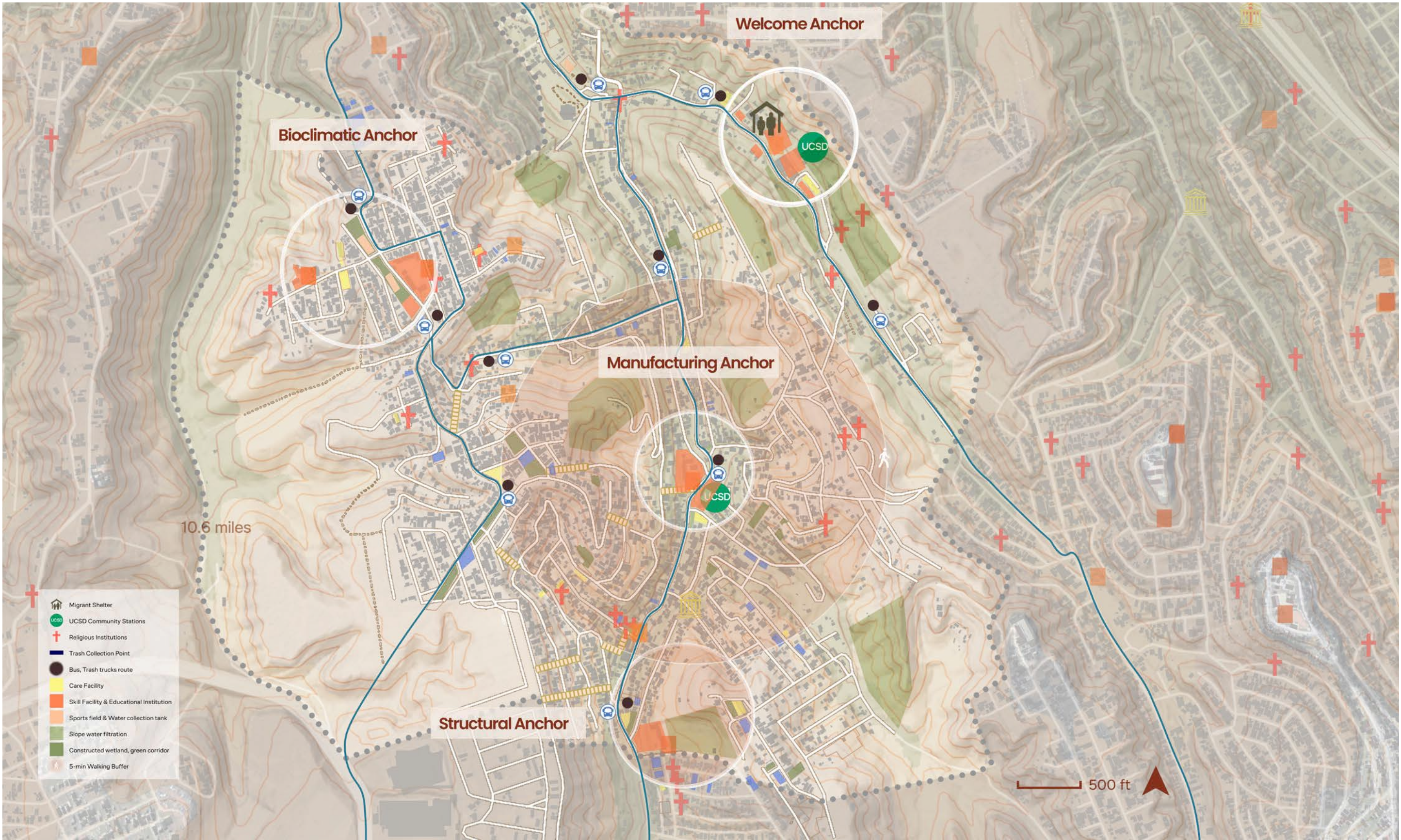
Nicole Eng Wei Quah / Gracia Caroline Ignatius / Cecily Tang / Xiaonan Li

How can we leverage the mobility of migrants as an engine for community development and landscape repair?

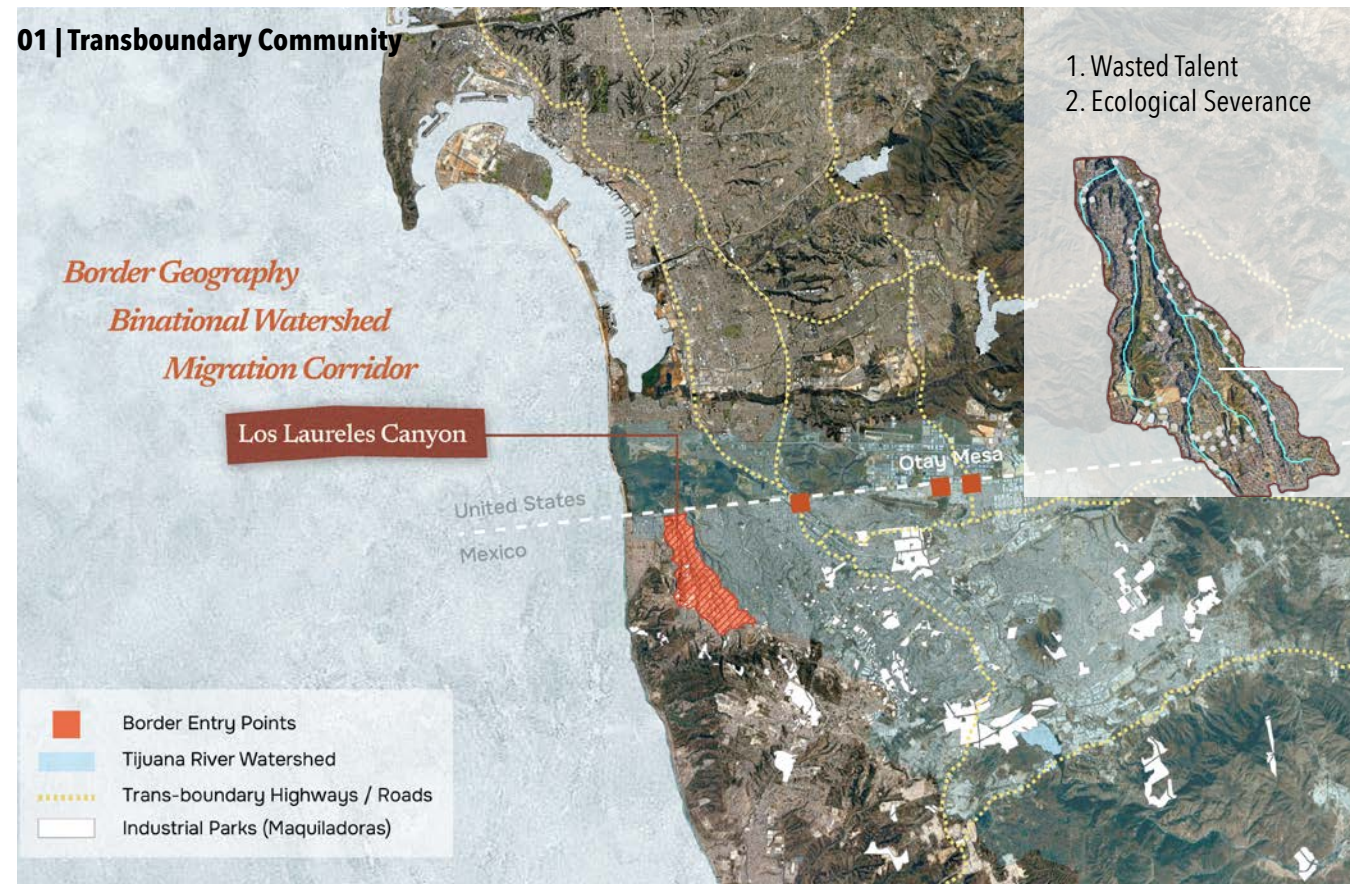
Los Laureles Canyon is home to over 85,000 residents, most of them migrants carrying skills the canyon urgently needs. Yet without formal infrastructure, that potential goes untapped and the canyon's ecology continues to degrade.

Talent in Action project proposes a network of community anchors across the lower-lying region of Los Laureles canyon. It proposes spatial infrastructures that grow stronger and more resilient with every person who passes through. Each anchor weaves together care, skill and ecology - formalizing caregiving, upskilling and certifying professionals, and restoring landscapes through the knowledge migrants bring with them. These functions amplify existing systems and networks. In the canyon, transience is the engine and movement is power.





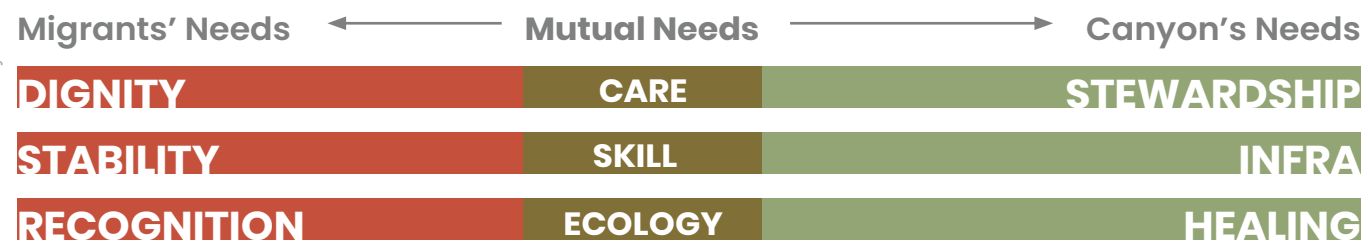
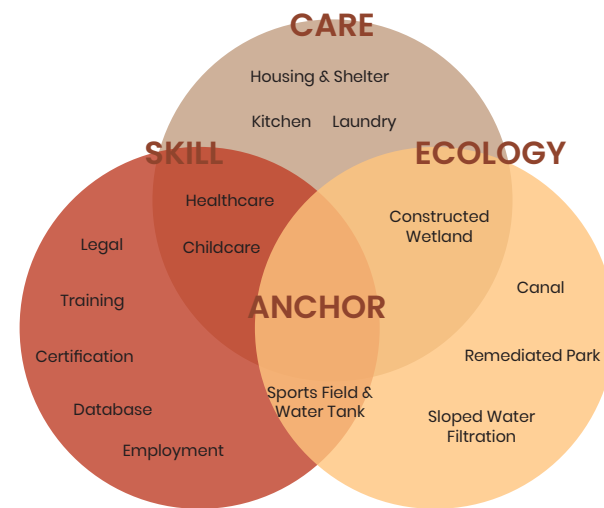
01 | Transboundary Community



02 | Convergence of Needs

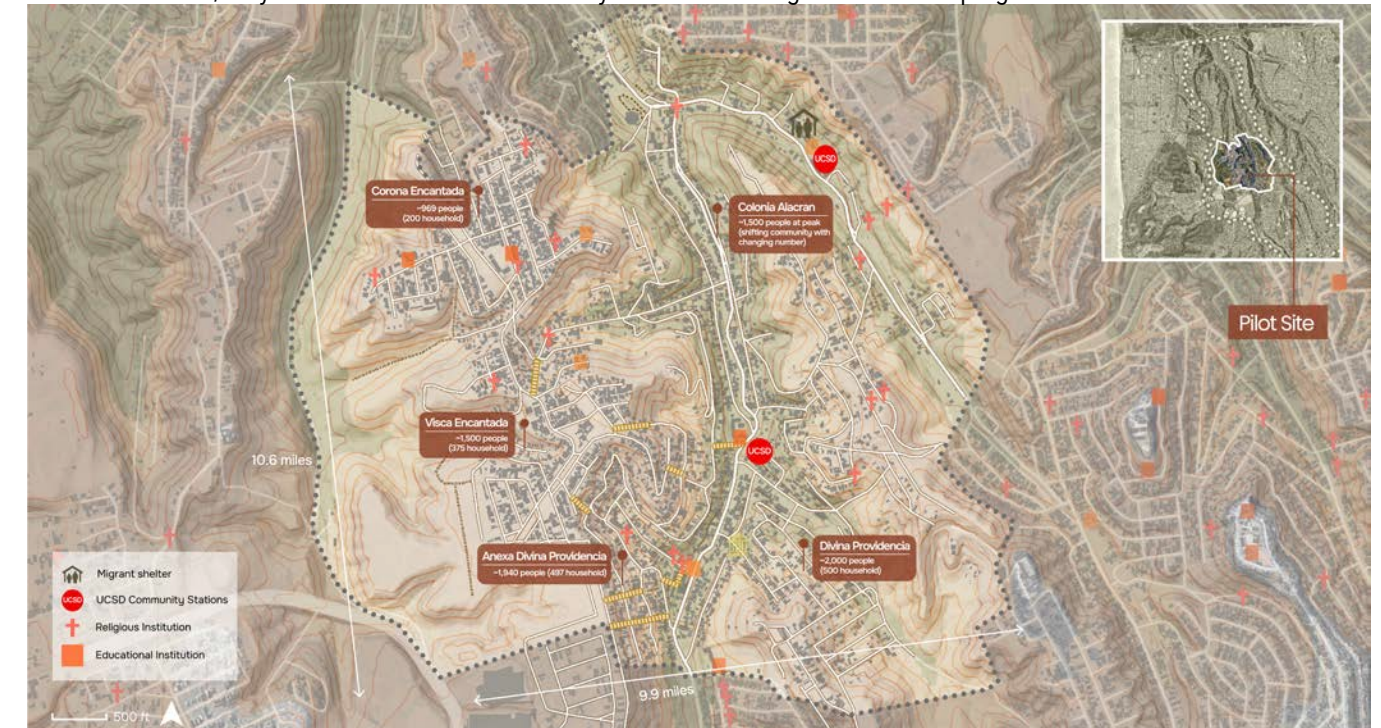
The overlap of these needs coalesce into three primary pillars; Dignity and stewardship become care; Stability and infrastructure result in up-skilling as the people build the infrastructure the canyon lacks; Recognition of their skills improve the ecology, as collective knowledge heals the canyon. The three pillars collectively form the community anchors.

Community anchors are defined as spatial infrastructures that restore and integrate the community, growing stronger with every resident who passes through, and synergized when activated together.

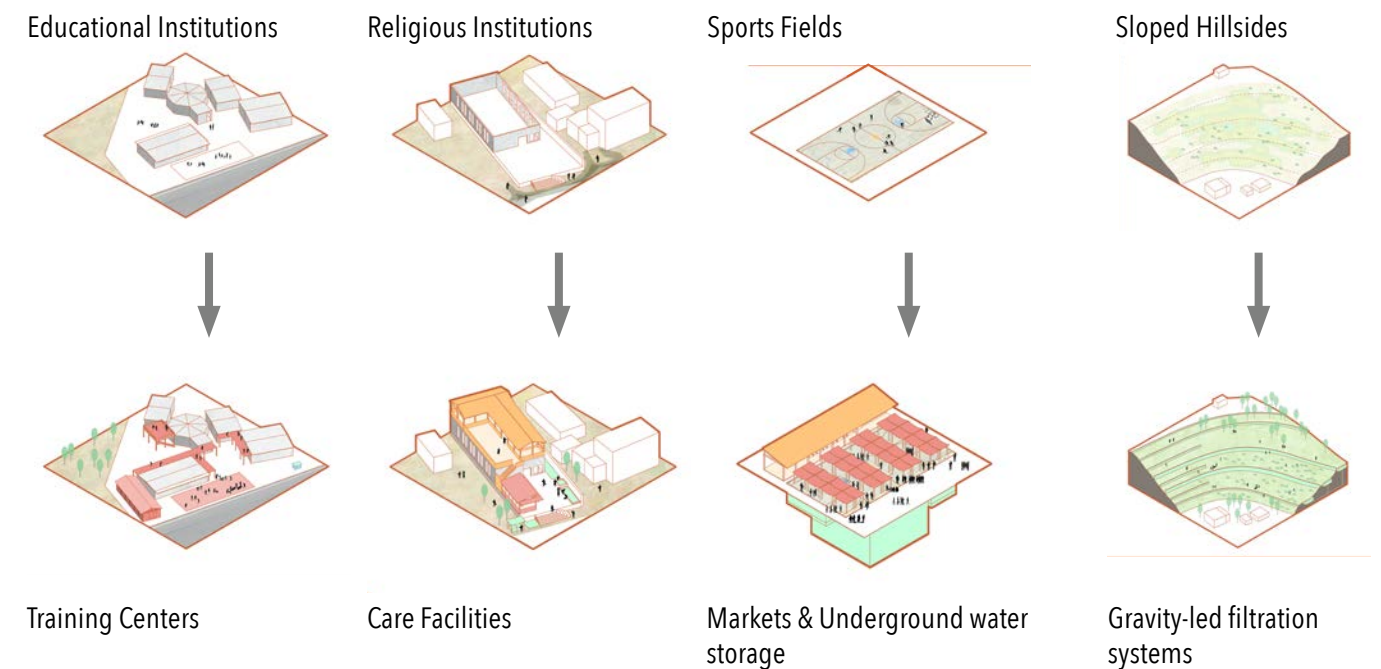


03 | Pilot Site

We propose piloting our system in the lower lying canyon region, which experiences a disproportionate impact of the canyon's hazards. However, they are also the most institutionally rooted with self-governed social programs.



04 | Existing Typologies & Addition of Functions



Welcome Anchor

BUS STOP + TRASH COLLECTION

KITCHEN & LAUNDRY

CHILDCARE

ORIENTATION CENTER

TEMPORARY SHELTER

TERRACED
FILTRATION POINT

INFORMATION HUB

REMEDIED PARK





AGUA VIVA, WATER THAT LIVES AGAIN

TREATING WASTEWATER AT THE SOURCE TO PROTECT THE ESTUARY

Remilekun Omoleye

What if we recycled polluted wastewater for urban agriculture in the canyon instead of discharging it into the ocean?

This project will begin at the Tijuana River Estuary, where chronic sewage contamination exposes a failing upstream system. By zooming out across the Tijuana River Valley, the binational watershed, and finally the Los Laureles sub watershed. One source of contamination is identified as the steep and densely inhabited canyon slopes that lack connection to public sewer infrastructure.

A decentralized and nature based wastewater recycling network is proposed to counter this, using vermi-filtration, wetlands, and vegetated terraces that treat waste water close to the source and reuse it for landscape regeneration and slope stabilization. Paired with community stewardship and youth programs, these nodes form an upstream environmental commons that restores canyon health and protects the estuary.

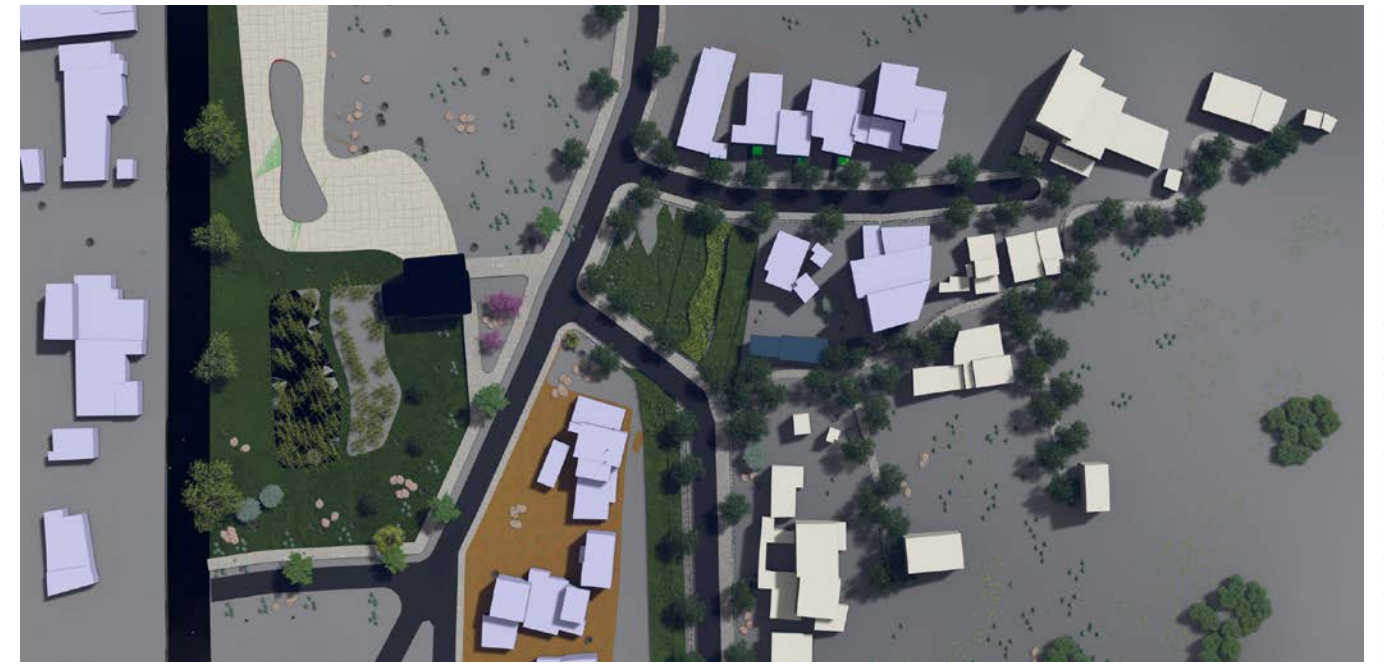
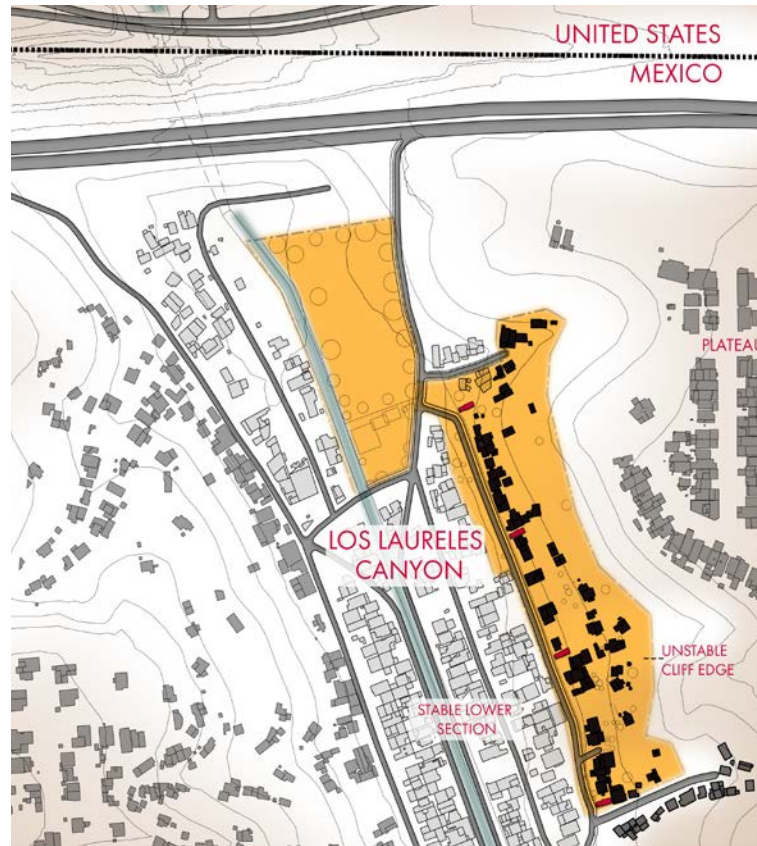


01 | Site Design Strategy

Lacking sewage and sitting along Los Laureles Canyon's unstable cliff edge near the US-Mexico border, the Gardenia community is the project's primary test site. Implementing decentralized wastewater treatment, slope stabilization, and terraced agriculture here creates a replicable model for informal clusters throughout the watershed.

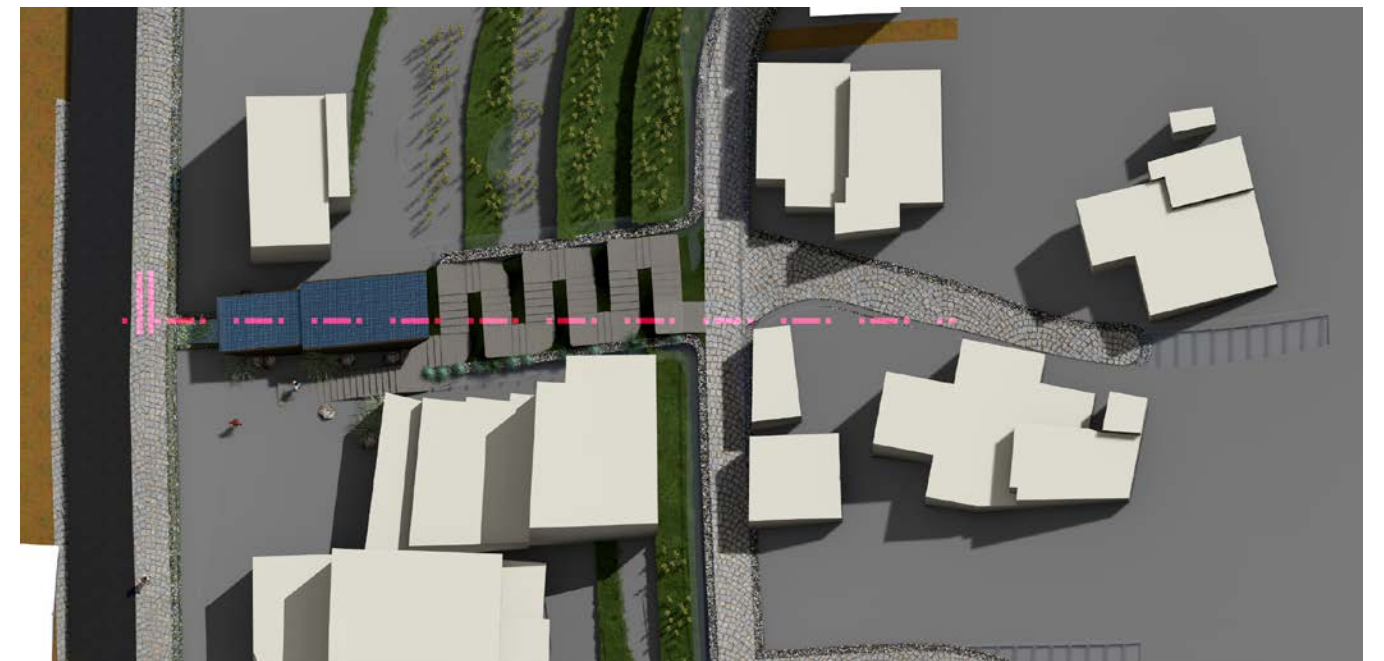
02 | Ecological and social infrastructures

The micro-commons anchor each cluster with shared public space, community programs, and decentralized wastewater treatment. Constructed wetlands and vermi-filtration cells capture and clean household greywater before releasing it into terraced stabilization zones that slow runoff, reduce erosion, and rebuild soil health. The treated water supports pockets of urban agriculture woven into the terraces, turning the canyon's steep topography into a productive landscape. Together, these elements form a distributed repair network that strengthens community life.



03 | Constructed Wetland, Micro-Commons, Slope Stabilization, and Terrace Farming

This intervention area merges ecological treatment with community space. A constructed wetland filters greywater to feed a social micro-commons, while terraced slope-stabilization bands support urban agriculture—creating a resilient node for canyon life.



04 | Call-Out B, Slope Stabilization and Terrace Farming

This terraced system reinforces the canyon slope to support small-scale agriculture. These layered terraces slow runoff, reduce erosion, and use treated wastewater for planting zones—linking ecological repair with everyday community use.

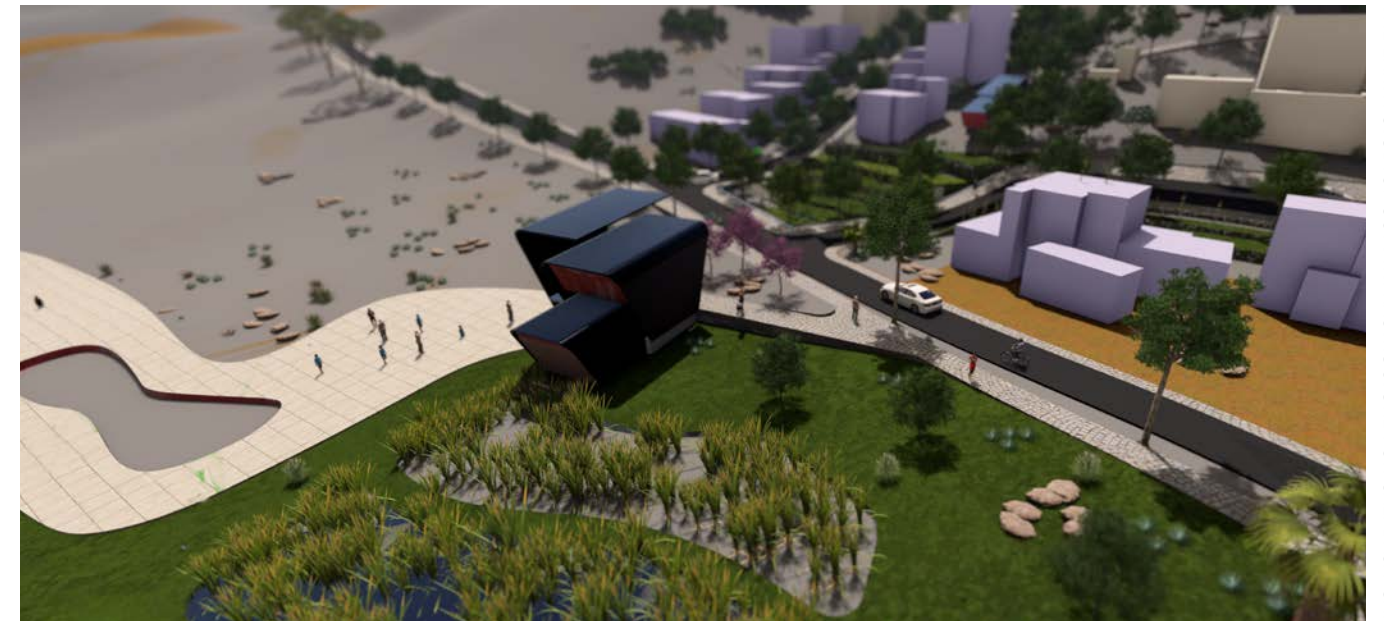
05 | Terraced Green Platforms and Decentralized Wastewater Treatment Systems to Stabilize the Canyon

Wastewater is captured at the source, treated through vermi-filtration and wetland cells, and reused to irrigate the vegetated terraces. The stepped landscape slows runoff, reduces erosion, and creates public spaces that link housing clusters with ecological repair zones. The system transforms the canyon into a living infrastructure that restores soil health, supports community use, and protects the estuary downstream.



07 | Decentralized Wastewater Treatment Embedded Directly Into the Canyon Slope.

Wastewater from informal housing is captured at the upper edge, filtered through vermi-filtration and biofilter layers, and held temporarily before being released into planted terraces that stabilize the slope. The terraced landscape will slow runoff, reduce erosion, and create a continuous green spine that will link the informal cliff housing with the more stable lower settlement. By combining ecological treatment with structural slope repair, the system transforms the canyon into a living infrastructure that protects both the community and the estuary downstream.



06 | Micro-Commons Anchors

A community gathering space, productive landscape, and ecological treatment zone converge around a decentralized wastewater system that captures and filters household greywater through vermi-filtration and wetland cells. The treated water supports planting, public space, and small-scale urban agriculture, turning the micro-commons into a shared resource for both environmental repair and community life. By integrating social programs with ecological treatment, the system transforms the canyon into a network of living infrastructures that will stabilize the landscape and reduce pollution flowing toward the estuary.

THE CANYON COLLECTIVE

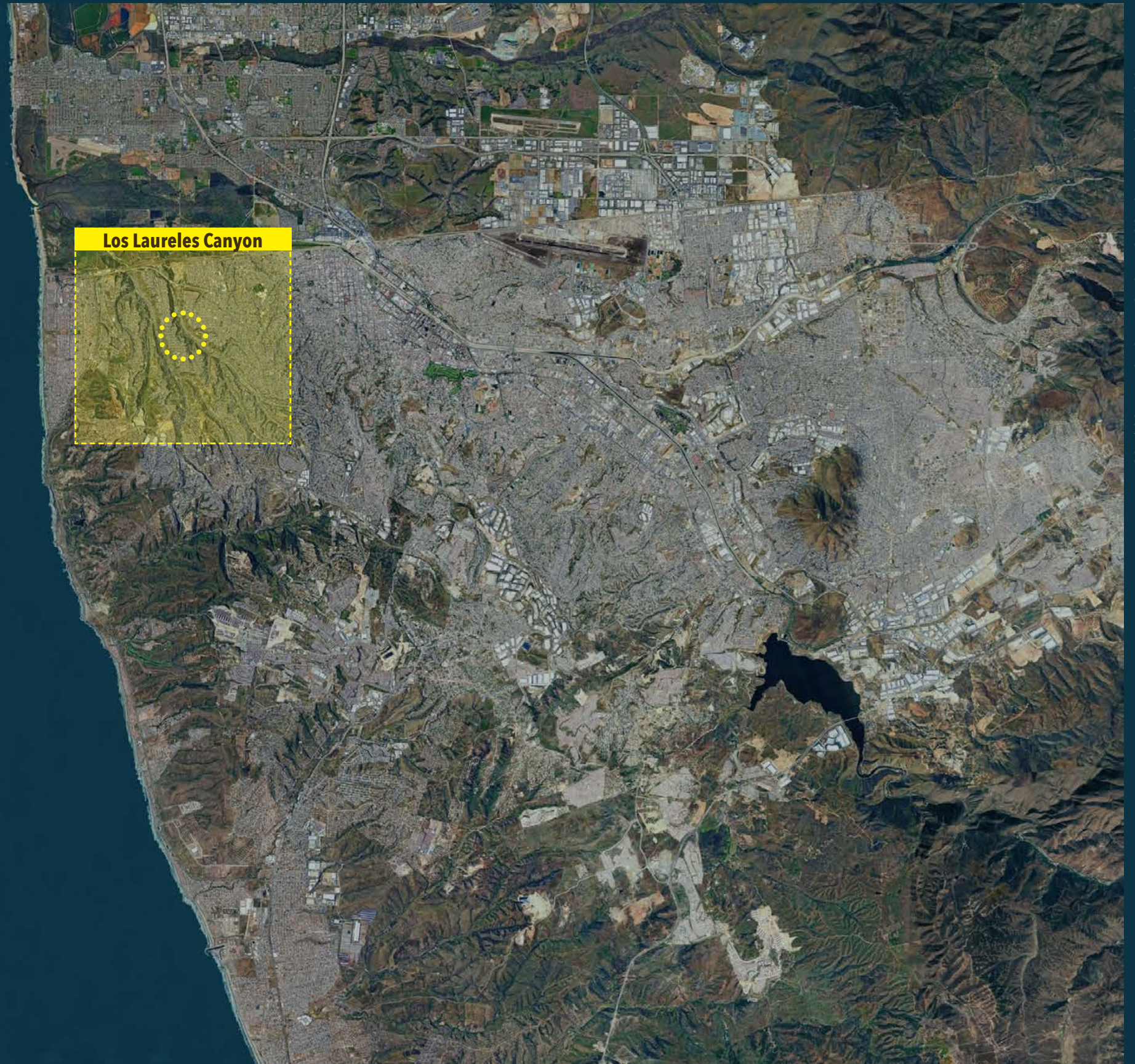
A SOCIO-ECOLOGICAL FRAMEWORK FOR LIVING ECOSYSTEMS AND SHARED BELONGING

Zehra Zaheer

What does it mean to design not against the canyon, but with its ecology, communities, and existing systems of survival?

Within the fragile terrain of Los Laureles canyon, a strong and imaginative community has quietly taken root, crafting livelihoods and connections from minimal resources. In Tijuana's ever-growing urban fabric, this project offers a hopeful vision of possibilities.

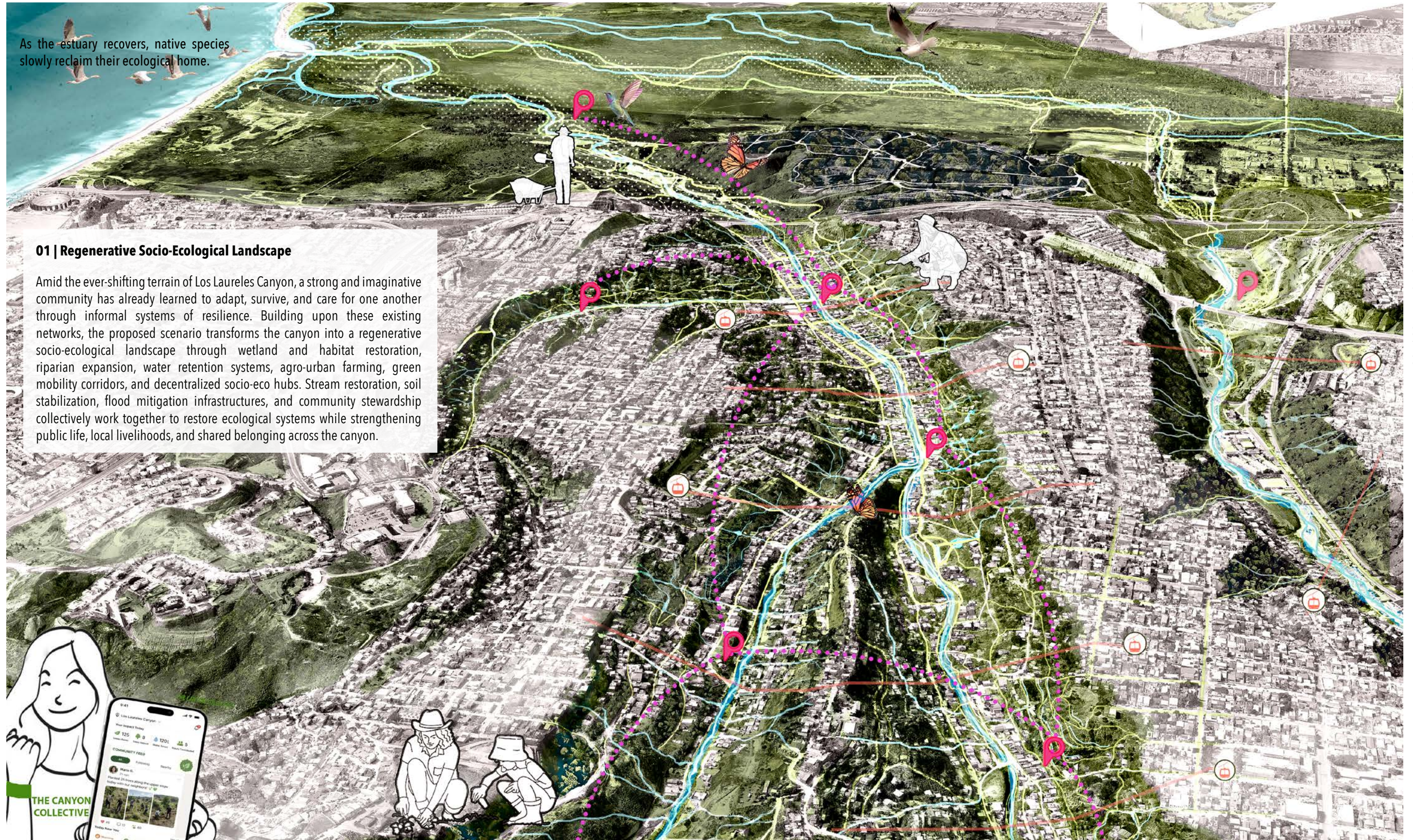
The Canyon Collective proposes a regenerative socio-ecological system, transforming the canyon into a network of community-driven eco-hubs and restored landscapes. Here, waste, water, and ecology are reimagined as resources that will sustain livelihoods, strengthen resilience, and nurture social bonds, while actively repairing the environment. It is a story of collective care, where design empowers people to rebuild their relationship with land, water, ecology, and each other.



As the estuary recovers, native species slowly reclaim their ecological home.

01 | Regenerative Socio-Ecological Landscape

Amid the ever-shifting terrain of Los Laureles Canyon, a strong and imaginative community has already learned to adapt, survive, and care for one another through informal systems of resilience. Building upon these existing networks, the proposed scenario transforms the canyon into a regenerative socio-ecological landscape through wetland and habitat restoration, riparian expansion, water retention systems, agro-urban farming, green mobility corridors, and decentralized socio-eco hubs. Stream restoration, soil stabilization, flood mitigation infrastructures, and community stewardship collectively work together to restore ecological systems while strengthening public life, local livelihoods, and shared belonging across the canyon.



02 | Concept Diagram: From blurring the lines of containment to a living network of socio ecological repair



Existing Conditions



01. Concretized channel: Disconnecting the natural flow of water and life.



02. Informal settlements and unstabilized terrain: Environmental Risk and limited access to basic services.



03. Waste accumulation and health risks : Unmanaged waste fills the landscape and clogs waterways.

Proposed Nodes of Incremental Repair



Strategically planned around existing social infrastructure



These nodes act as "UNITS OF CHANGE"

03 | Green Currency and Social Capital System

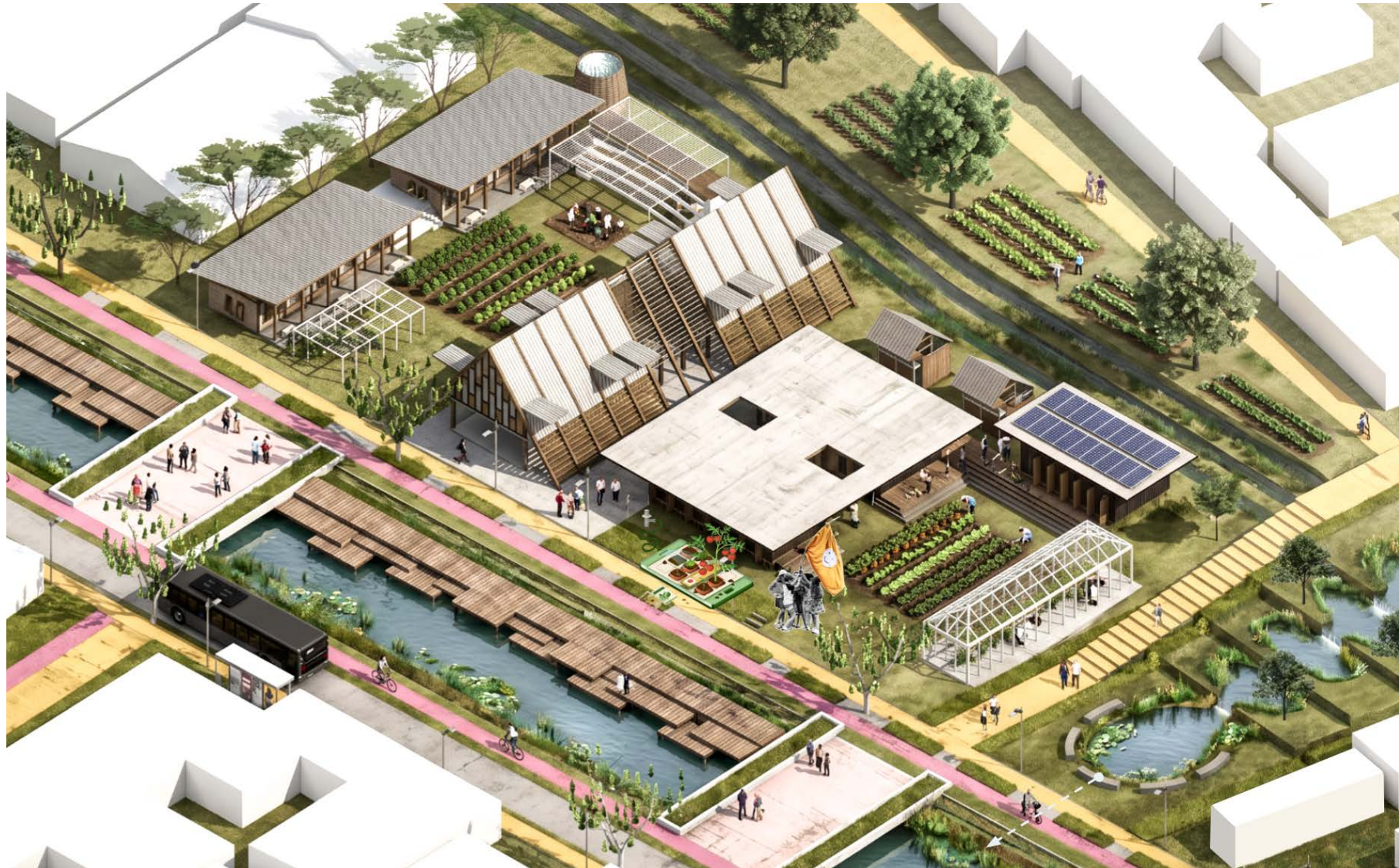


04 | Co-Creators for the Canyon Collective

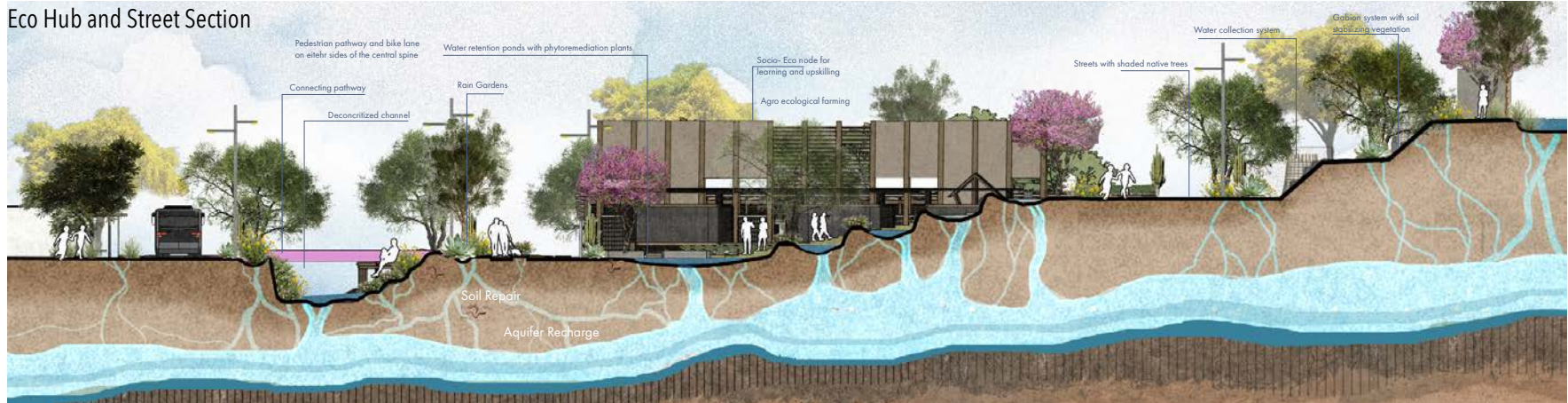


05 | The socio-eco node

Acts as a living and replicable model of a platform where social bonds and environmental health are built through collective care, shared learning, and incremental co-production of spatial resilience.

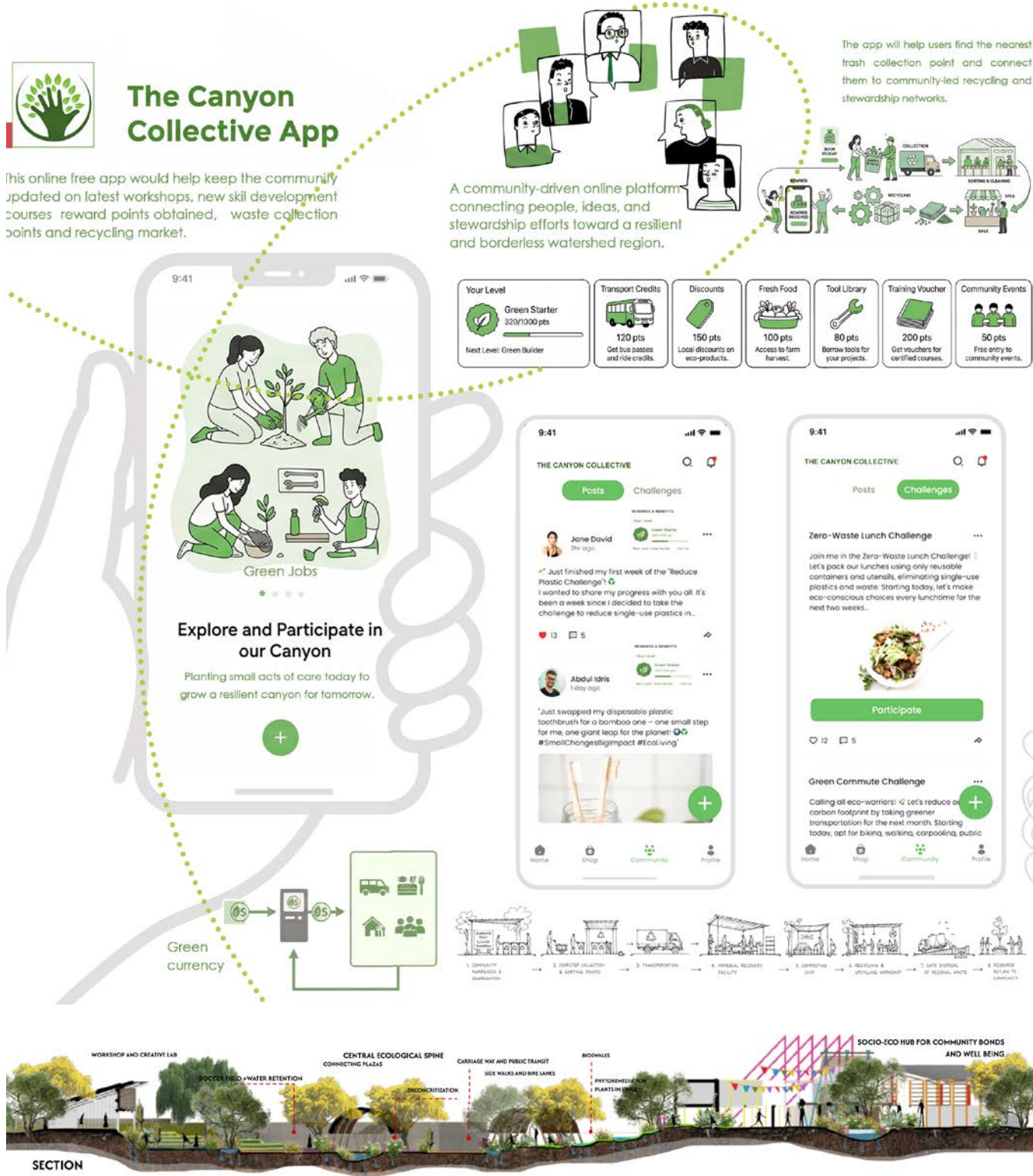


Eco Hub and Street Section



06 | The Canyon Collective App

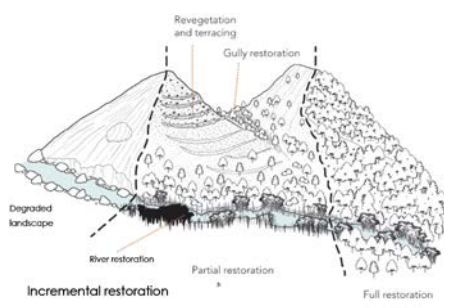
Is proposed as a community-driven digital platform designed to connect residents, ecological systems, and local initiatives across Los Laureles Canyon. Through the app, users can locate socio-ecological hubs, track waste and water initiatives, participate in workshops and community events, exchange resources, and monitor their individual and collective impact on the canyon.



A vibrant socio-ecological learning node where green mobility, community farming, and water-sensitive design converge to transform everyday infrastructure into a shared space for education, stewardship, and collective life.



07 | Strategy for the Slope



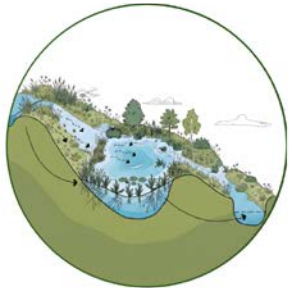
Hillside circulation and access pathways



Vegetated terraces

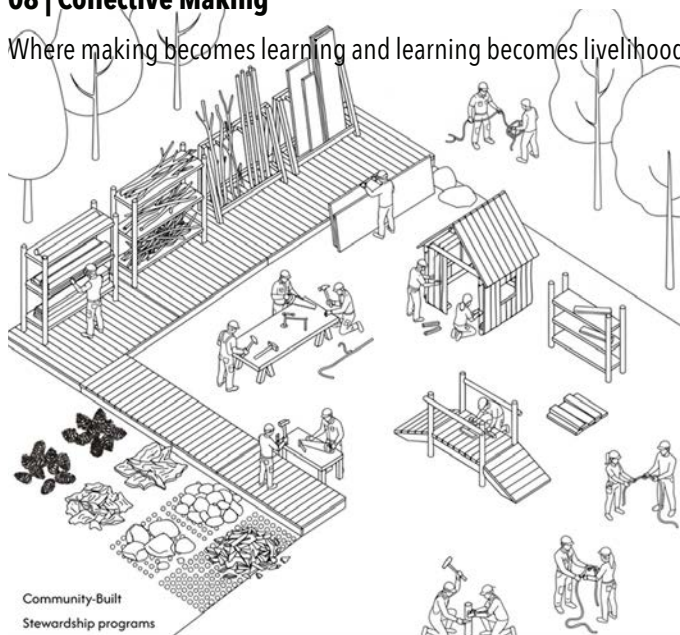


Water retention and filtration system

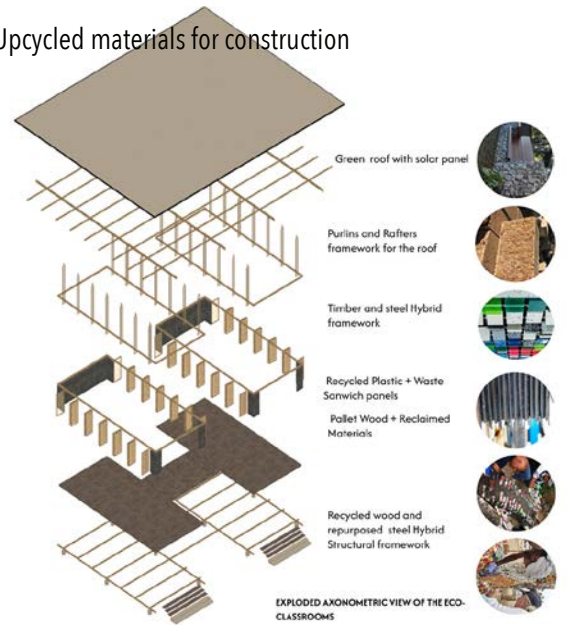


08 | Collective Making

Where making becomes learning and learning becomes livelihood



Upcycled materials for construction



THE HEALING CANYON

THE ANATOMY OF A LIVING CANYON

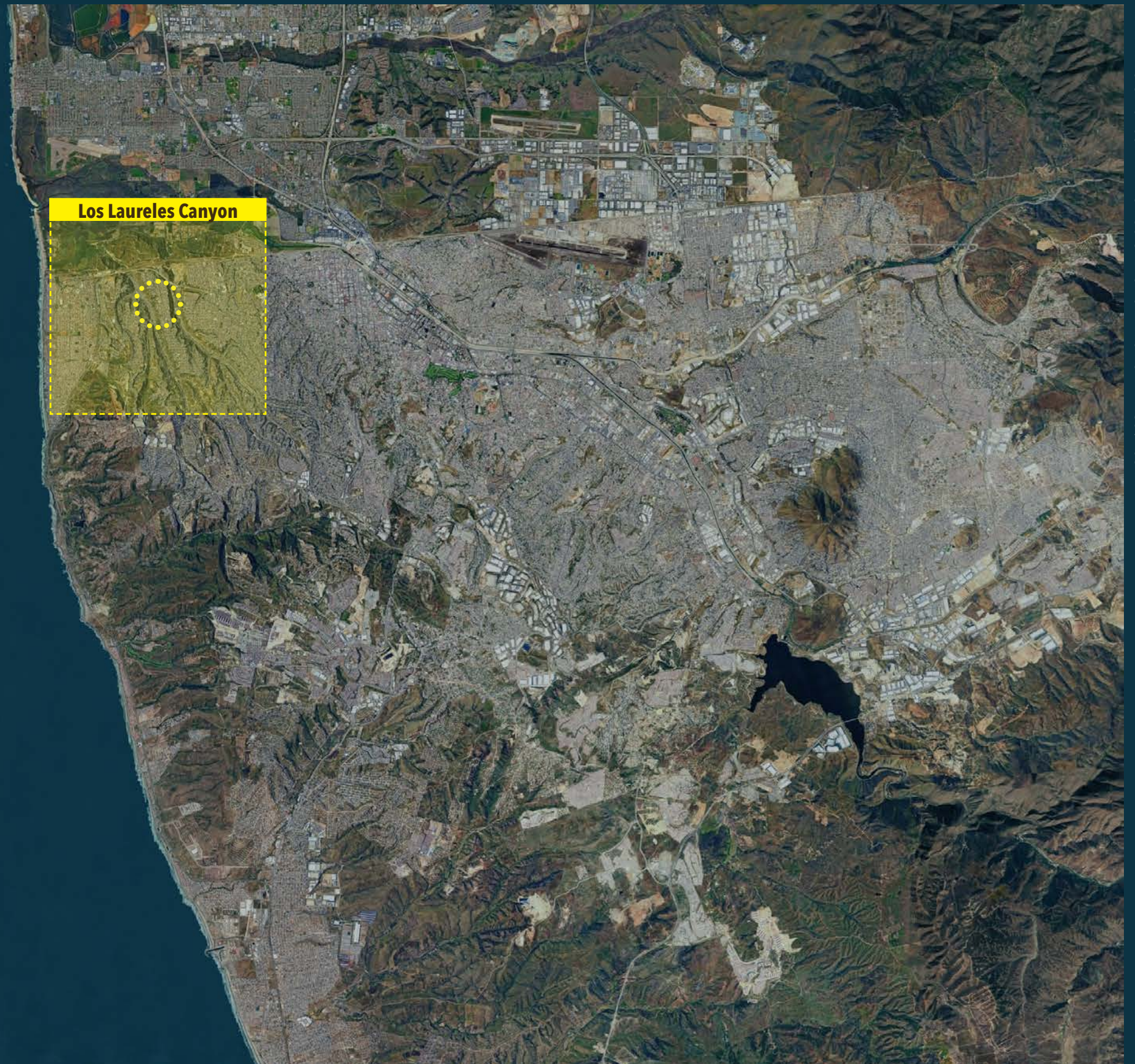
Aljoharah Althunayan / Yuchen Zhang / Mengtian Chen / Xire Sangpei

What would it mean to treat the canyon not as a problem to control, but as a living system to heal?

Los Laureles Canyon is understood as a living system where environmental conditions and community life are closely interconnected. Ongoing challenges—such as flooding, erosion, pollution, and uncollected waste—intensify across the valley floor and unstable slopes, revealing an imbalance in the landscape.

Rather than treating these as isolated issues, the project addresses them as linked ecological and social conditions. In response, it proposes small, distributed interventions, including community-driven waste systems, water management strategies, and shared public spaces that strengthen social networks.

By centering the community, the project seeks to heal the canyon, repairing its imbalances and supporting a more resilient and healthy environment over time.

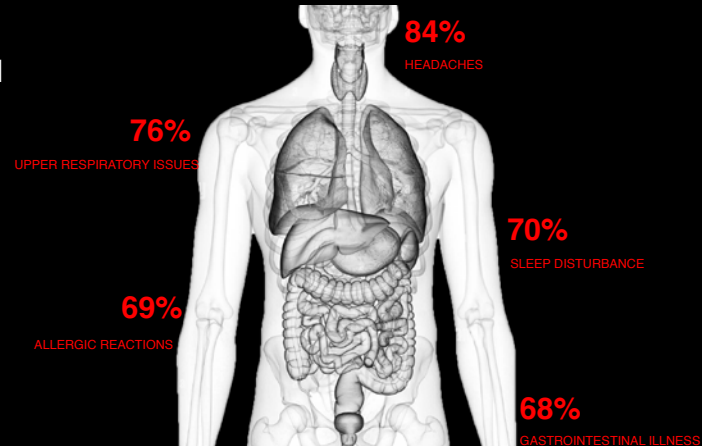




01 | Cali-Baja Region

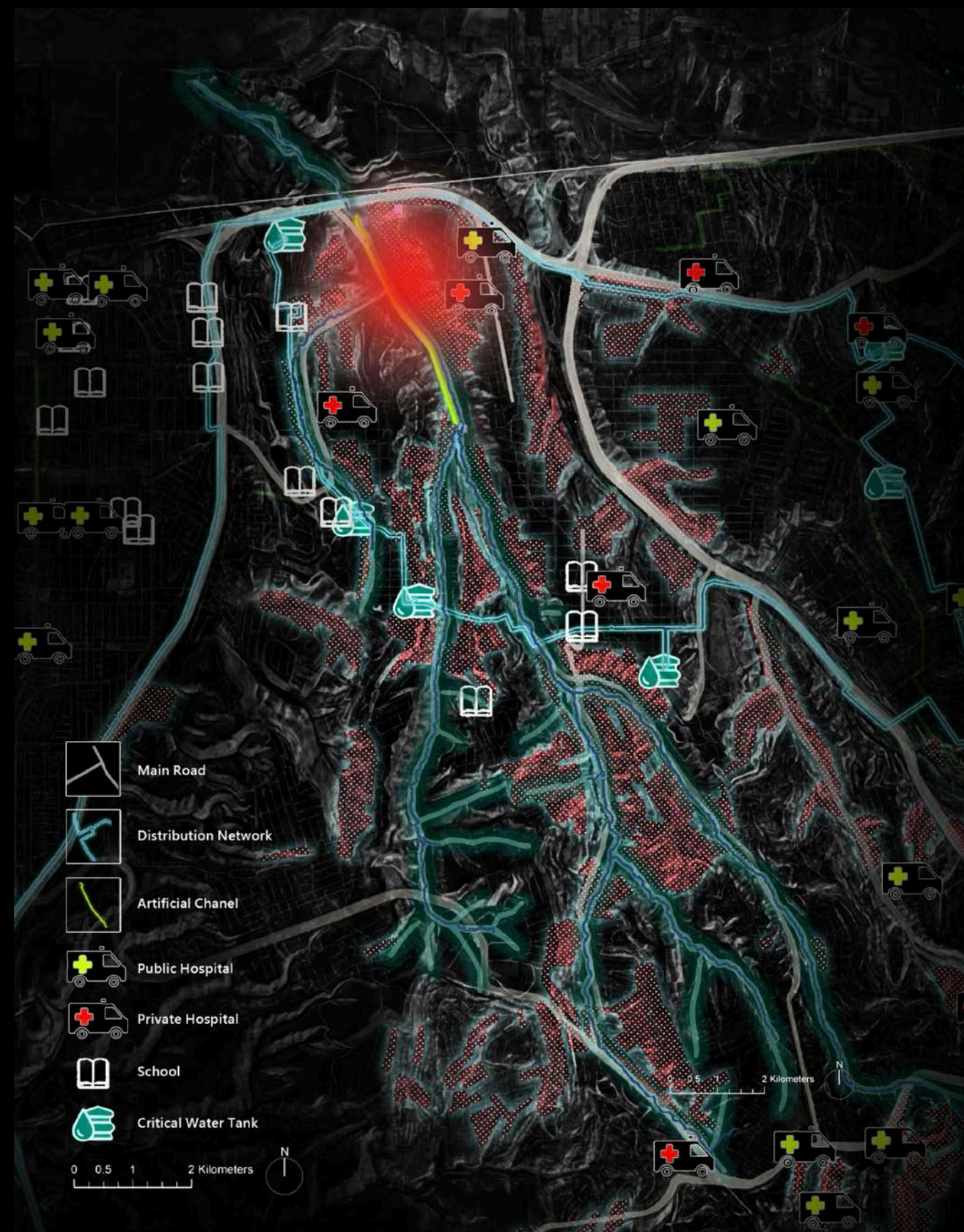
Through understanding the flows, disruptions, and symptoms, we propose three key healing strategies:

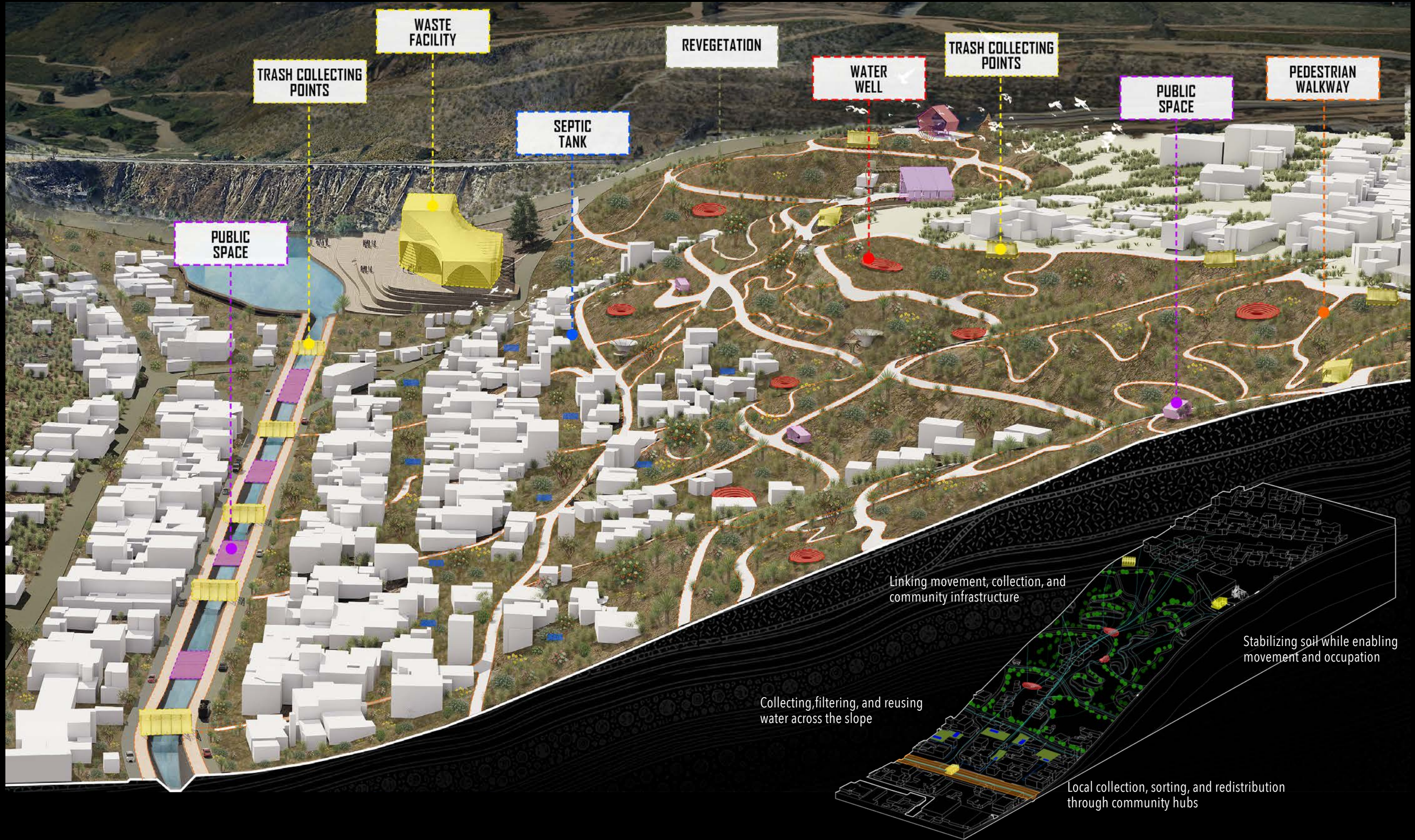
1. Localized waste collection systems
2. Distributed water well nodes, and
3. Social support infrastructures.



GOVERNANCE & FUNDING BODIES

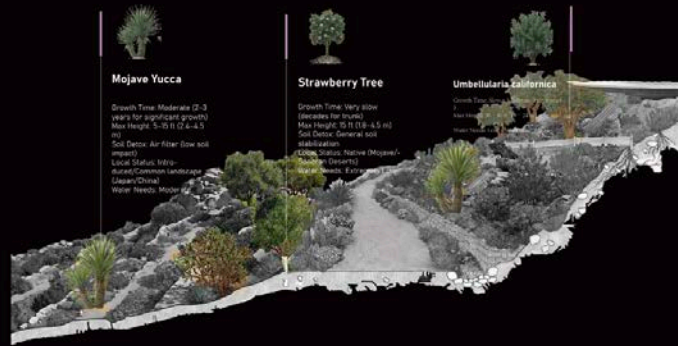
COMMUNITY







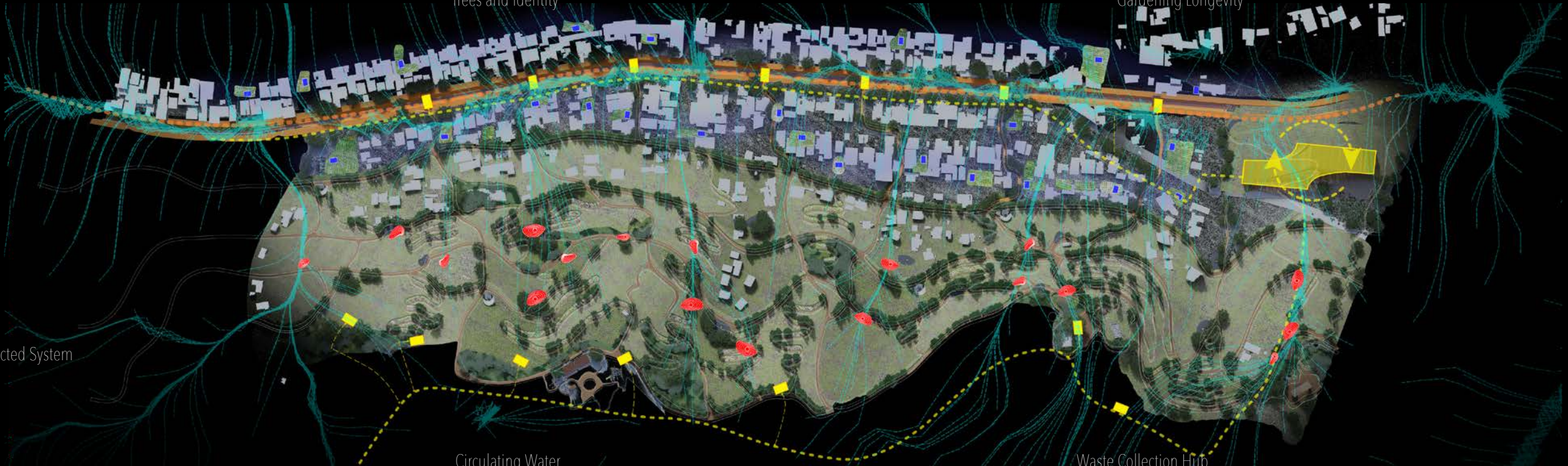
REVEGETATION STRATEGY: TIER 1
Stabilizing Soil Quality



REVEGETATION STRATEGY: TIER 2
Trees and Identity



REVEGETATION STRATEGY: TIER 3
Gardening Longevity



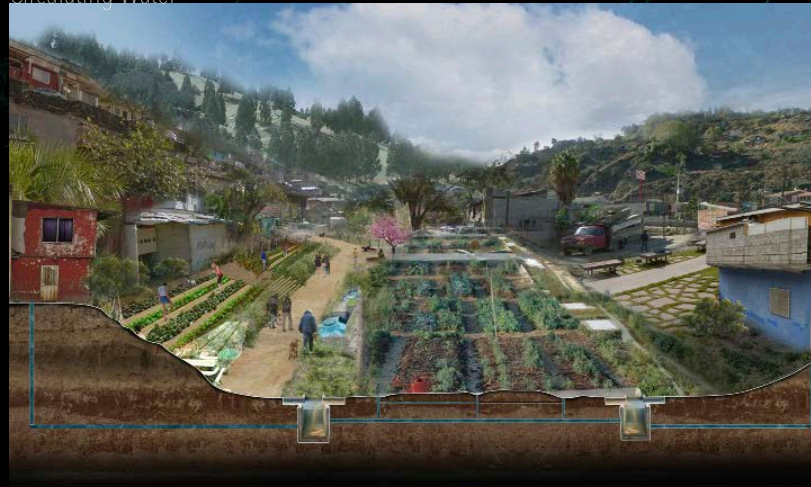
A LIVING SYSTEM TO HEAL

Decentralized Distributed Connected System

Building the network

Circulating Water

Waste Collection Hub



BORDER

SPATIAL VISIONS FOR THE CALI-BAJA REGION

GROWING DIGNITY TOGETHER

EXPLORING THE TIJUANA SAN DIEGO BORDER

Amalia Kamien / Tianyi Dai / Xinyue Wang / Yung-Hsiang Yang

How can you take the time period in someone's life associated with so much uncertainty and struggle, and create an opportunity out of it?

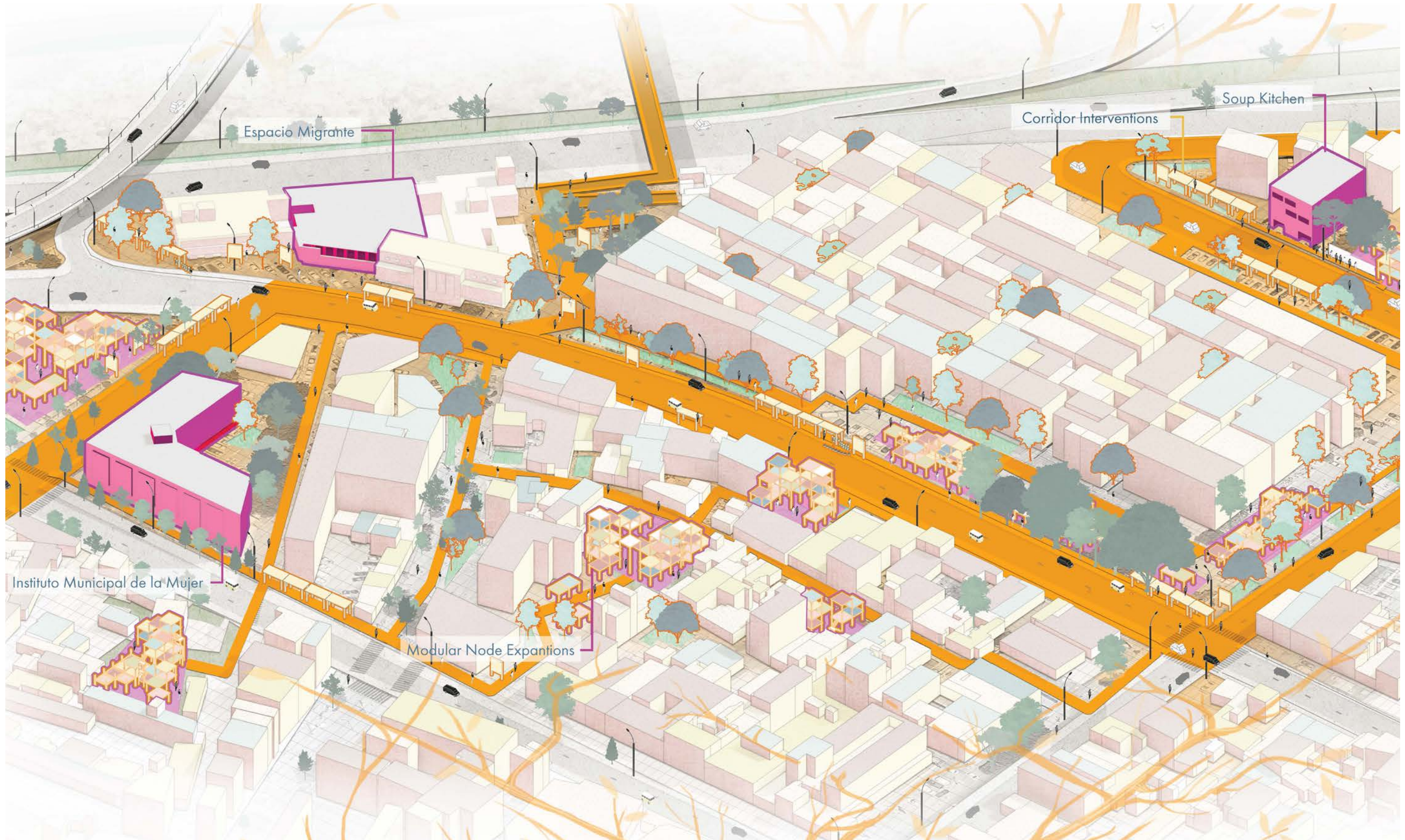
How can you take the time period in someone's life associated with so much uncertainty and struggle, and create an opportunity out of it? This is the central question our project aims to address.

Our scale is human, and our project aims to make the statement that a network of people built by highlighting agency, stability, and dignity is stronger than any wall. By transforming the varying time periods of the unknown into an opportunity for building a network, there is a possibility of reigniting the rightful dignity of human beings and of the city of Tijuana.

Who we design for are migrants in states of prolonged waiting, alongside local communities, NGOs, and cross-border actors whose decisions shape the conditions of migrants and the Tijuana community.

What we propose is a network model that redefines waiting not as passive suspension, but as a condition that can spatially evolve to restore dignity, agency, and stability, and in turn produces a stronger city for all dwellers.

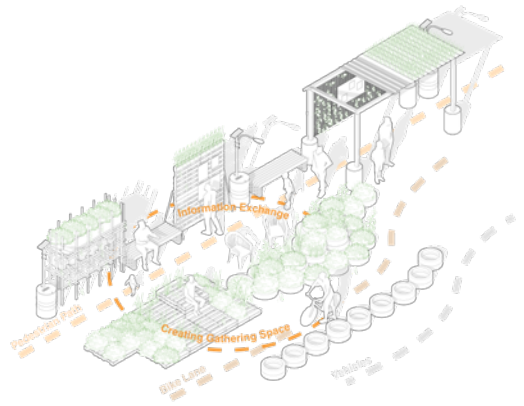
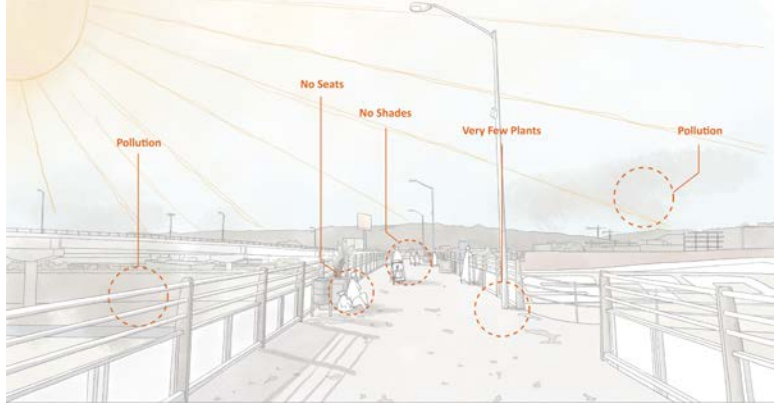
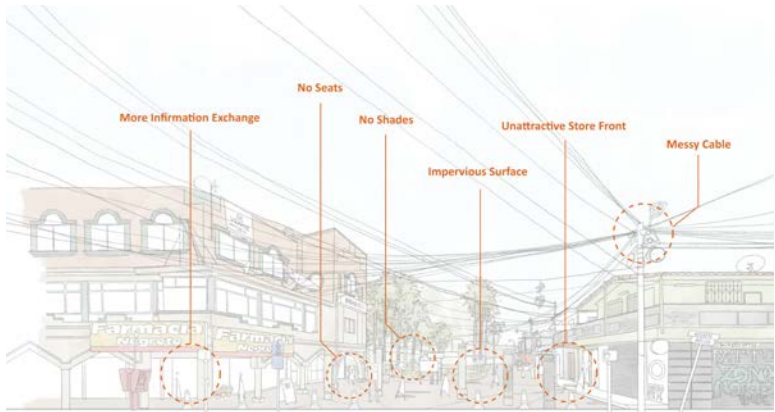
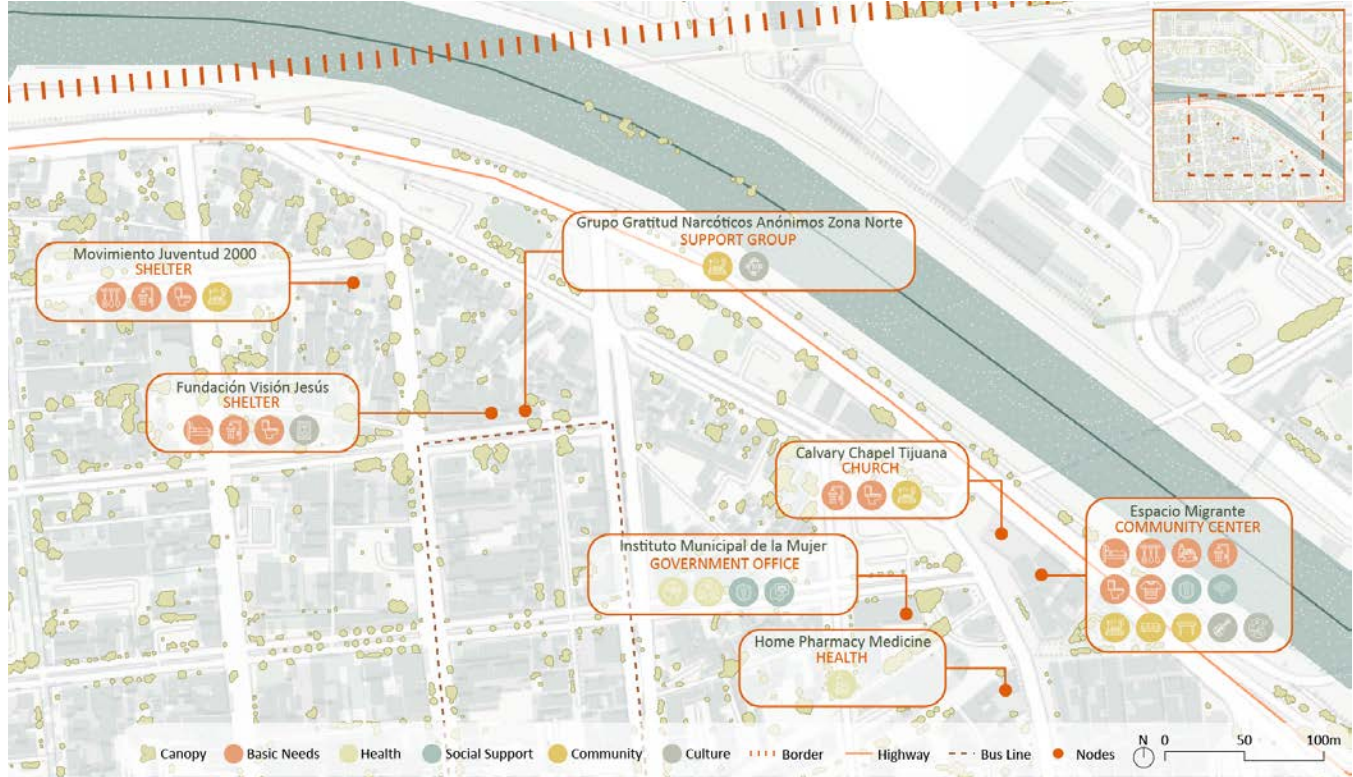




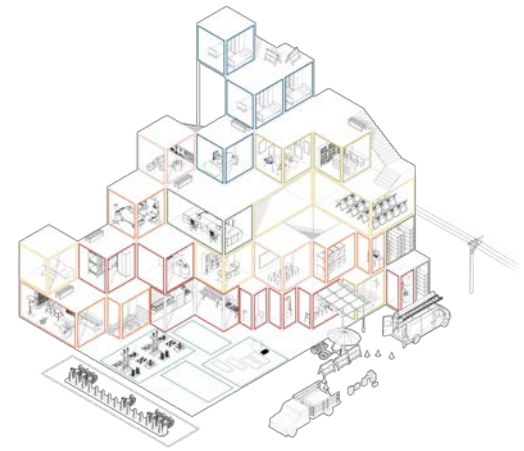
01 | Major Social Nodes in Downtown Tijuana



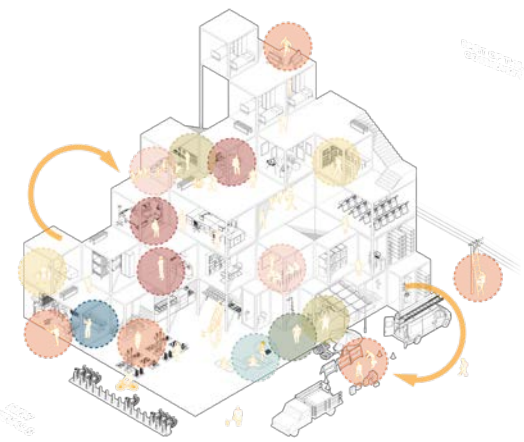
02 | Spreaded Programs, Lack of Integration



Street Scale



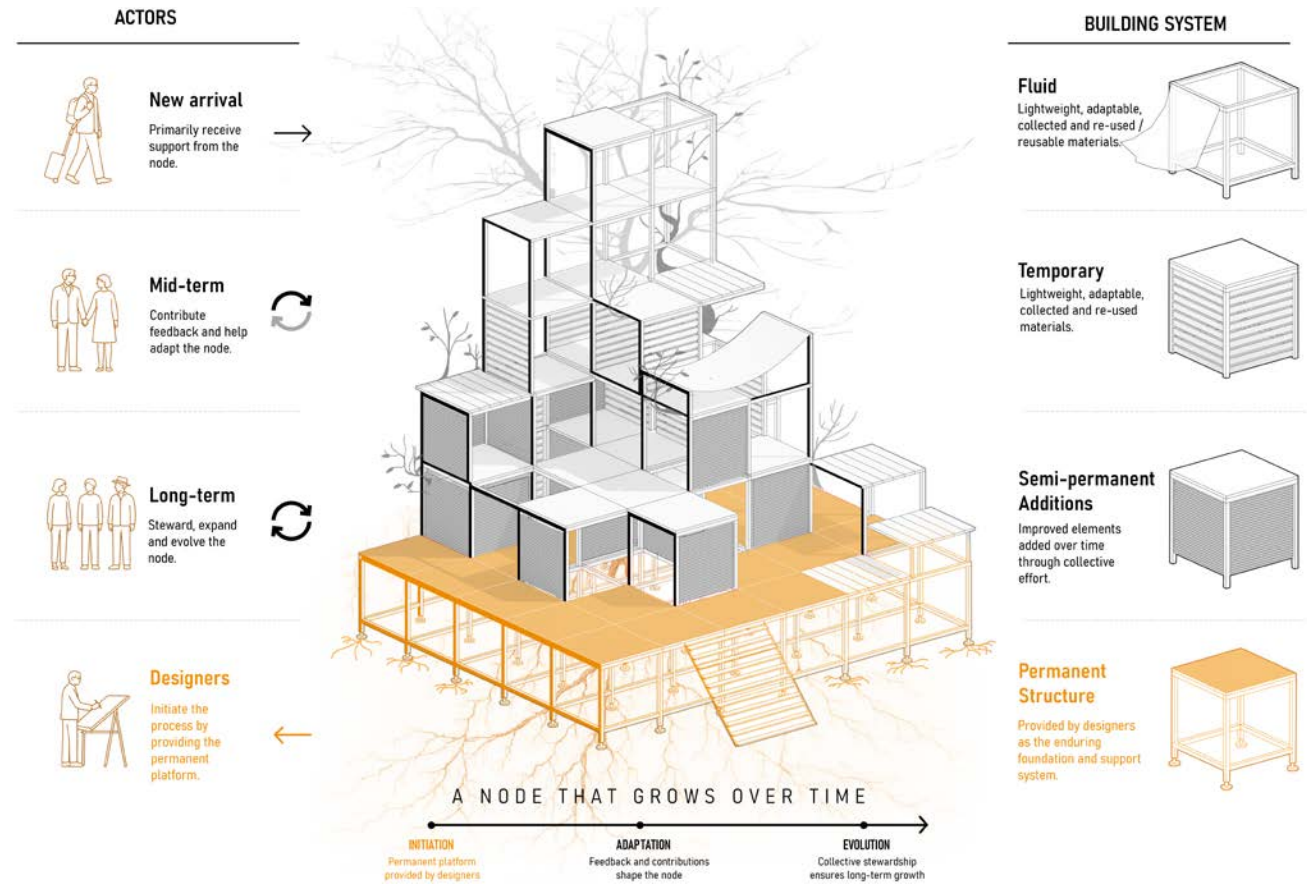
Node Scale



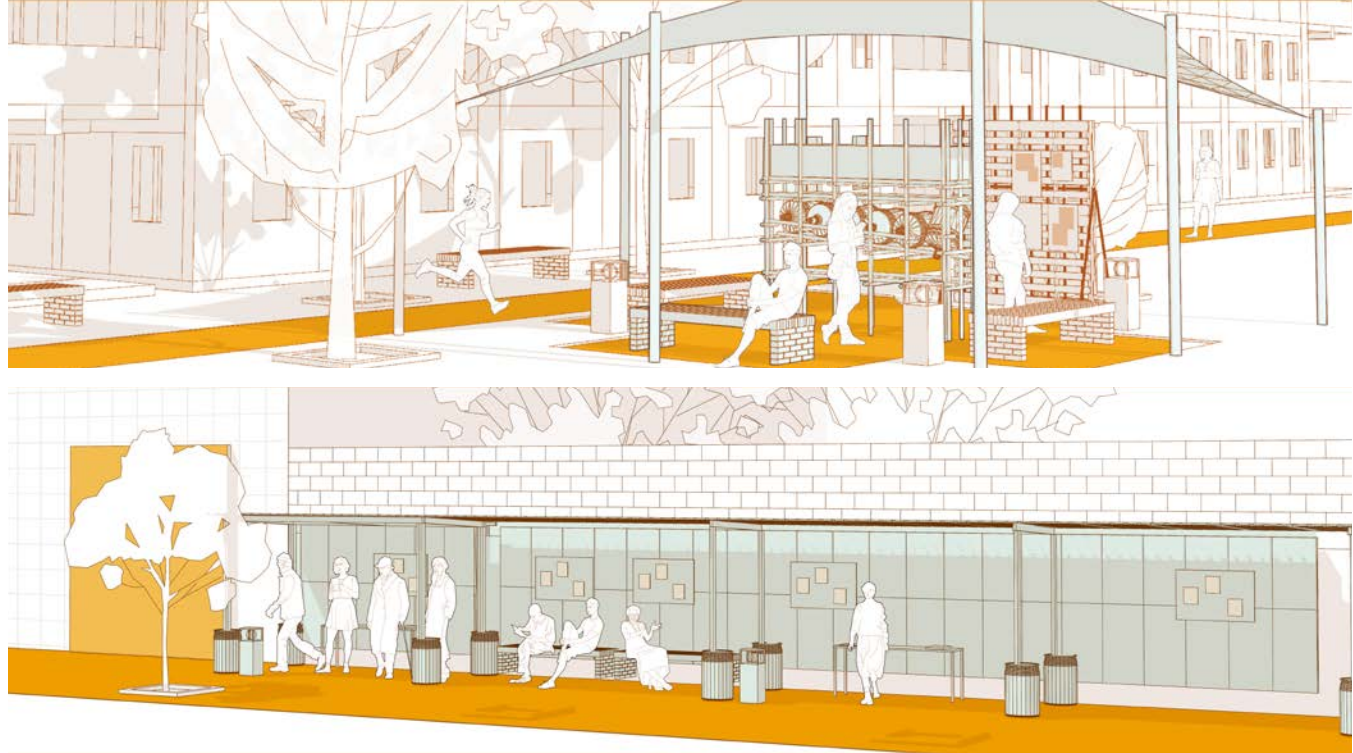
Social Scale



03 | Social Node: Actors and Building System



04 | Street Scale Interventions



05 | Implementation Over Time





STITCHING THE SCAR

REIMAGINING THE BORDER AS A SHARED LANDSCAPE

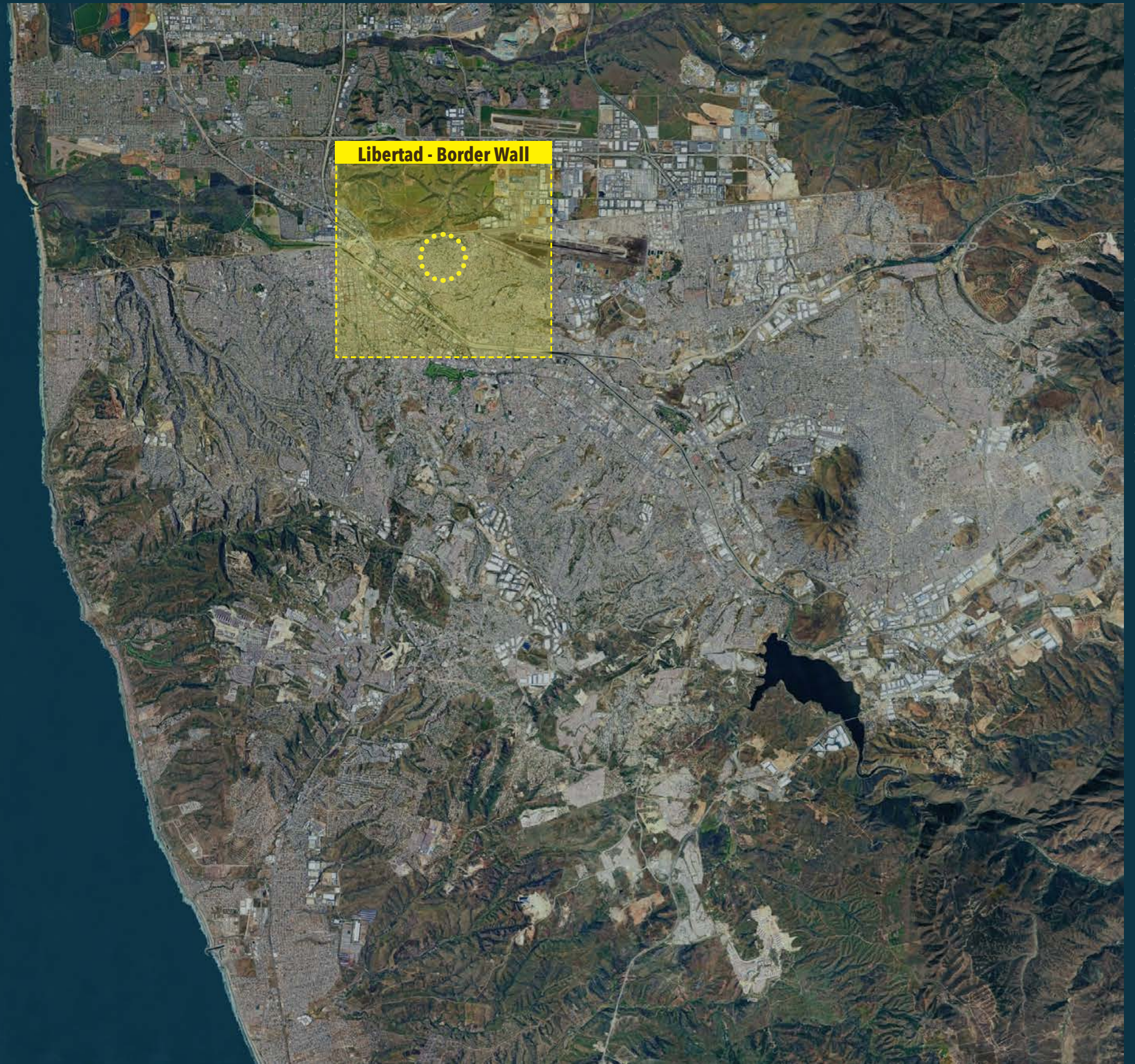
Ayesha de Sousa / Dzormo Naa Cofie / Juliana Leite / Vanessa Gallego

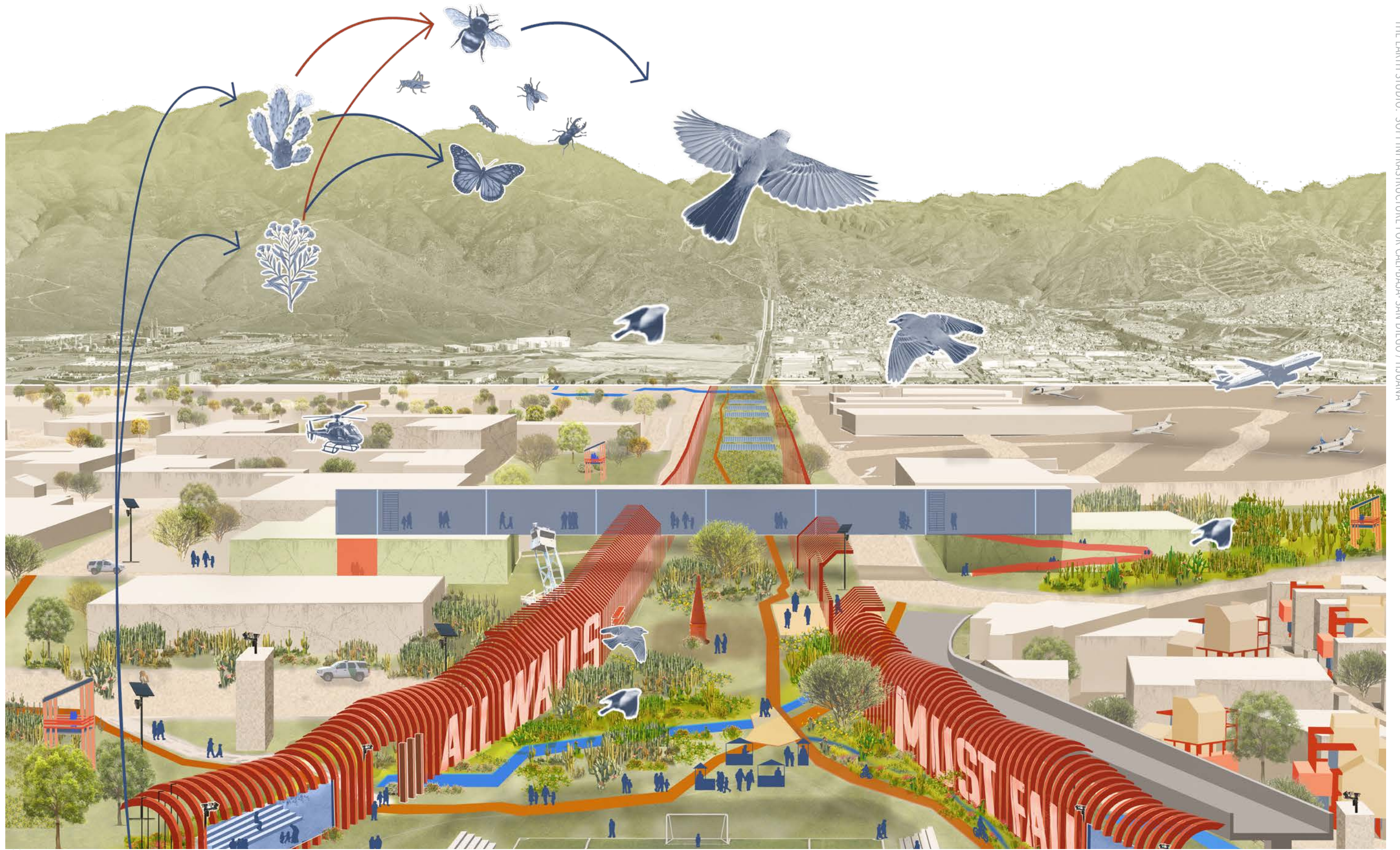
If the wall has turned one region into scarred tissue, can design imagine how that tissue might be stitched?

The US-Mexico border has transformed into a hardened physical barrier that fragments continuous landscapes and displaces migratory species. While uneven governance concentrates ecological harm on the Tijuana side, environmental risks like air and water pollution remain shared across the entire region.

In response, "Stitching the Scar" reimagines the border as a zone of connection rather than a dividing line. The proposal unfolds through three core actions: Reclaiming degraded landscapes to extend migratory habitats; Reconnecting communities to nature through active social infrastructure and trails ; and Sharing the territory by creating binational zones with soft pedestrian and bike crossings.

By establishing ecological corridors, shared public spaces, and binational crossings, these interventions operate as stitches. The project asks if we can move toward a more connected, life-supporting future by treating the border as a shared landscape rather than a barrier.







01 | Reclaiming the Land

We propose restoring degraded land to extend migratory habitats by planting native species along riparian corridors and unpaving excess paved surfaces for Miyawaki micro-forest habitats. Injecting green spaces into the urban sprawl will soften the wall for ecological movement and restructure the watershed into a continuous system.

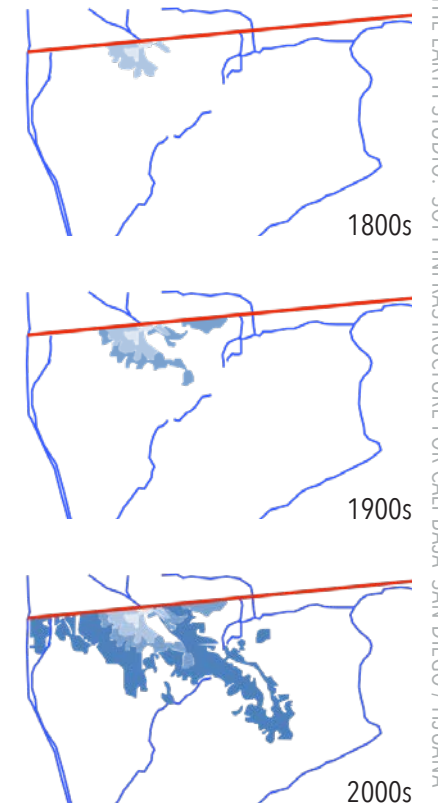
02 | Reconnecting People

We propose activating these green zones through social infrastructure, establishing organic walking and biking trails that will bring people directly to the landscape. Living will become a process of ecological return, where housing will integrate with the environment and residents can live within nature rather than apart from it.

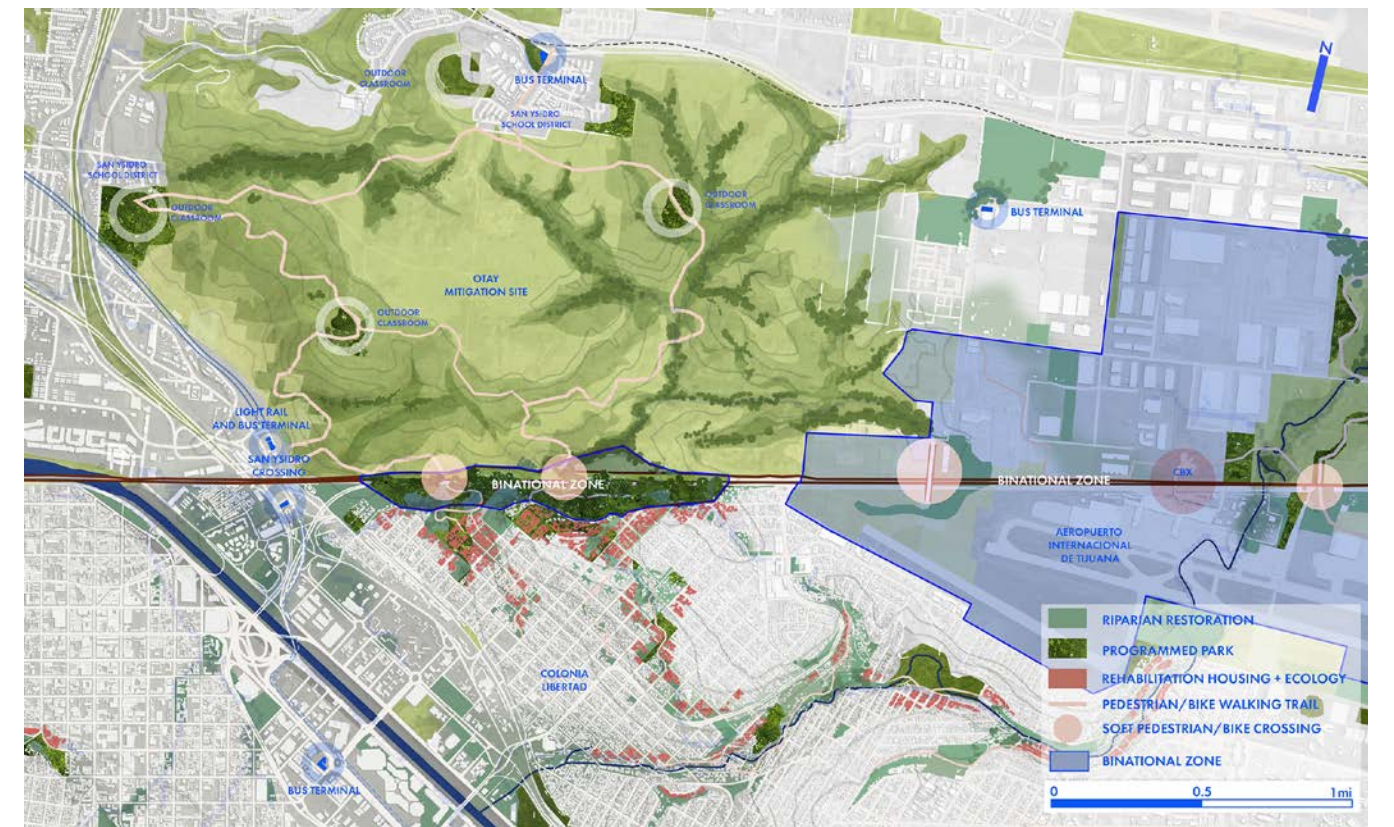
03 | Sharing Citizenship

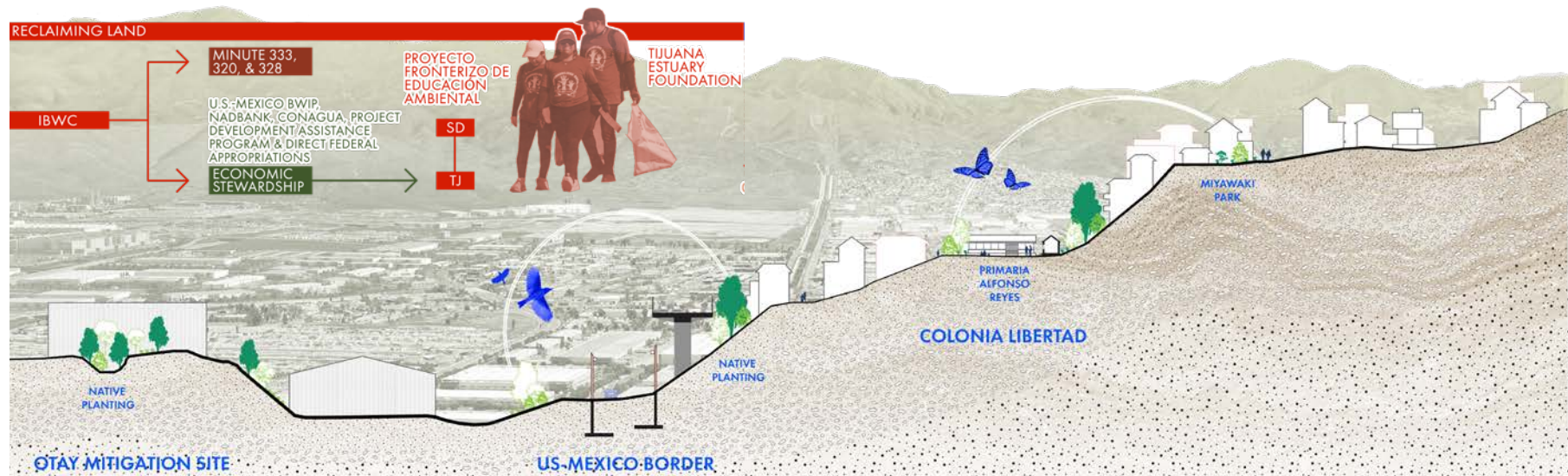
The border is proposed opening into binational zones with soft pedestrian and bike crossings for those with a binational identity. Supported by a treaty, new economic and leisure zones can utilize aerial crossings and productive landscapes to foster shared cross-border public life.

SPRAWL OF TIJUANA



THE EARTH STUDIO: SOFT INFRASTRUCTURE FOR CAL-BAJA: SAN DIEGO / TIJUANA





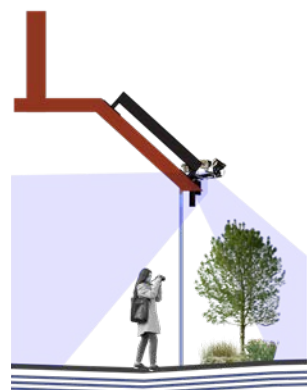
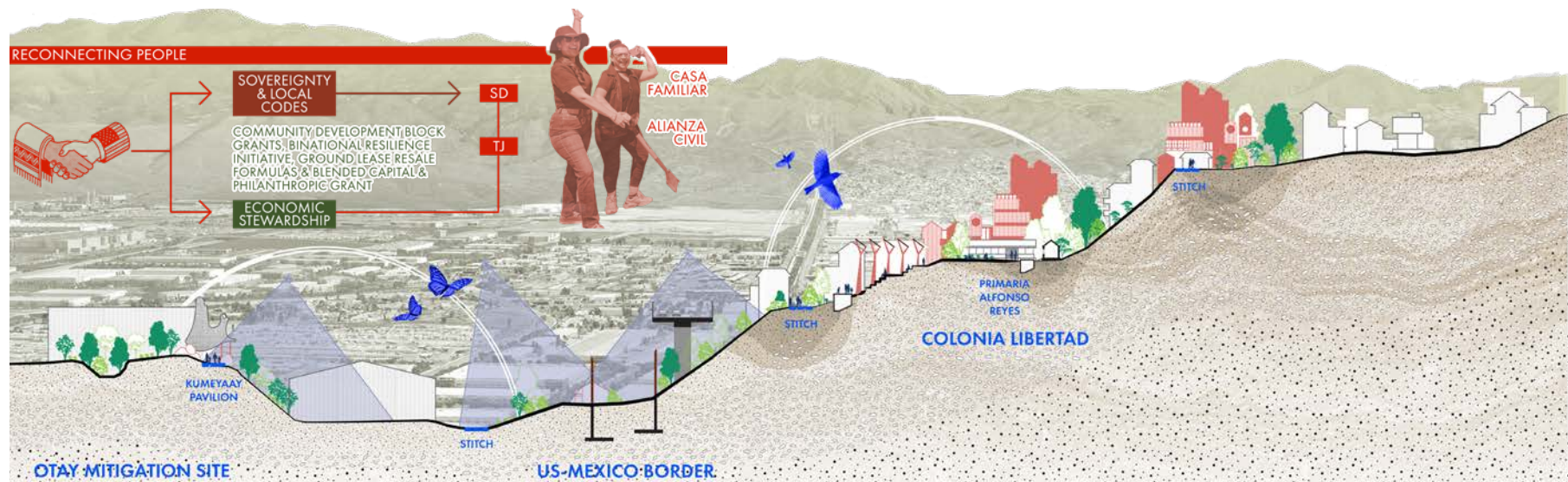
Willow Salix



Milkweed Lantana



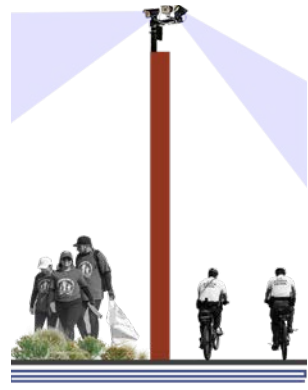
Brittlebush, Encelia Farinosa



Greenhouse planting between two walls



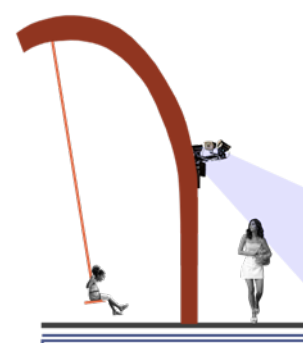
Restored stream with viewing shelves



Bike paths humanizing border patrol



Cactus plantation with fuel production



Swing



Binational library

04 | Reclaiming Degraded Landscapes for migratory Species



06 | Rehabilitating Living at the Edges of the New Ecology



05 | Creating Connections Between People and Nature at the Wall



07 | Narratives of a Shared Landscape

When we traveled to the San Diego-Tijuana region we met stakeholders who approach this territory as a single, interdependent ecosystem. Their actions plant the seeds to stitch the scar, proving that the future can depend on frameworks of cooperation and shared responsibility.

To translate this shared reality into everyday life, we designed The Binational Times. This newspaper ensures that proposals for reclaimed riparian habitats, binational economic zones, and community benefit agreements are legible and accessible to the community who actively shape the borderlands.

Alongside the newspaper, we developed an adapted version of La Loteria game to visualize the project's design interventions. The game bridges the urban design proposal with the cultural identity of the border.



TIJUANA SOUTH

SPATIAL VISIONS FOR THE CALI-BAJA REGION

COMMS: COMMUNITY-OWNED MICRO MAQUILADORAS

COMMUNITY-LED ECONOMIES FOR SOUTH TIJUANA, XOCHIMILCO SOLIDARIDAD

Kuan-fu Huang / Jihye Park / Rebecca Koh / Zongping Liu

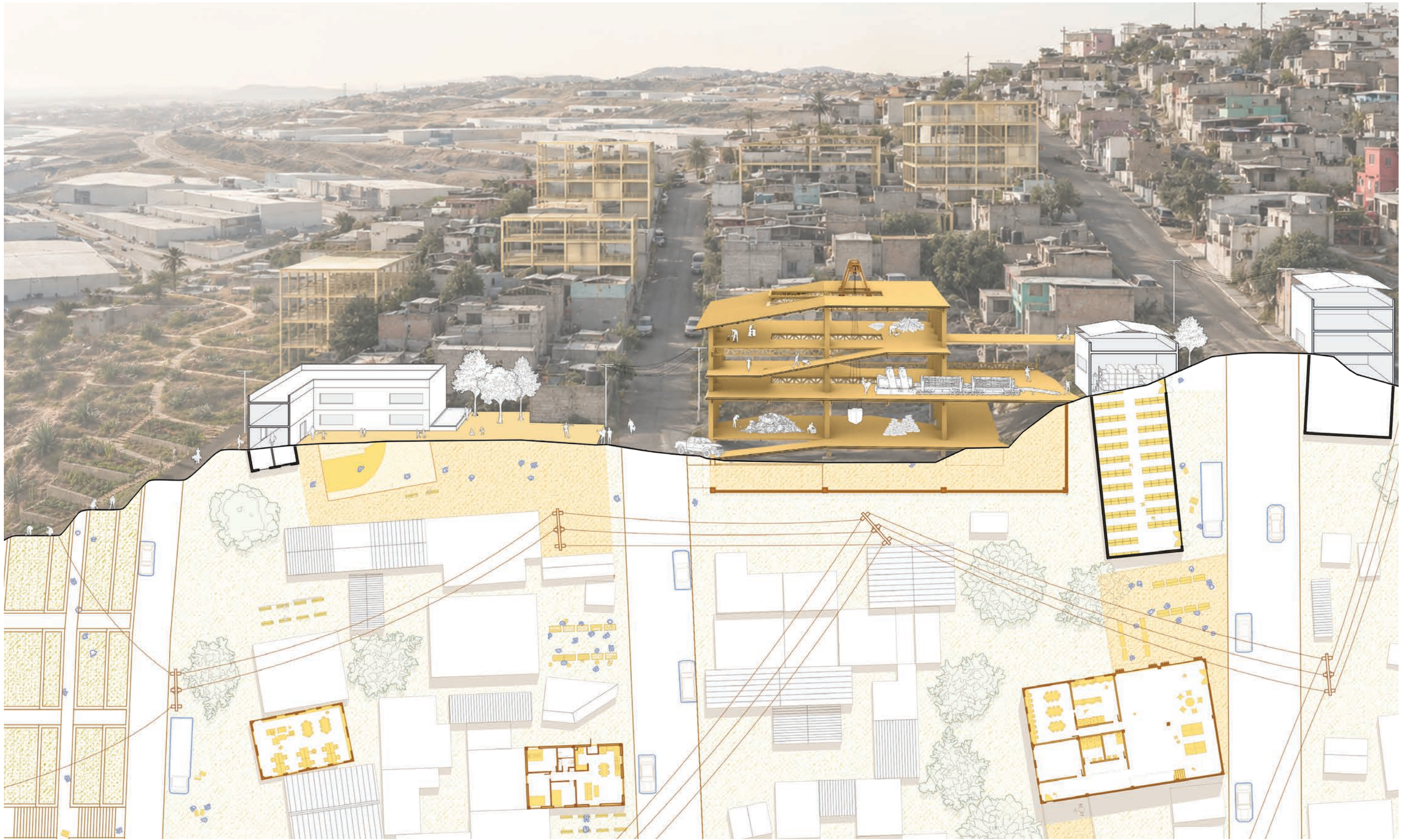
What if living conditions in Tijuana could be improved by creating alternative employment that is locally owned?

Community Owned Micro Maquiladoras reimagine how jobs in border cities can serve their communities and landscape better. We propose a cooperative-led economy as an alternate system to combat entrenched poor living conditions and instability perpetuated by maquiladoras. Currently, workers are trapped in a cycle of economic dependency on a system that extracts and exploits them.

This project shows that sources of income do not have to come at the expense of the environment and worker rights. Instead, we tap into the existing ground-up networks to build community cooperative owned maquiladoras that employ locals to partake in sustainable supply chains and construct a productive landscape.

Neighborhood-embedded production will enable types of production that prioritizes local demands, such as production of building materials from recycled waste to constructing collective housing. Repaired landscapes will thereby be able to reap ecosystem services. Hence, this serves as a model of how communities can reach economic resilience while stewarding their environment.





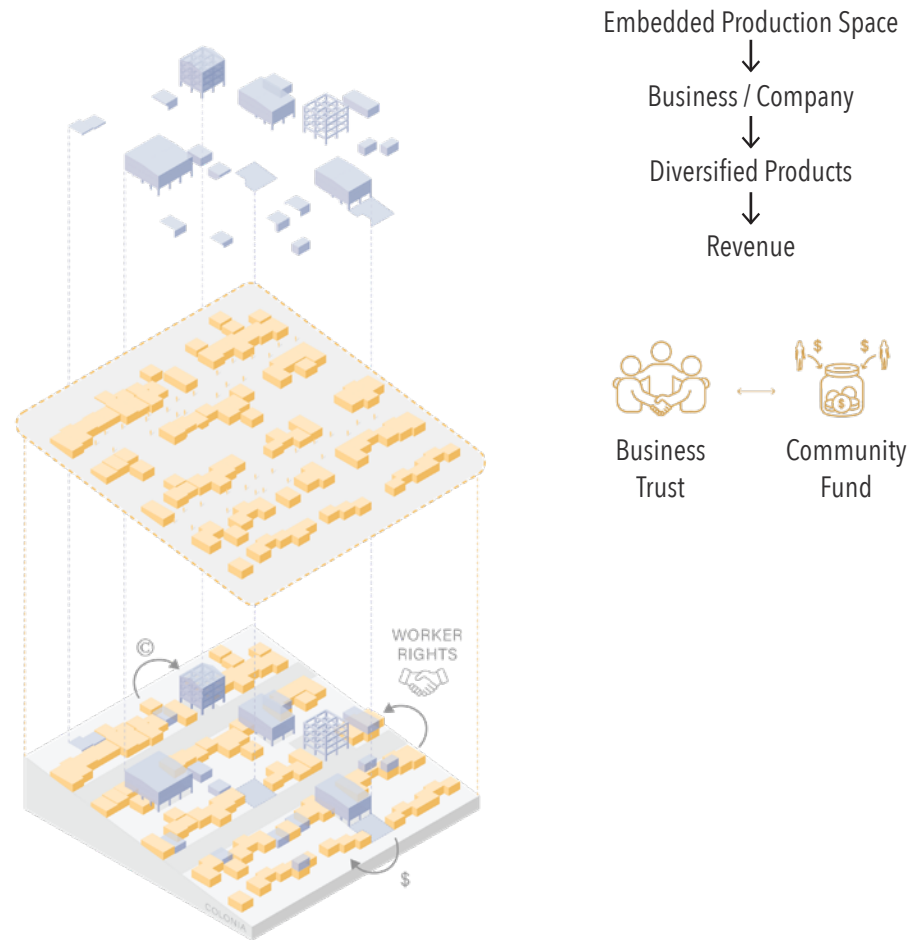
01 | Community-owned Micro Maquiladoras (COMMs)

To combat the economic reliance on the exploitative foreign manufacturing industry, we propose a community led economic structure to build local capacity and ownership.

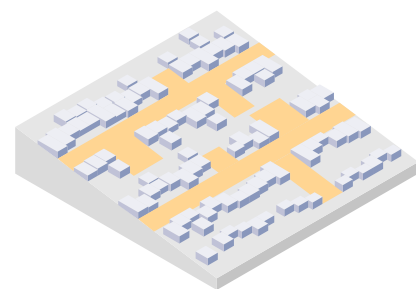
DIY Micro Maquiladora

Worker / Community Co-operative

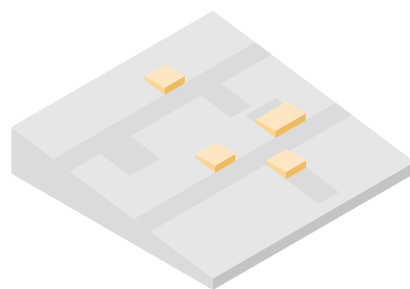
Community-owned Production



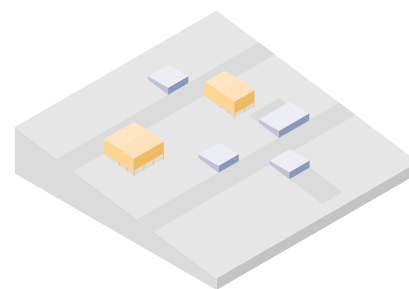
03 | Spatial Strategy



Identify underutilized & empty lots along transport network



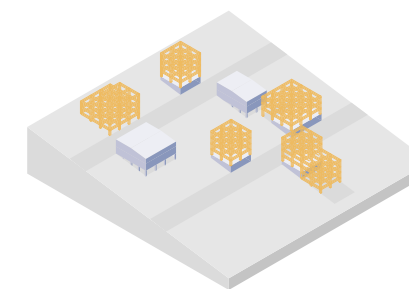
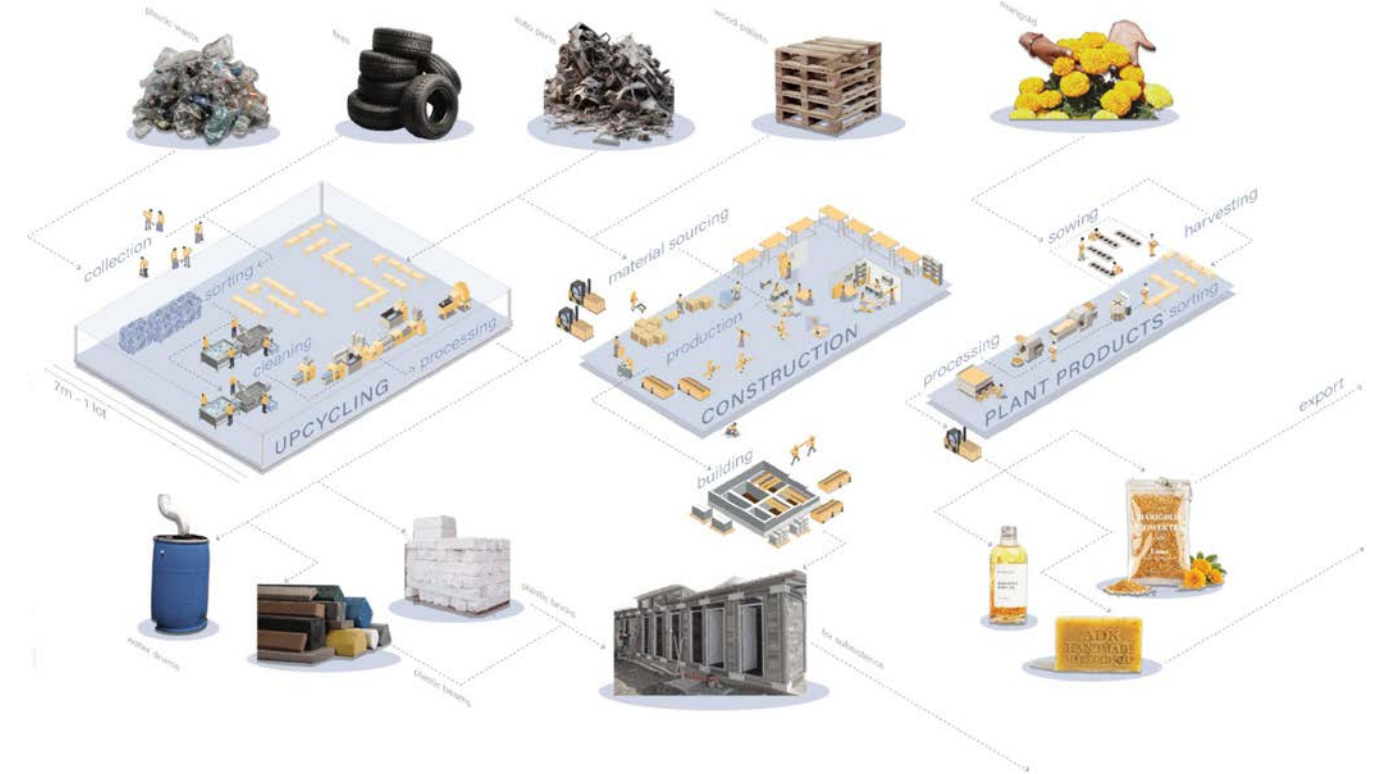
Convert to community organizing space



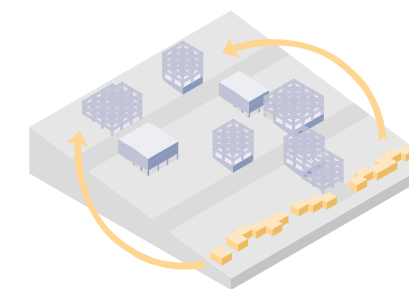
Embedded production space

02 | Type of Production

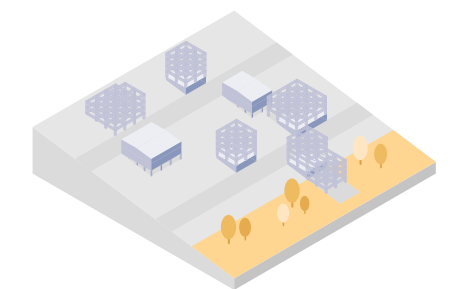
Micro maquiladoras leverage locally sourced resources, spaces, and skills already present within the community. Production at this scale can include upcycling, building material manufacture and plant cultivation, generating goods that serve community needs directly or generate income through local exchange.



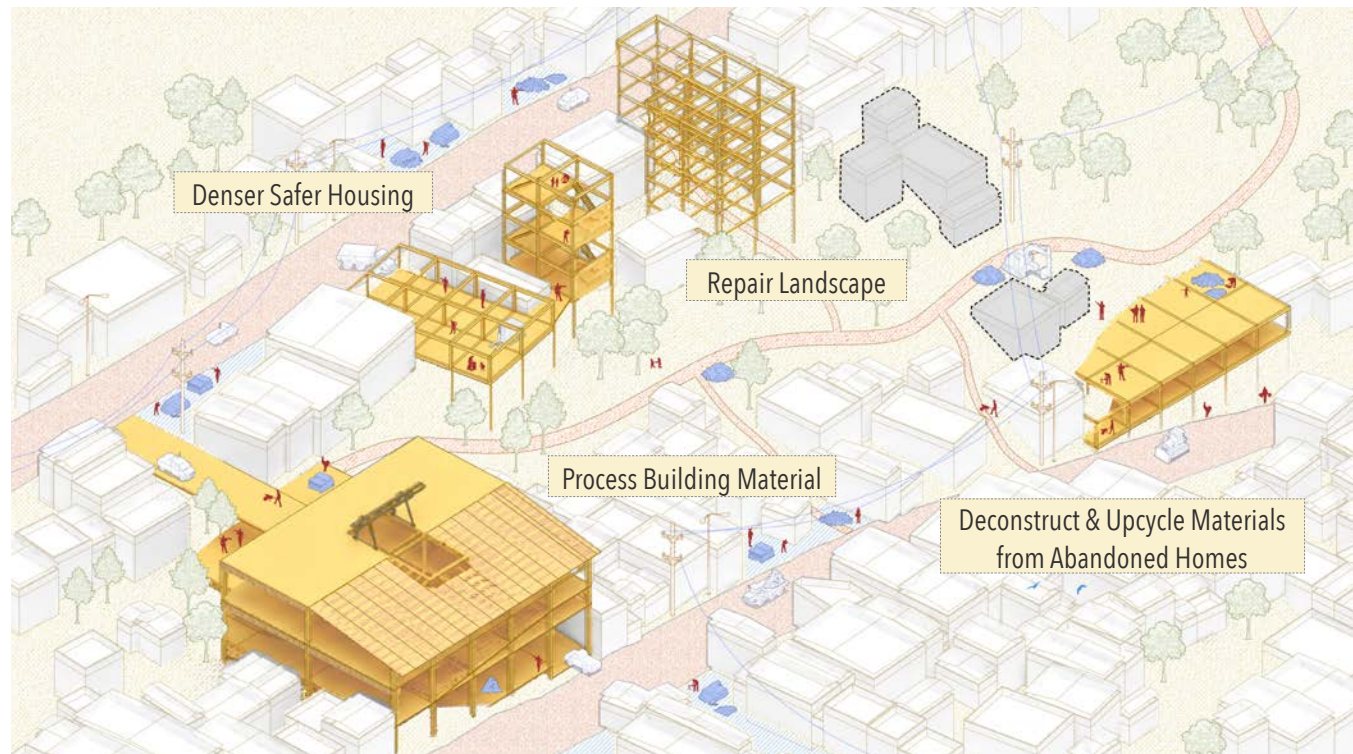
Densify with larger structures for housing



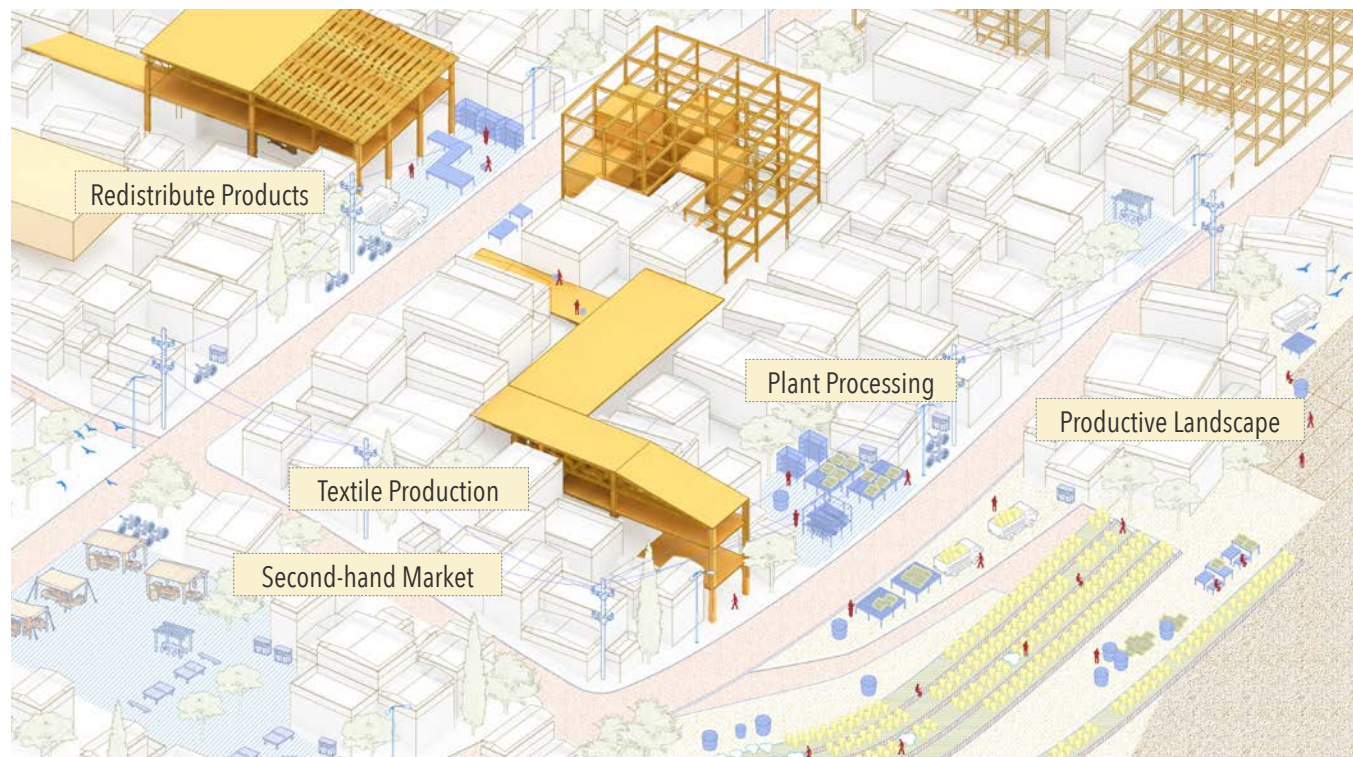
Increased housing supply



Landscape repair



04 | Beyond subsistence-based Production
Community sourced resources to meet community needs like housing.



05 | Export-based Production
Renewable, non-extractive supply chains.



06 | New Xochimilco Solidaridad Neighborhood



07 | Safe, Child-friendly Work Environments



09 | Jobs that Create Better Living Conditions



08 | Multi-use Communal Workspace



10 | Productive Landscape

CANCHAS DE TRANSFORMACIÓN

MOBILIZING COMMUNITIES THROUGH PASSION & PLAY

Junbo Chen / Jiayi Dai / Eric C. Lin / Jennie J. Zhou

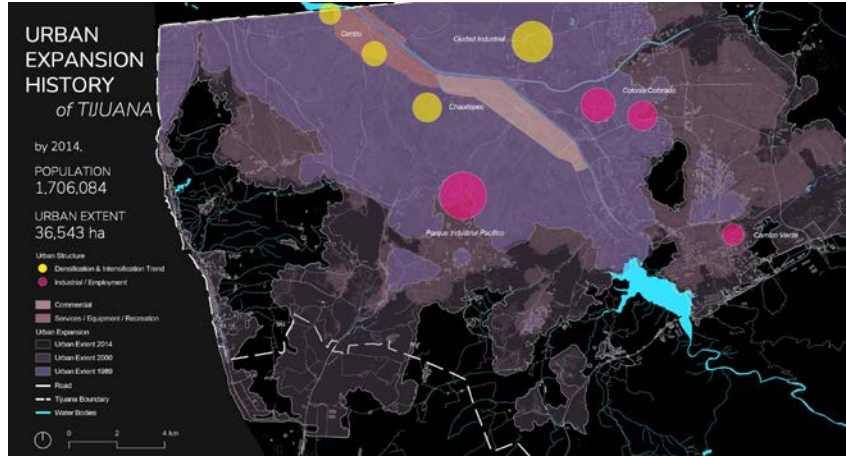
How can football fields transform underserved neighborhoods into connected, empowered, and resilient communities?

In the rapidly expanding city of Tijuana, over 50% of residents were born outside the Baja-California region. Drawn by the maquiladora industry, migrants settle in self-built peripheral neighborhoods that grow faster than municipal planning decisions can, leaving communities underserved, underrepresented, and lacking formal public space. These conditions make it difficult for residents to build community and a sense of belonging.

Our project envisions football fields as sites of shared passion and joy, as opportunities to strengthen the public realm by transforming unfunctional spaces into vibrant, multifunctional neighborhood hubs. These will have two functions: 1) Community centers for gathering, organizing, and mobilizing residents; 2) Network nodes within a city-wide constellation of communities participating in knowledge and resource exchange to co-create solutions for shared environmental and economic challenges.



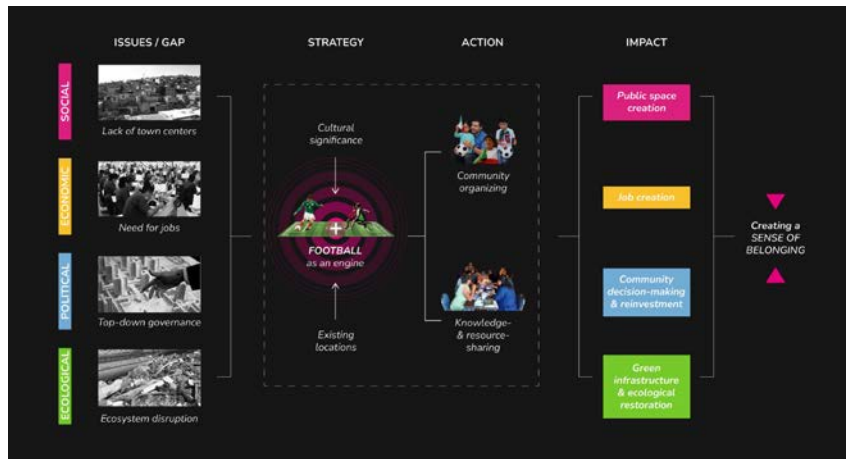
01 | At the Periphery of Tijuana City



The fast-growing yet uneven urban development, with Tijuana river and maquiladoras as the spatial driving forces of urban clusters.



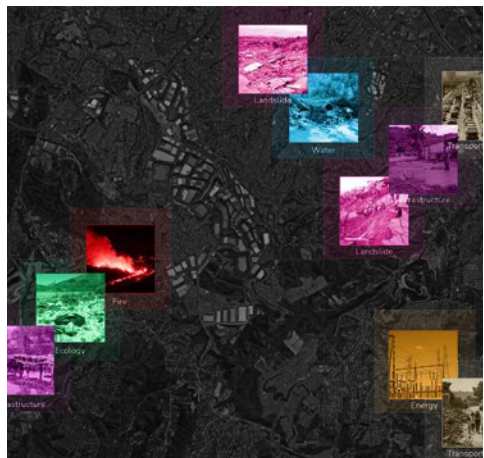
Despite being the driving force of binational trade, migrant workers in Tijuana are often at the periphery of the city, both spatially and economically.



Community football fields will act as neighborhood anchors for gathering, organizing, jobs, resource exchange, and ecological restoration.



The relatively high marginalization of communities and poor transportation services at Tijuana south.



Each community has different problems and development priorities, which are hard for the government to settle.

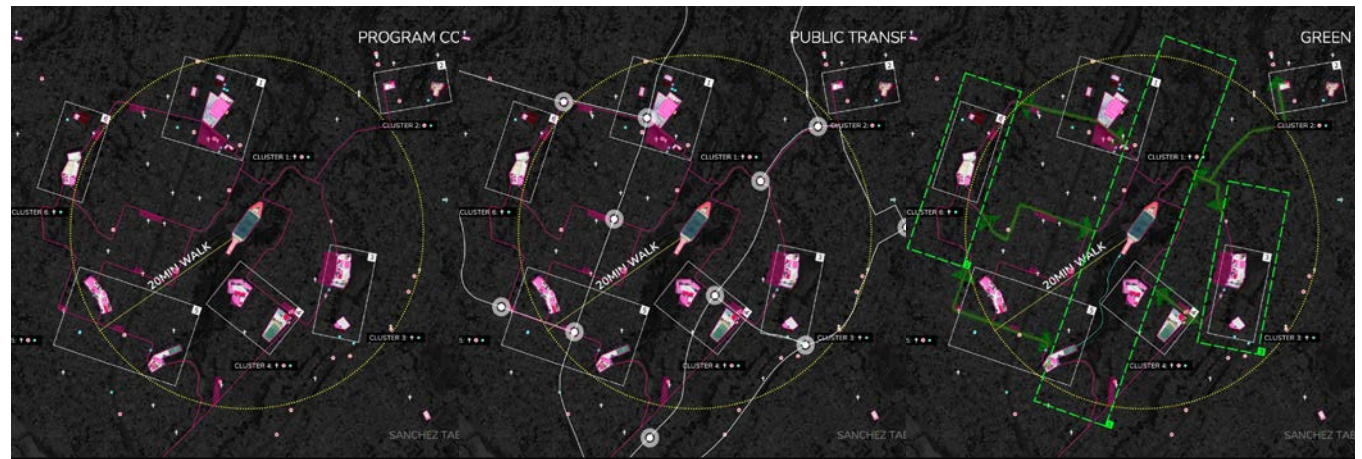


Connecting communities and sharing resources through a common culture.

02 | System Strategies Within and Between Communities



The football fields are used as anchors for a layered urban system, generating dignified local employment, restoring fragmented ecologies through continuous green infrastructure, and linking isolated neighborhood infrastructural nodes (e.g., schools, clinics, churches) into a network of shared resources and collective action.



Program Connections
Creating a 20-min service zone.

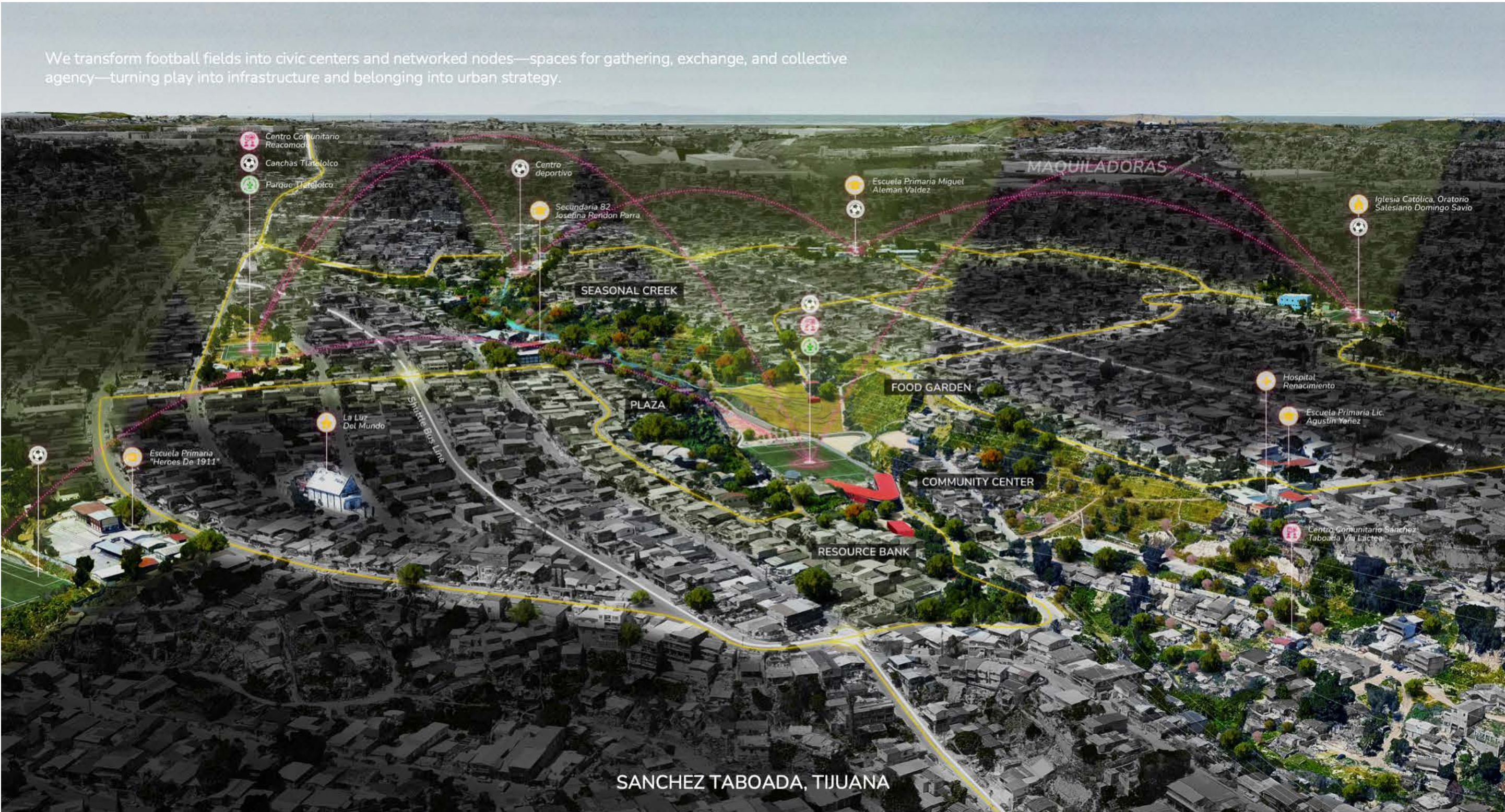
Public Transportation
Facilitating gathering and exchange.

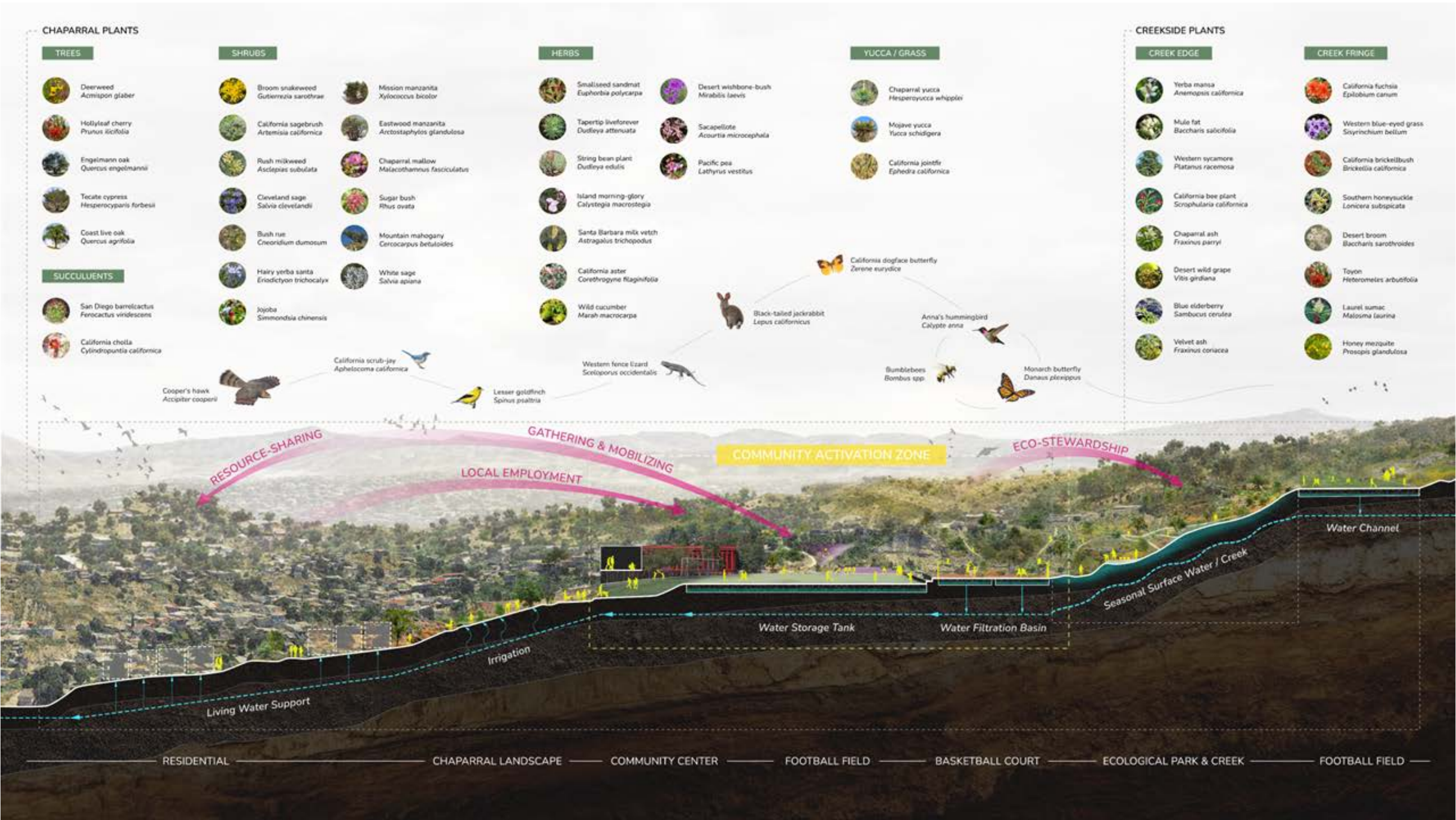
Green Corridors
Securing community's sustainability.

03 | Pilot Site and Design Interventions

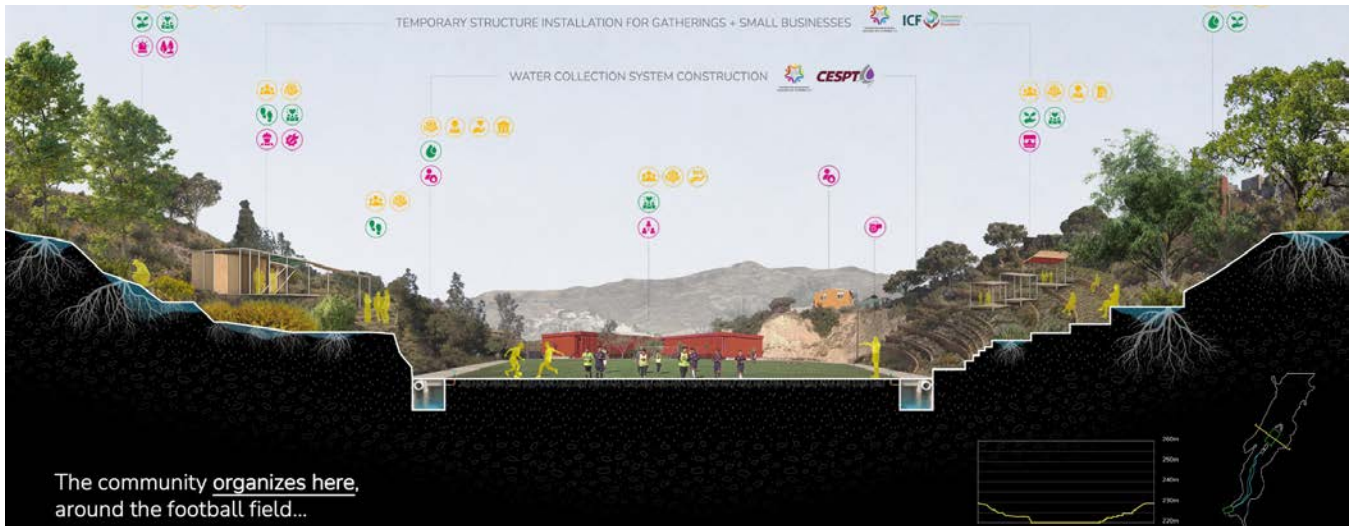
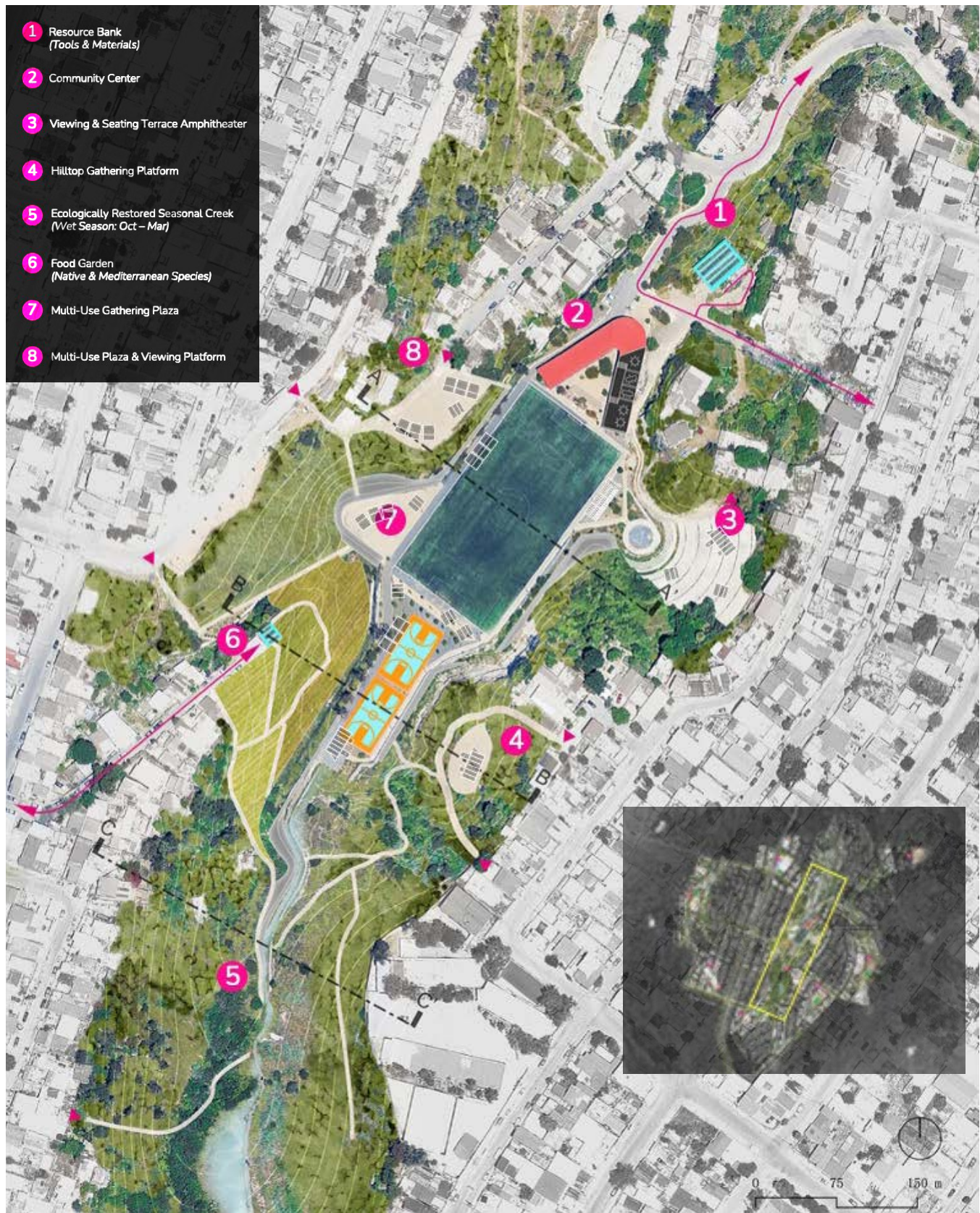
Sanchez Taboada is chosen as our pilot site community for its dense urban fabric and population. We see great potential here for the football field foundations and community growth.

Population: 46,162 (2025)
Population Density: 121.86 people/121,86 people/km²





05 | Community Activation Zone: Gathering, Mobilization, and Ecological Restoration



06 | Section A - A': Community Activation



07 | Section B - B': Local Economy Development



08 | Section C - C': Ecological Restoration

ARROYOS

SPATIAL VISIONS FOR THE CALI-BAJA REGION

REIMAGINING WATER FLOWS

FILTERING LANDSCAPES AND STITCHING MAQUILADORA

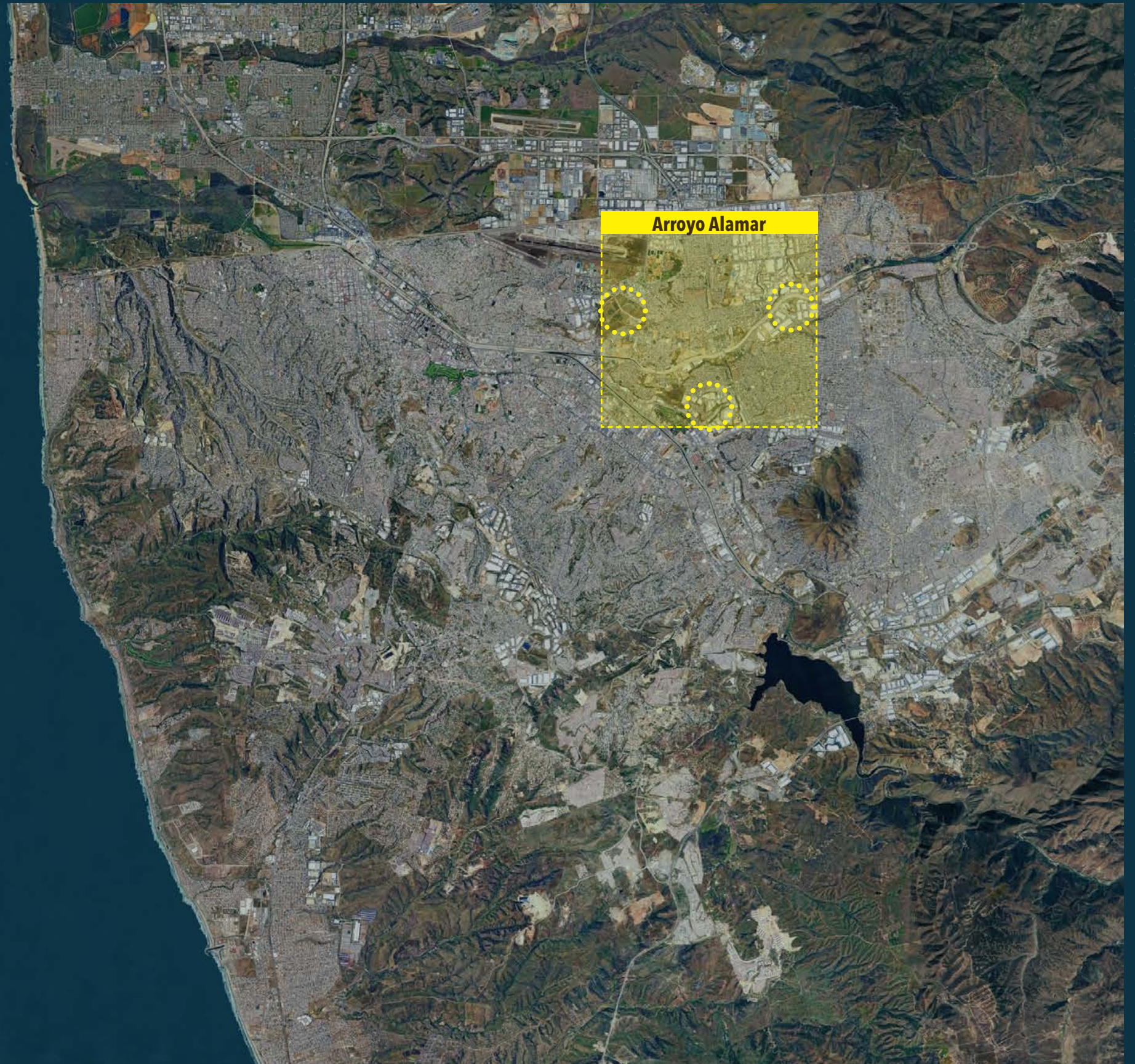
Inhoo Seo / M.Raffy Putra / Wenxin Dai / Ziheng Zhao

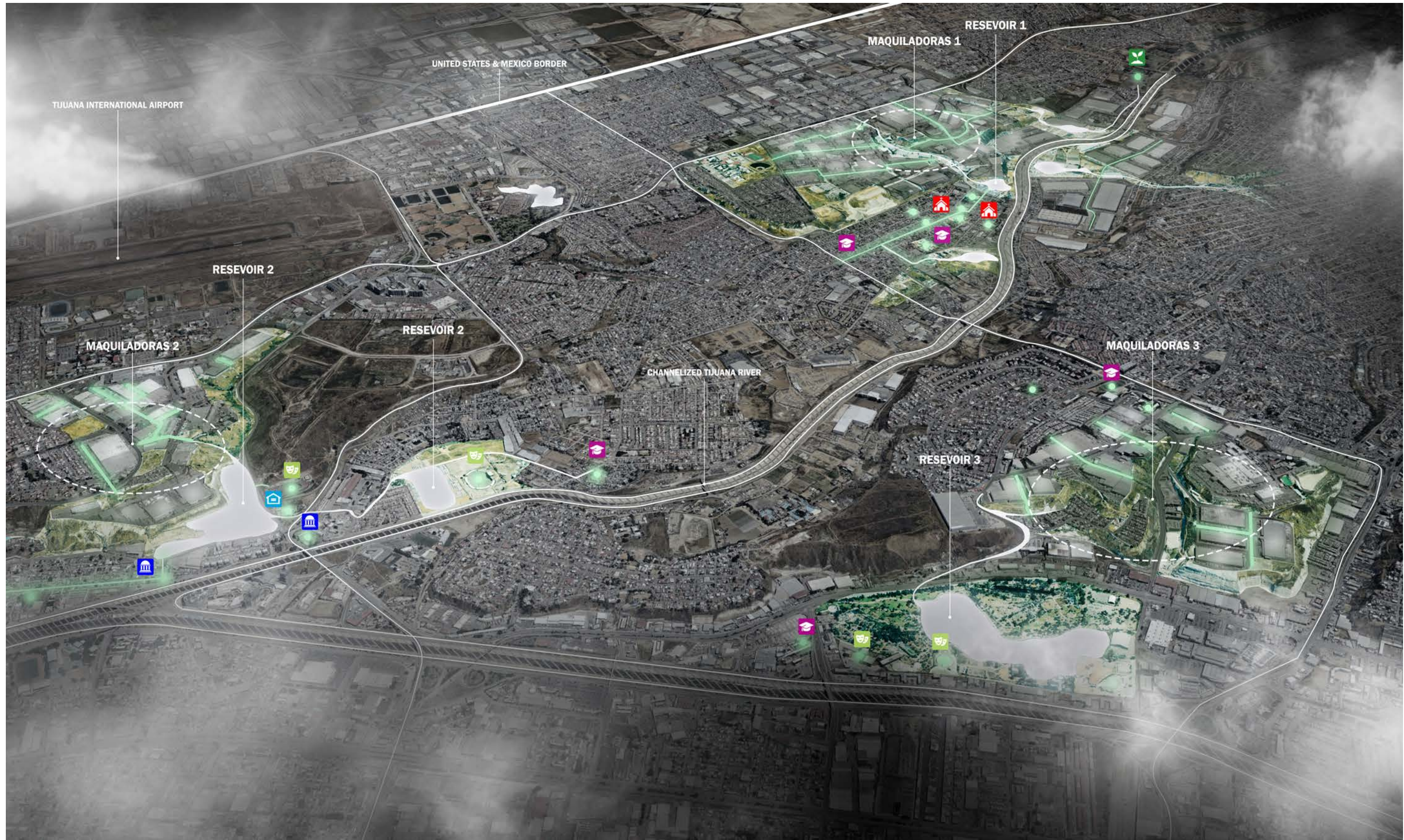
How can maquiladoras be reimagined as ecological restoration and community resilience tools through water?

This project reinterprets the Tijuana River as a fragmented hydrological system shaped by scarcity, mismanagement, and industrial contamination. The proximity of maquiladoras to residential areas without sanitation allows polluted runoff to flow into natural waterways, reinforcing inequality in water access.

Rather than treating maquiladoras as isolated polluters, the project reframes them as infrastructural agents of environmental transformation. We propose reorganizing industrial zones by contamination levels and embedding inner court wetlands within factories to recycle wastewater in a closed-loop system. This network expands outward into terraced wetlands along runoff paths, where filtered industrial water merges with natural flows to purify the landscape, slow runoff, and recharge the local aquifer.

In the final stage, water is redistributed into the community purified through retention landscapes and public programs, transforming underutilized spaces into shared infrastructure. Ultimately, the project proposes a hybrid model in which industry, landscape, and community are integrated through water, repositioning maquiladoras as catalysts for both ecological recovery and civic life.

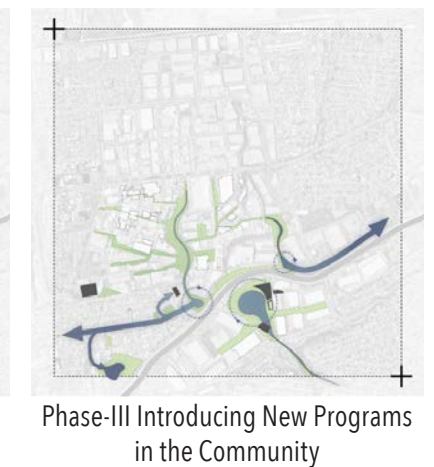
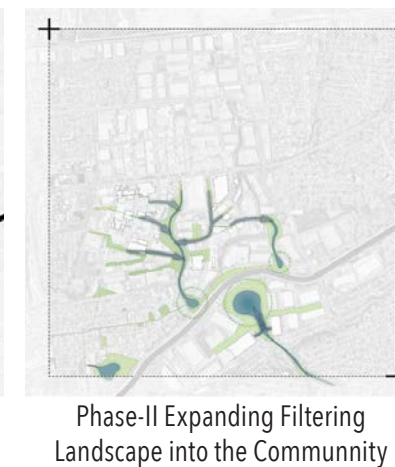
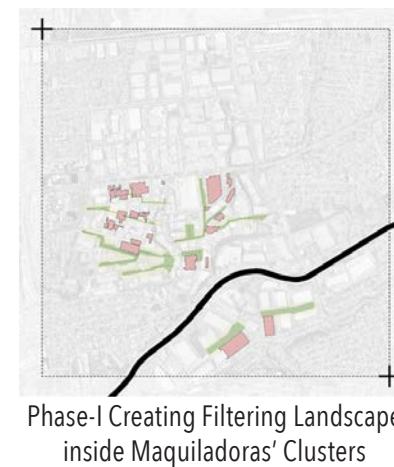
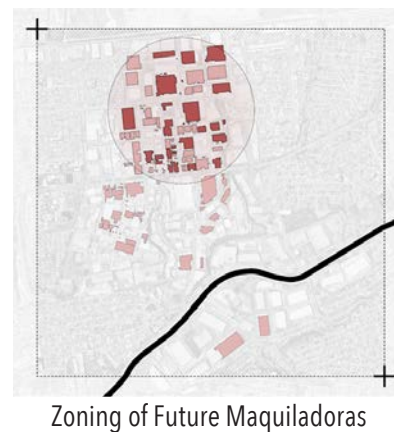
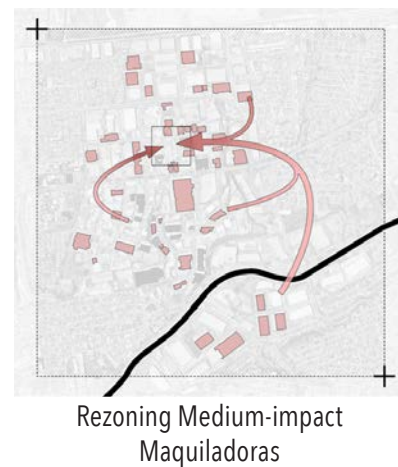
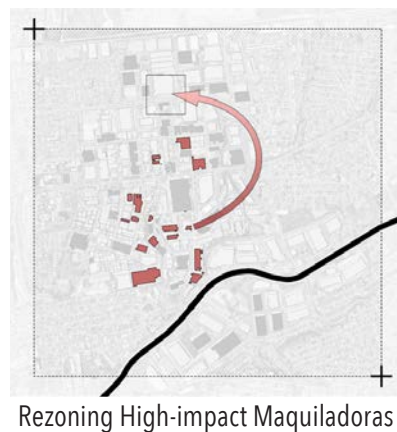
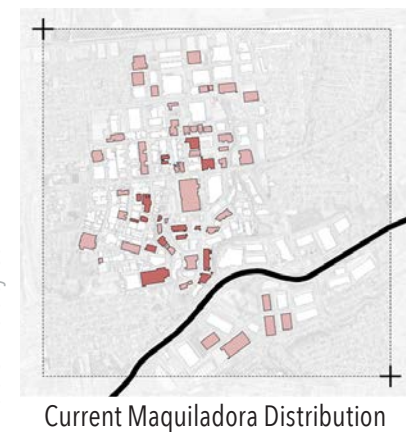
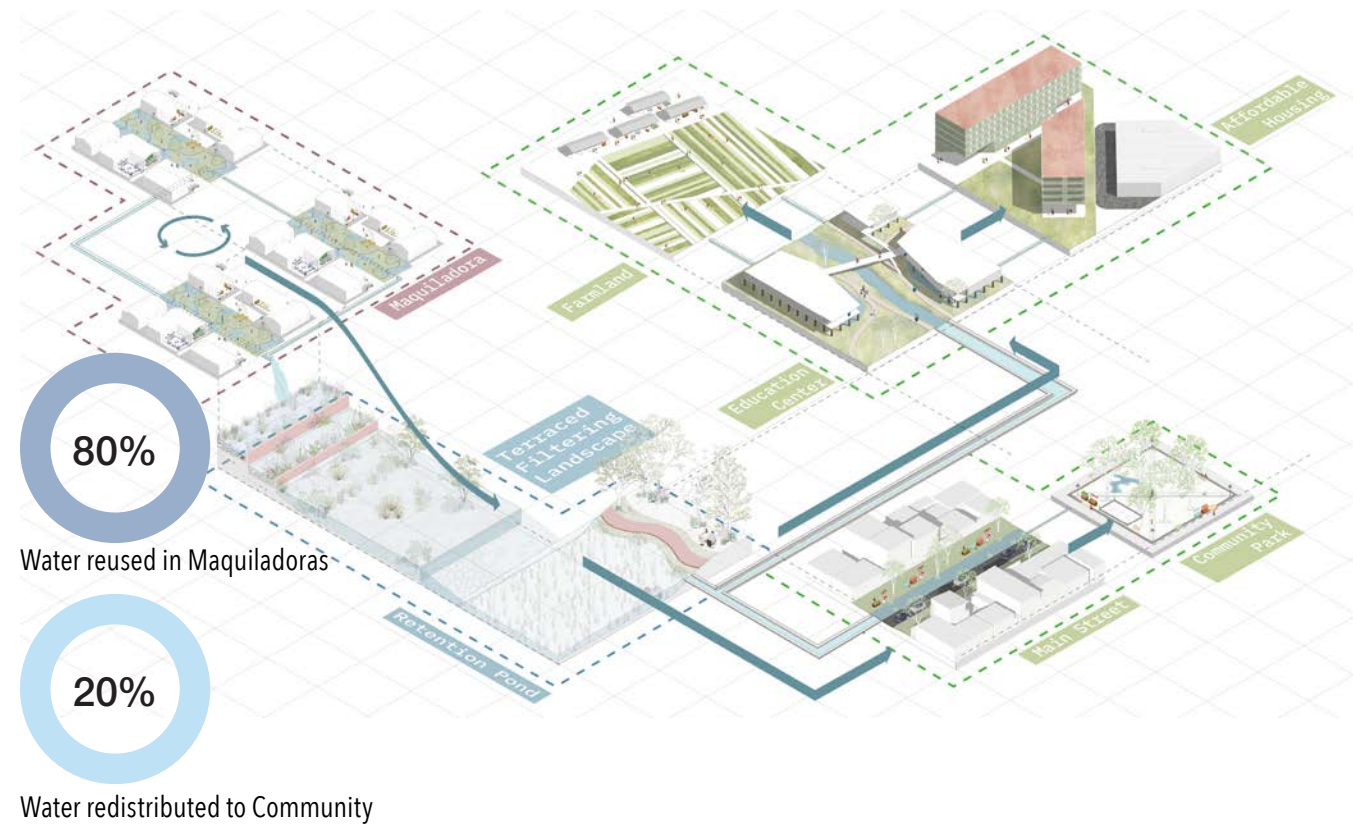




01 | Stitching landscape through water/arroyos

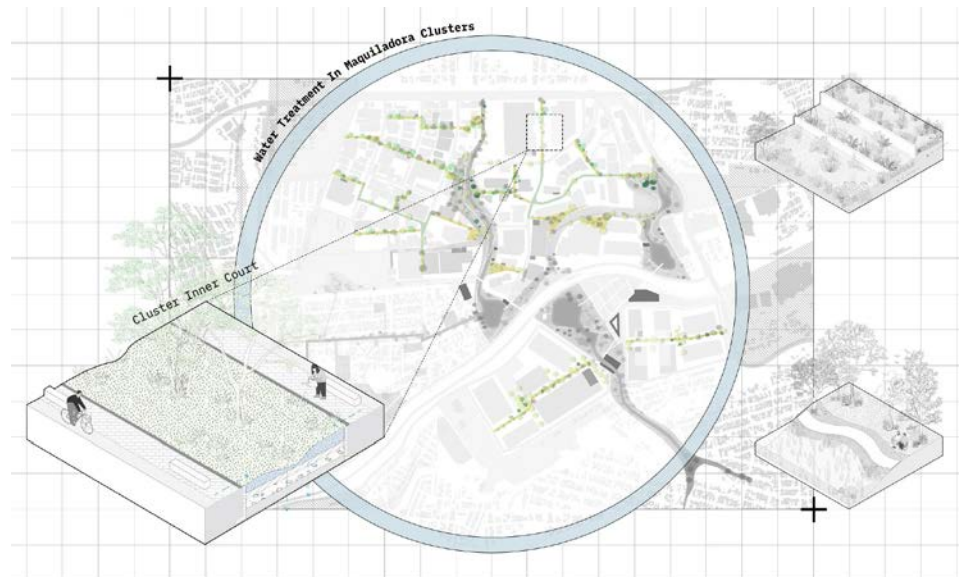
We propose a new spatial relationship in which factories, once the source of environmental problems, become agents of positive change. Instead of being discharged as pollution, approximately 80 percent of the water imported from the Colorado River is captured, filtered, and recycled through inner court wetlands within the maquiladoras. The remaining 20 percent is released as clean water, revitalizing the natural landscape and gradually recharging the aquifer.

From retention ponds and further cleaning, this water is then distributed throughout the residential fabric, integrating into everyday life. As the aquifer and rainwater systems are restored, the landscape will begin to provide a sustainable water source, with or without the maquiladoras. Ultimately, the project will transform imported water from a source of pollution into a regenerative resource for both landscape and community.

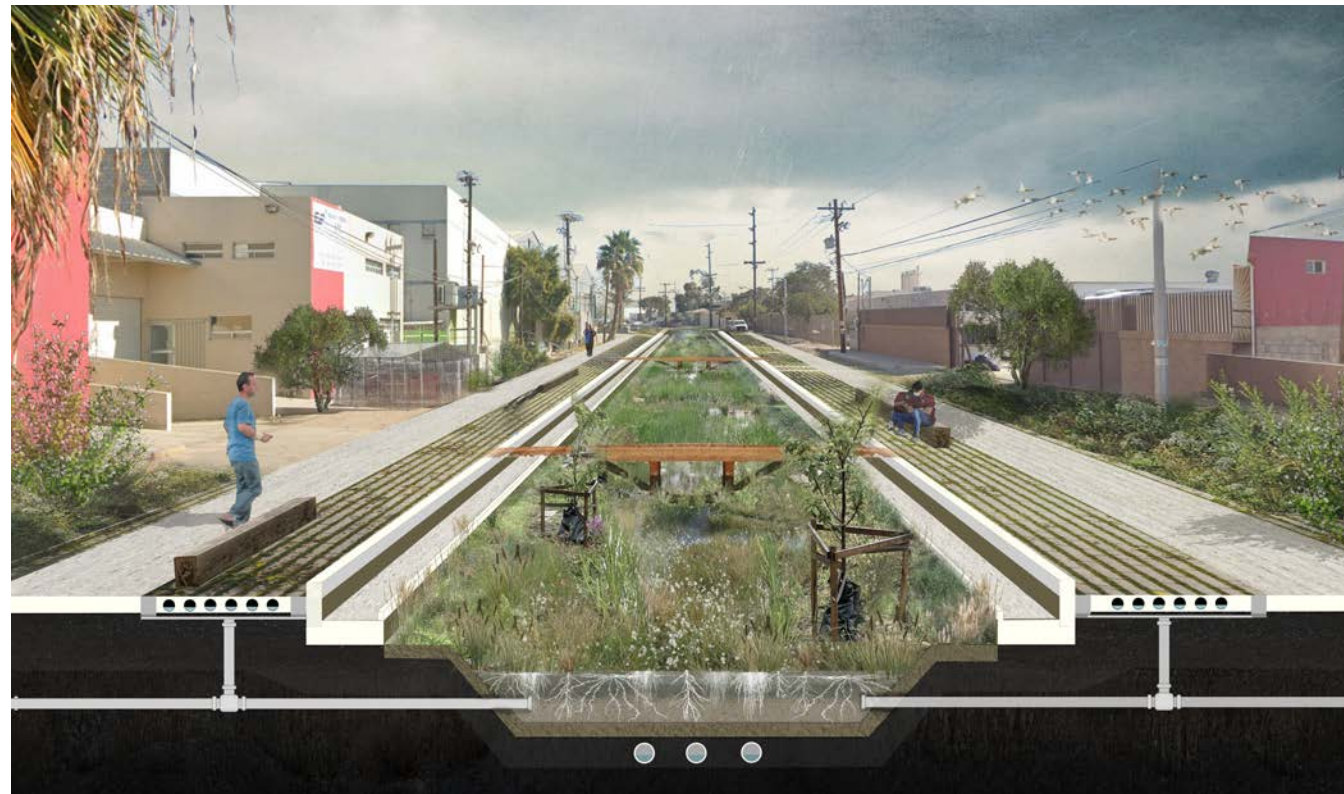


02 | PHASE 1: Introducing the inner court wetland between Maquiladoras

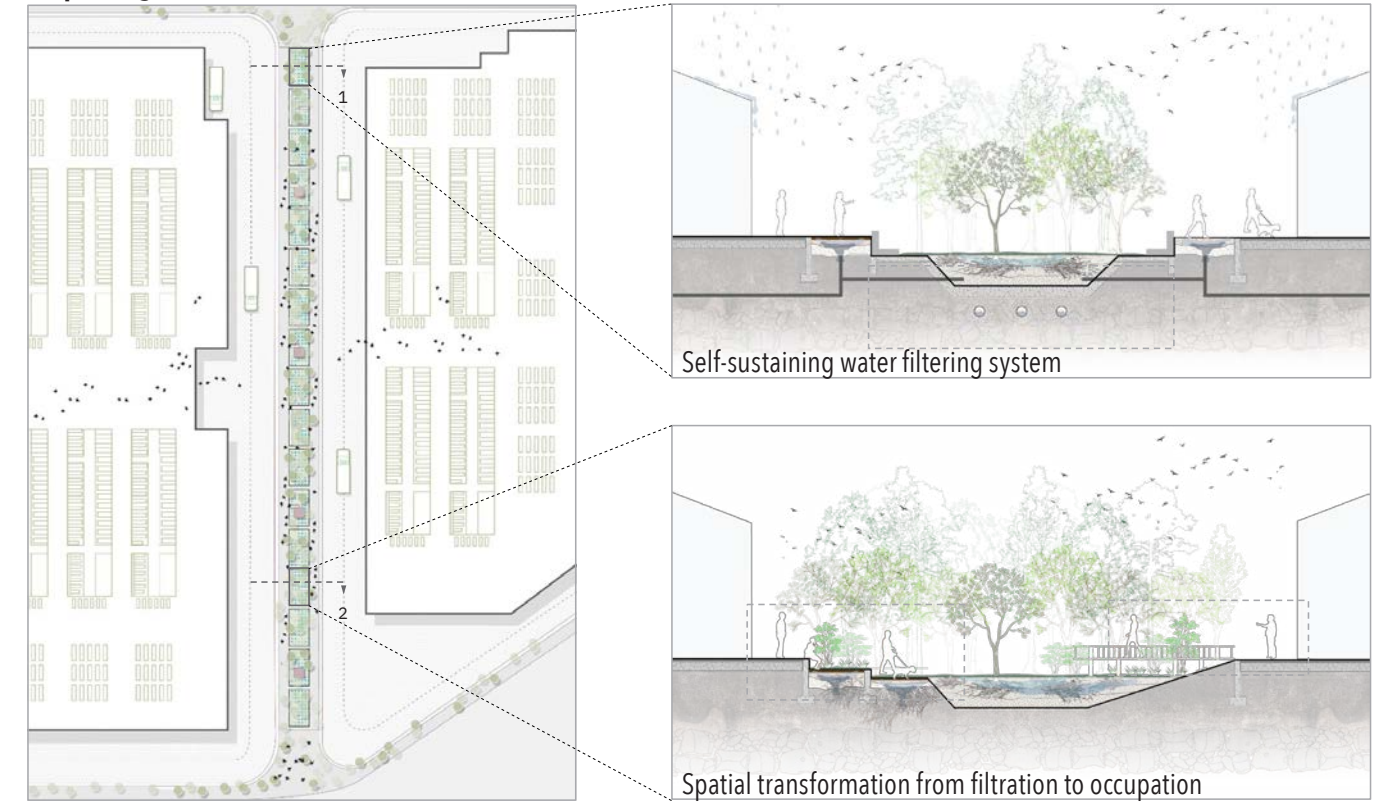
Proposed in Phase 1 are the inner court wetlands as a new spatial and infrastructural system within the maquiladora clusters. Through sectional integration, the wetland treats industrial wastewater while capturing rainwater, forming a hybrid hydrological system within the industrial fabric. To support this process, selected local plant species with strong root systems and high tolerance to industrial greywater will be planted. These plants will promote microbial activity and significantly improve the overall filtration capacity of the wetland.



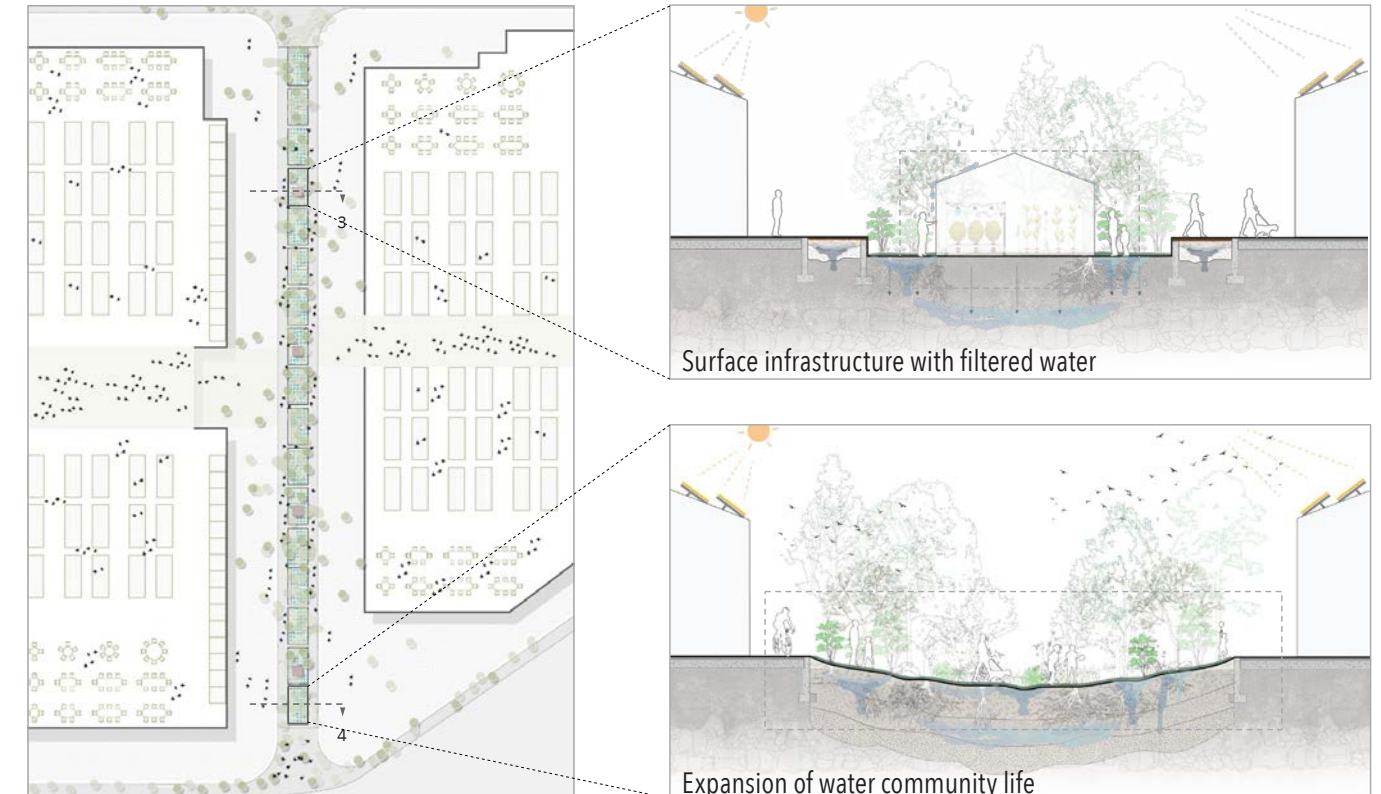
03 | Beginning of water filtration and a new space within the industrial fabric



04 | Emergence of an inner court within industrial clusters

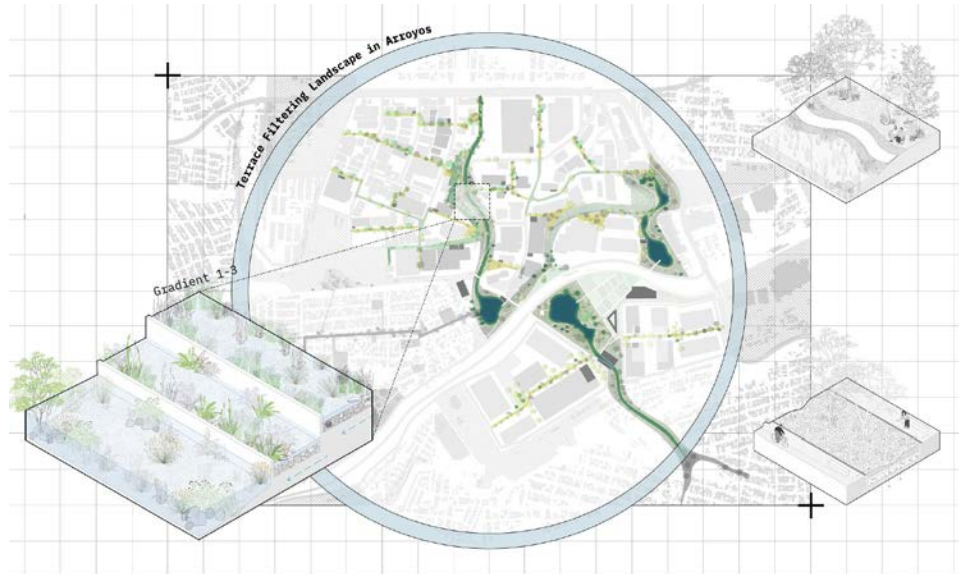


05 | Absorption of an inner court within industrial clusters



06 | PHASE 2: Stepping and Regenerating Water Through Filtration Landscapes

Using the existing topography, water moves slowly through a sequence of stepped wetland terraces, where it is progressively filtered before reaching the public realm. This system functions as a natural channel, guiding water across the site while improving its quality. A portion of the water infiltrates into the ground, contributing to aquifer recharge, while the surrounding slopes are restored as ecological landscapes that serve as buffer zones between maquiladoras.



08 | Reconstructing the continuous creek as a landscape system

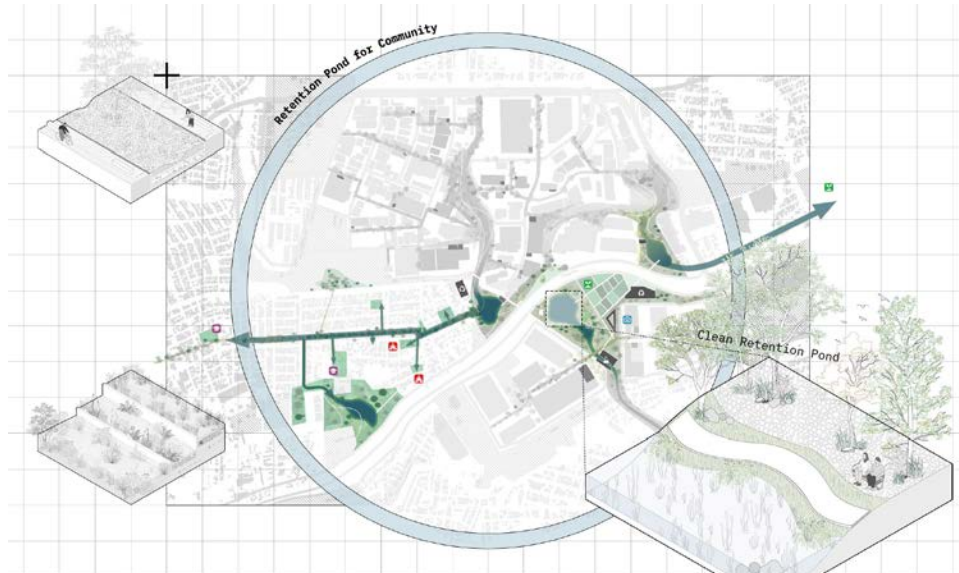


07 | Water descends through stepped terrains to regenerate the landscape



09 | PHASE 3: Transitioning towards a civic landscape and evolving into public ground

In the final stage, it is proposed that water is returned to the community by transforming existing loading areas and parking lots into retention ponds. Composting centers will process organic waste from the community, with the resulting fertilizer reused within the filtering landscape system. At the same time, water from retention ponds will extend into parks and bio swales along main avenues, integrating it into everyday public life. The community will play a central role in constructing and maintaining these water systems.



10 | Integrating filtered water into the public realm



11 | Affordable houses showing living integrated with Maquiladora landscape



12 | Seasonal transformation of water retention ponds



REJUVENATING RIVER

SOFTENING THE WATERSHED

Yangjing Cheng / Yijing Xlao / Tianyi Shi / Zhuoheng YU / Zhong Yang Huang

What if the estuary could recover – without us ever touching it?

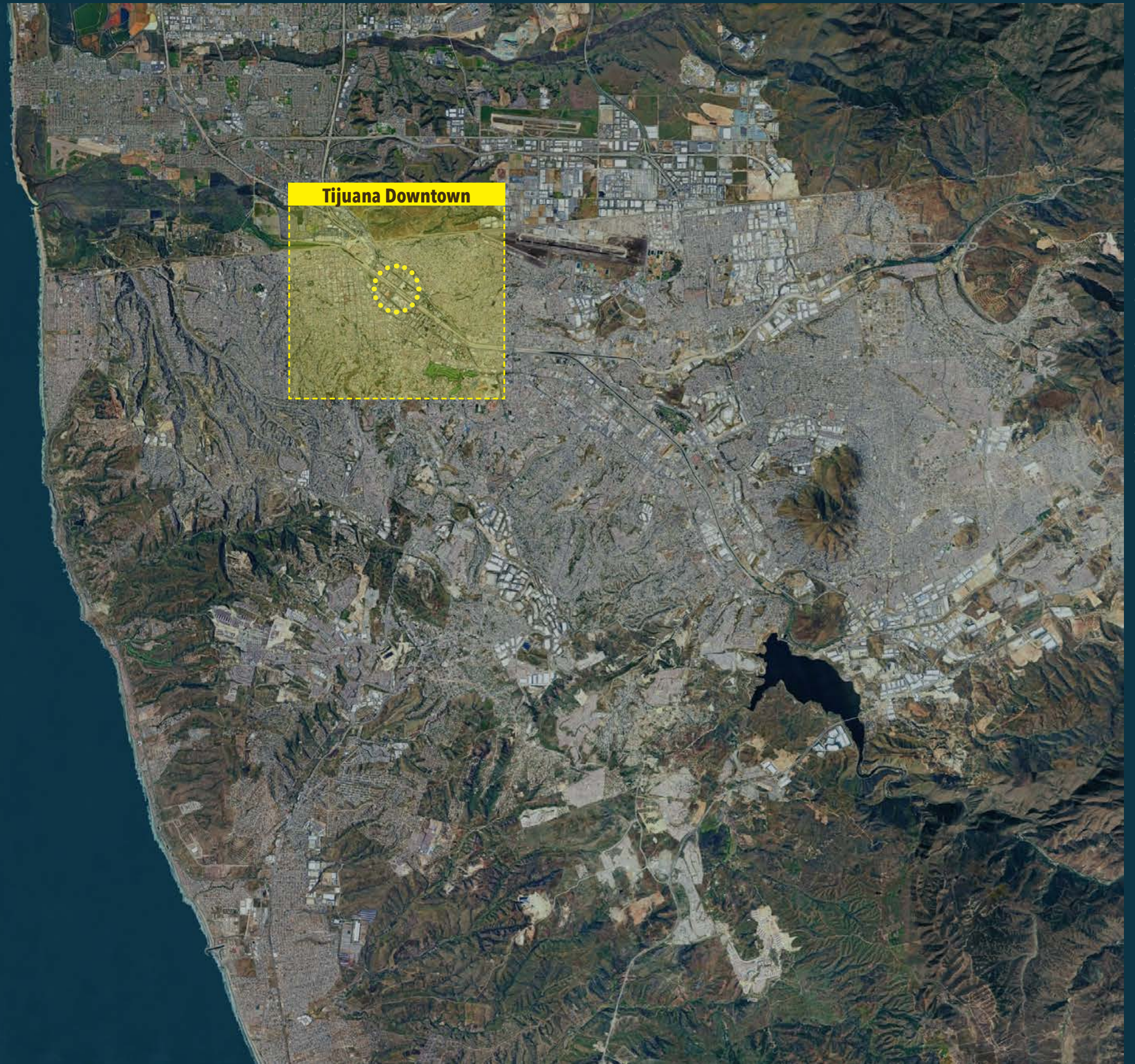
The Tijuana River's natural floodplain was once a critical part of the watershed's hydrology, filtering runoff and sustaining the estuary's ecology.

Urbanization replaced this living system with hardened surfaces, leaving the estuary contaminated and riverside communities trapped in urban heat. This project proposes to restore what the floodplain once did.

Along the tributaries, garbage will be intercepted, sewage redirected, and concrete beds removed to restore permeability and community engagement.

On the former floodplain, vacant lots are proposed to be excavated into sunken gardens functioning as open-air green wastewater treatment facilities, where algae-based purification pipelines filter water as visible landscape installations. Parking lots are proposed repaved with permeable surfaces. Concrete channels beside established gardens will be removed, allowing treated water to recharge the aquifer and deliver cleaner flow to the estuary.

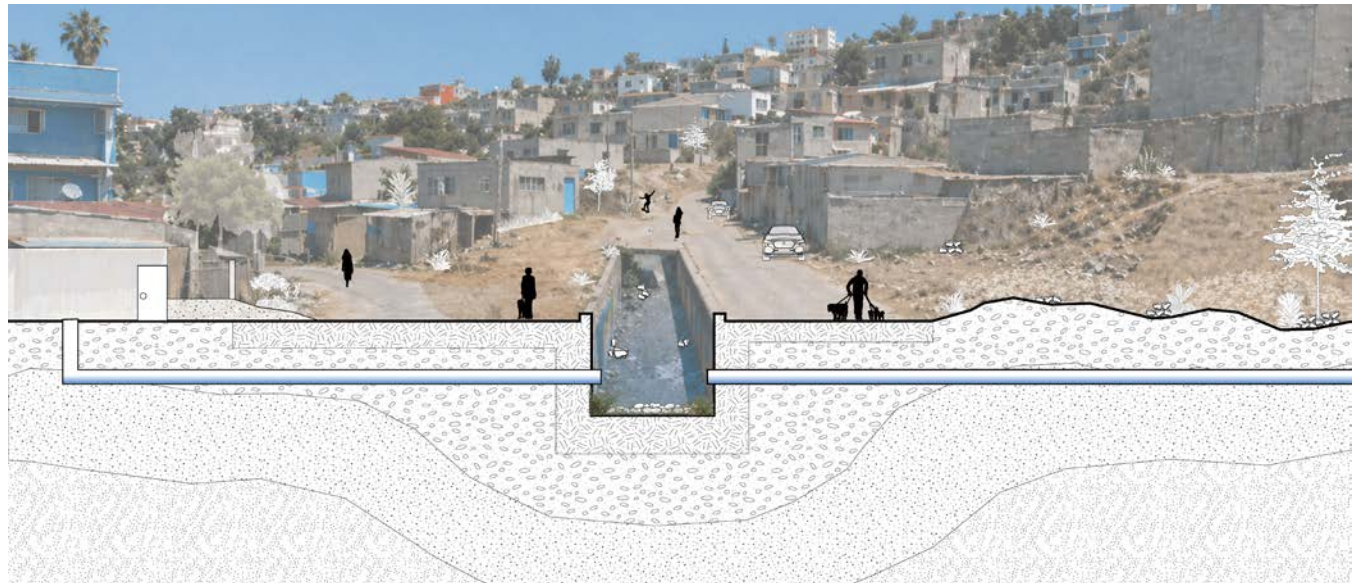
These interventions form a replicable system that can be repeated upstream until the floodplain is restored piece by piece.



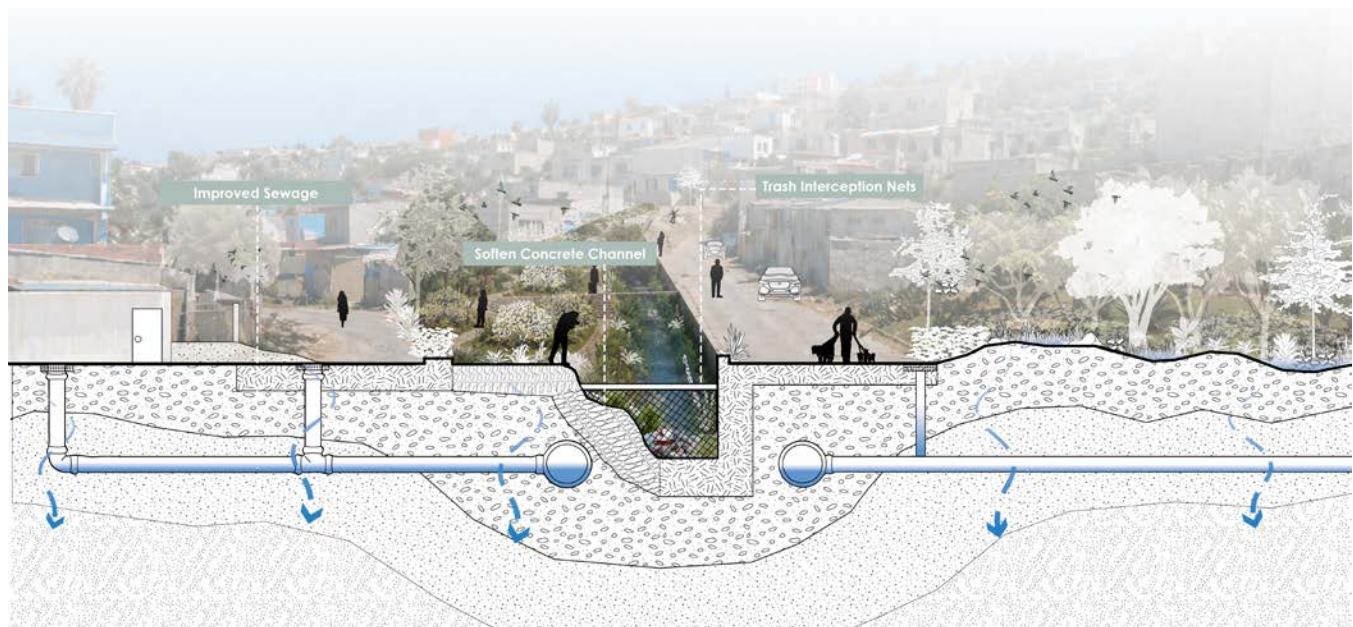


01 | Green Crack

The existing channels are hard-edged, narrow, and disconnected from public life. We propose softening the channel edges, installing trash interception nets, upgrading the sewage connections underneath, and planting native vegetation along the banks. Undeveloped lots next to the channel will become small public spaces where residents can actually see and participate in the river's recovery.



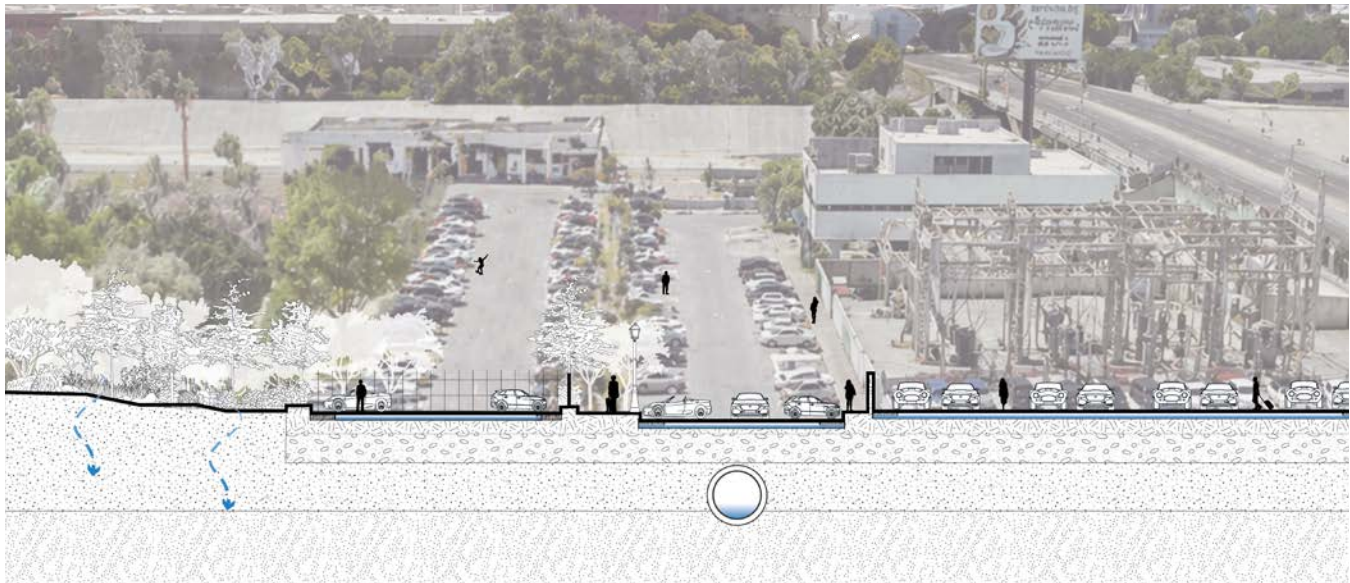
Before



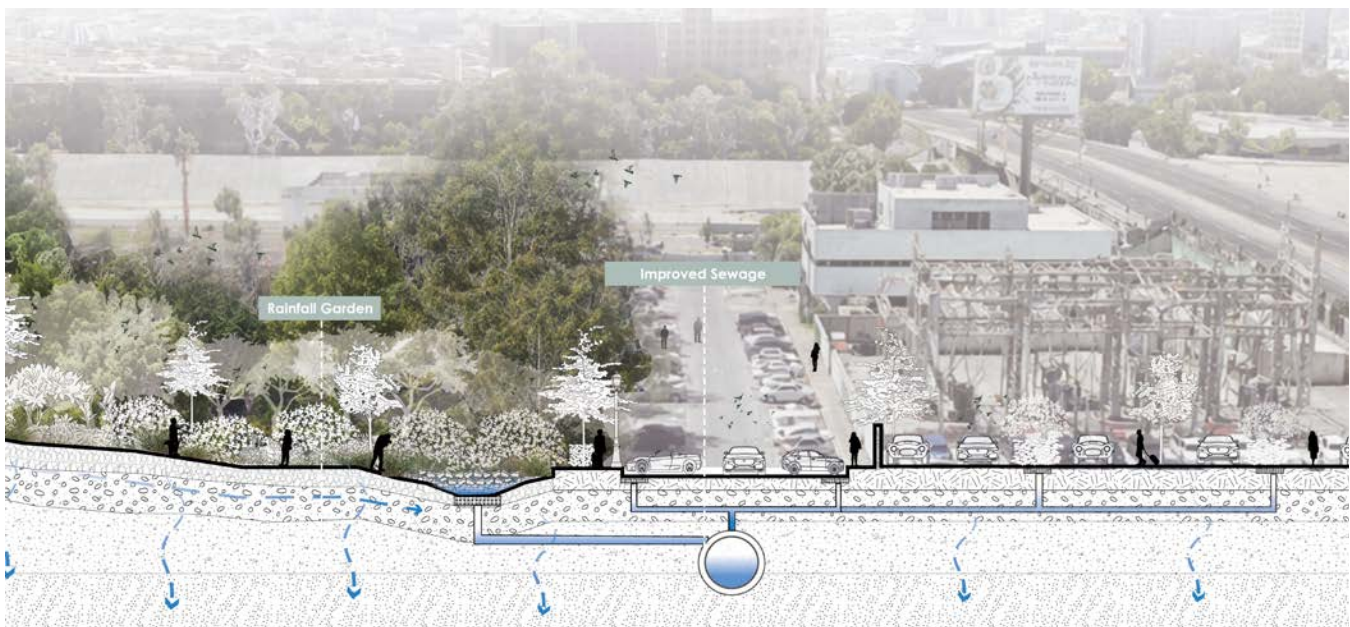
After

02 | Green Corridor

Impervious parking and buried infrastructure, create heat and runoff. What is proposed will replace part of existing hard-surfaced parking lots into planted rain gardens. These green corridors will reconnect fragmented drainage paths while creating usable public space.



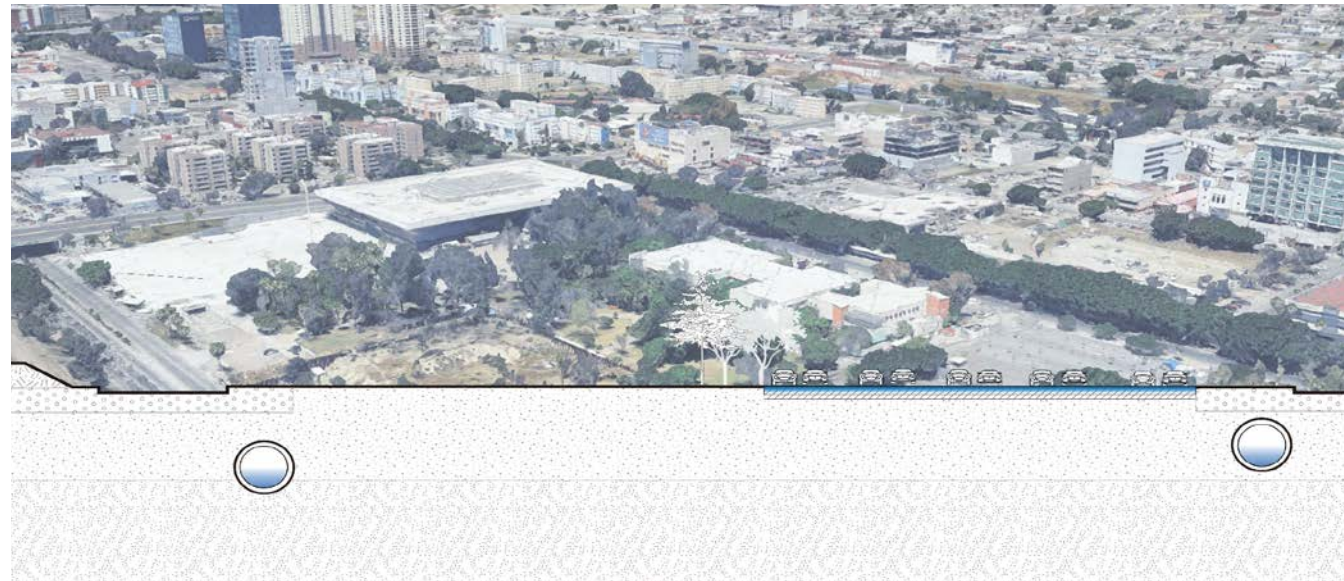
Before



After

03 | Community Wastewater Treatment Plants

Small wastewater treatment plants are to be set up at some vacant lots or oversized parking areas around the sewage outputs and discharge points. These sites are excavated into sunken gardens that function as open-air treatment facilities.



Before



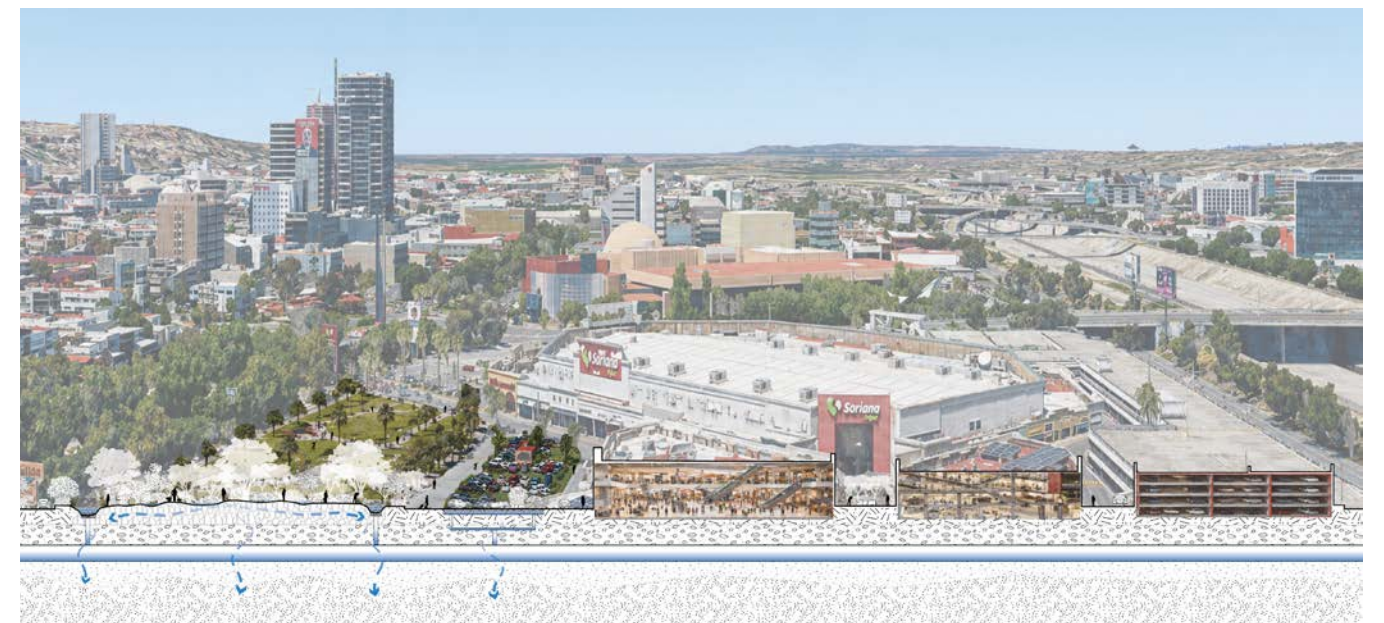
After

04 | Green Corridor

There are currently large areas of hard-surfaced commercial parking along the river. We propose to convert these surface lots to permeable paving with subsurface infiltration layers, add tree canopy, and create community gardens on reclaimed land. Parking capacity will be maintained through structured garages, but the ground surface will become absorbent.



Before



After

05 | Deconcretized Channel

This strategy will transform a concrete drain into a living river corridor through three steps:

- 1_Selective Demolition: Breaking up the channel bed and recycling (reused) concrete as structural fill or building materials.
- 2_Terraced Reconstruction: Using existing walls as a base for stepped planting terraces that slow water flow and maximize filtration.
- 3_Ecological Restoration: Recharging aquifers, restoring habitats, and reconnecting neighborhoods through a functional public landscape.



ARROYO ALAMAR'S CARE COMMUNITY

FROM EXTRACTIVE LANDSCAPE TO CARE-BASED INFRASTRUCTURE

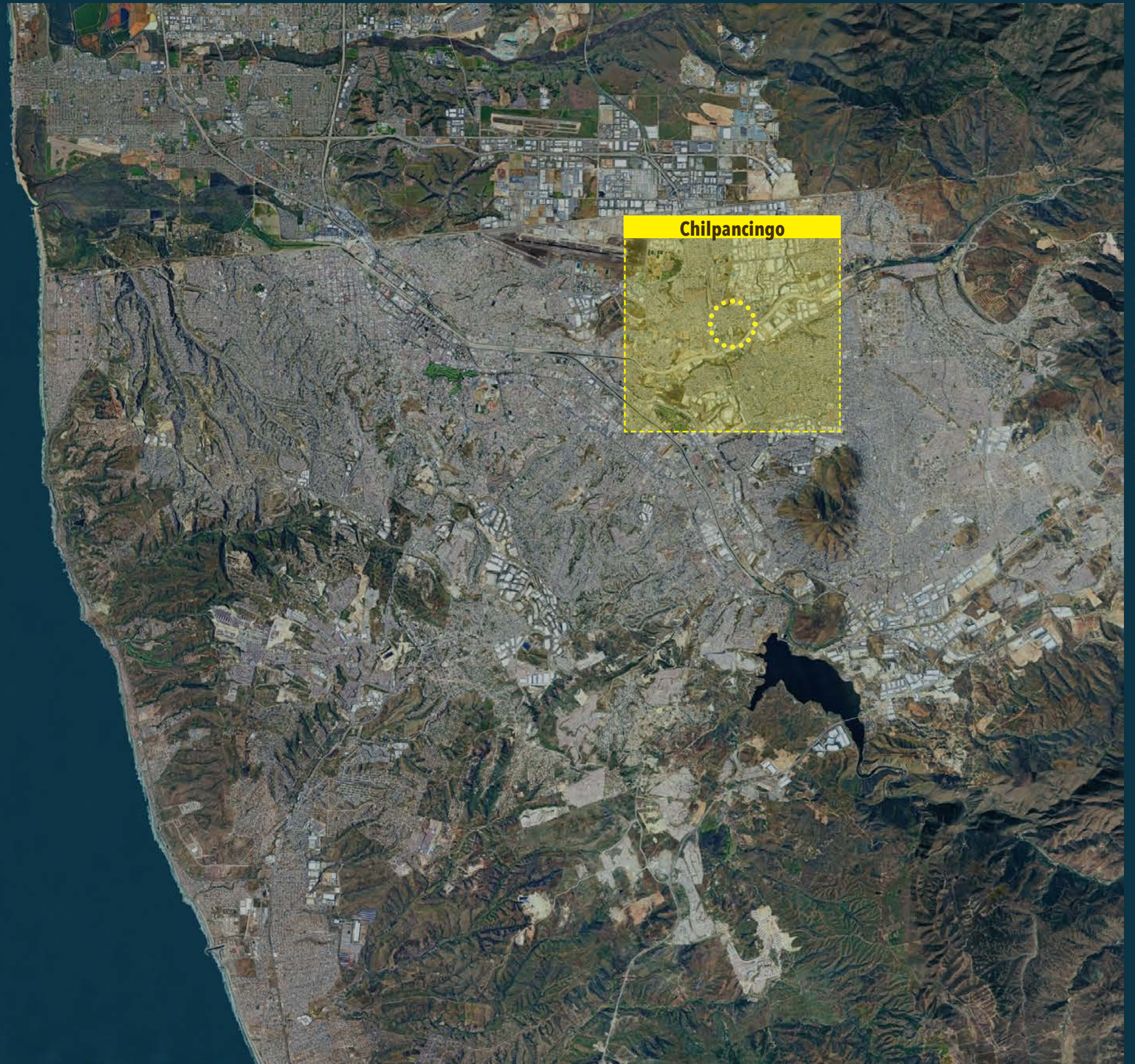
Aishwarya Warad / Giovanna Luz Moreira / Vidhi Trivedi

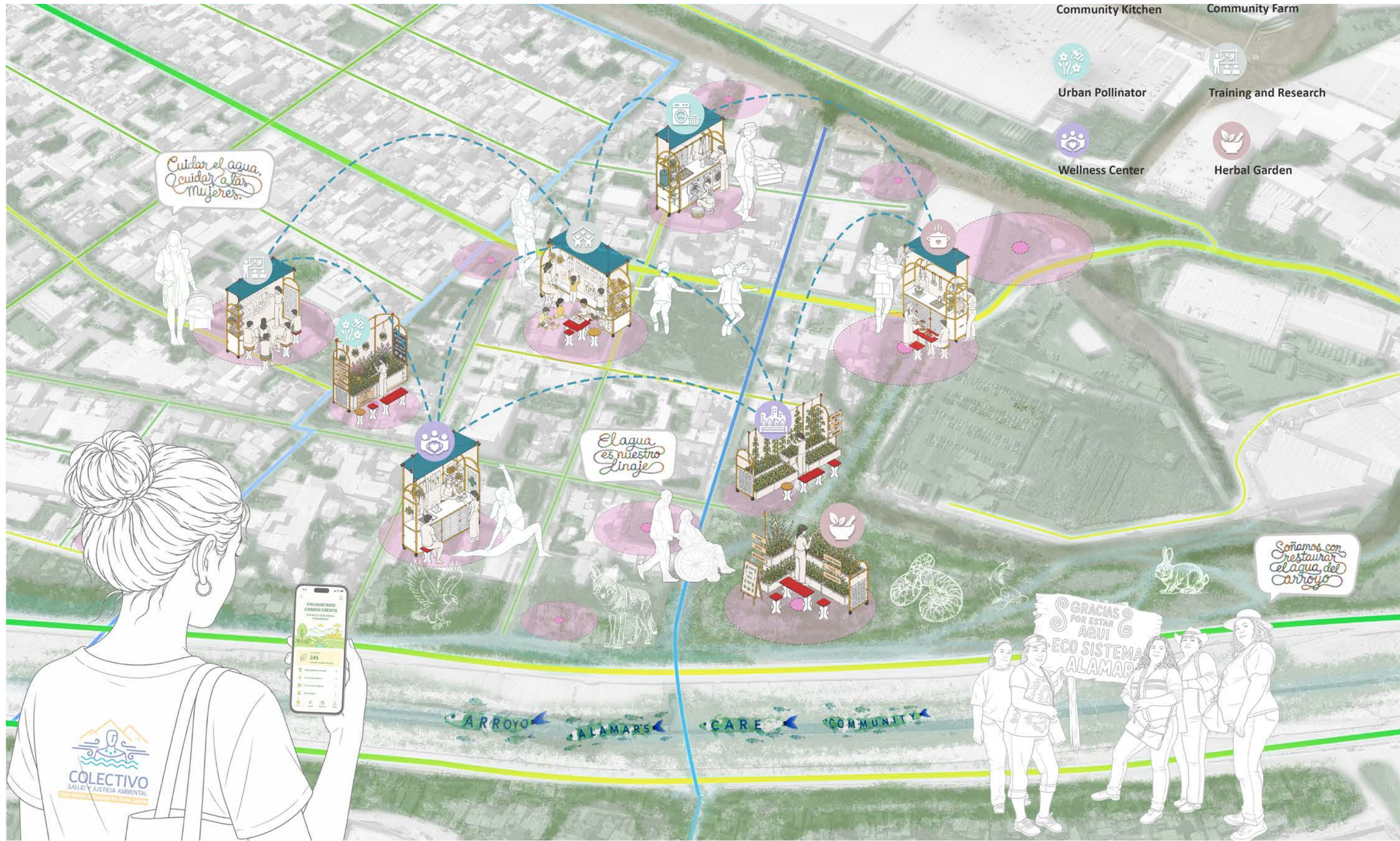
What if collective water stewardship became the central force of envisioning a communal and safe neighbourhood?

This project envisions supporting Colectivo Chilpancingo and allied initiatives in transforming Arroyo Alamar from a landscape of extraction into one of ecological regeneration, communal repair, and cultural reciprocity for women and their families.

Arroyo Alamar's Care Community operates through two key lenses: care for nurturers and care for the environment. In doing so, the project speculates what if collective water stewardship became the primary force in shaping the urban form?.

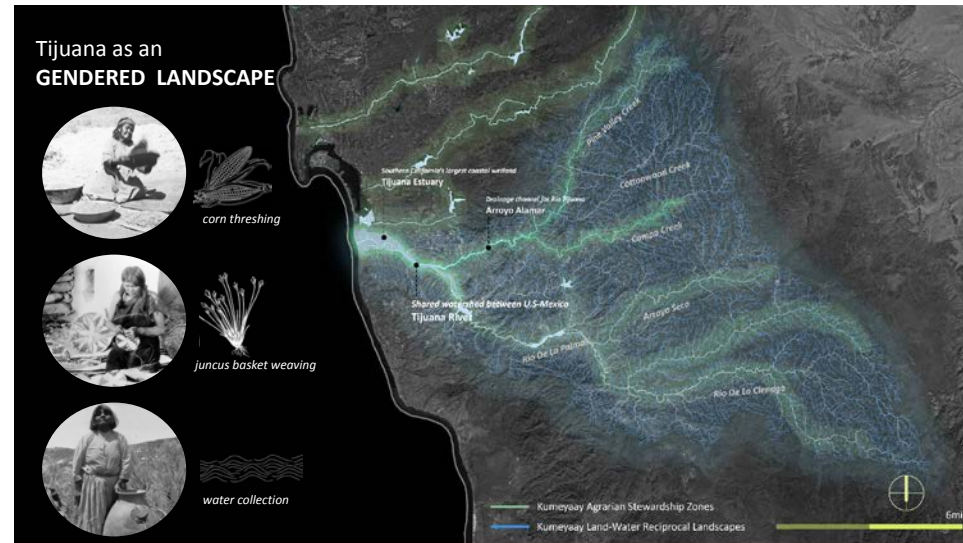
Moving away from top-down water management governance, it proposes a cultural shift rooted in neighbourhood scale collective action. By embedding stewardship in everyday practices, the project strengthens local agency, restores ecological systems, and builds resilient, care based infrastructures that connect social wellbeing with environmental health.





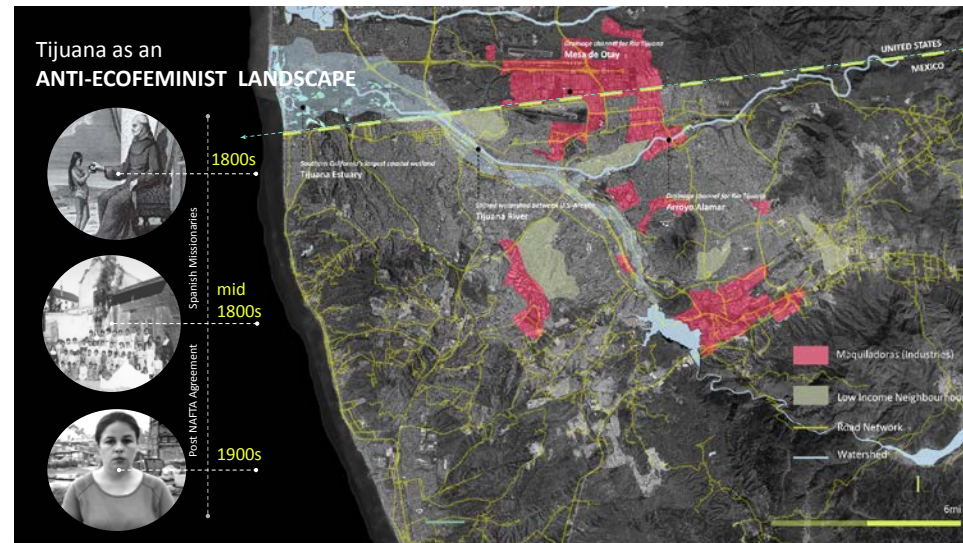
01 | Tijuana as a Gendered Landscape (Pre 1600s)

Women have long sustained Tijuana's landscape through practices of care and culture. For them, relationships with land and water were central to social, spiritual, and ecological life, positioning them as resource managers.



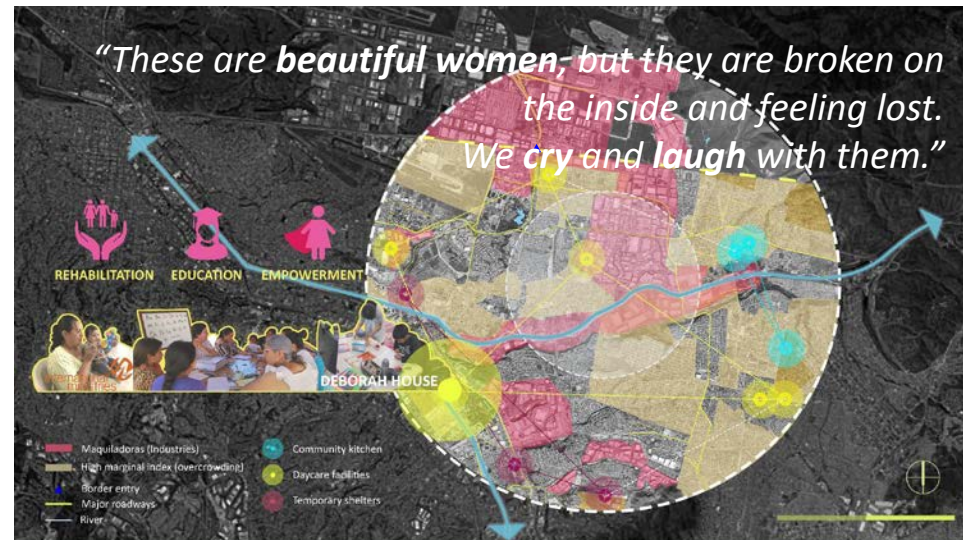
02 | Tijuana as an Anti-Ecofeminist Landscape (Post 1800s)

However, extractive systems of control over time have commodified both water and women, thereby disrupting the balance. This legacy of domination persists today, producing ecological degradation and a distinctly anti-ecofeminist landscape.



03 | Arroyo Alamar's Care Networks (Present)

Amid these conditions, there exists a growing culture of care networks. These women led initiatives provide critical support, agency and advocacy to other women while generating care economies and community stewardship.



04 | Chilpancingo's Oral Histories



05 | Colectivo Chilpancingo's Community Activism



Community Resilience and Repair

06 | Scenario 01: Care and Learn (Building Adaptive Capacity)

Strengthen community resilience through women-led networks that support knowledge-sharing, health awareness, and everyday stewardship, building a foundation for collective response to environmental risk.



Ecological Restoration and Cultural Reciprocity

07 | Scenario 02: Restore and Reclaim (Regenerating Socio-Ecological Systems)

Transform the arroyo into a living system through ecological restoration combined with community-driven incentives that encourage sustainable practices and support socio-ecological recovery.



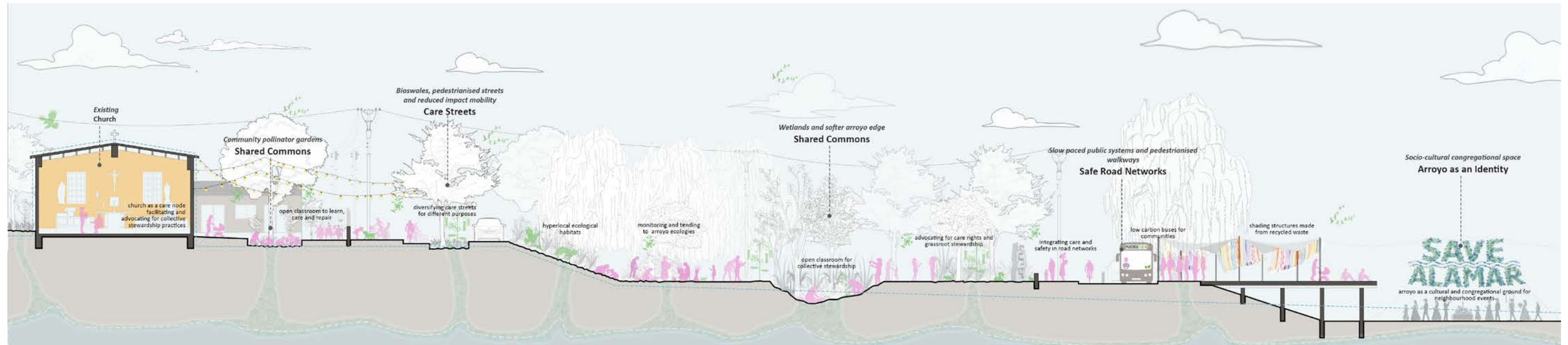
Long-term Equitable Governance

08 | Scenario 03: Govern and Flourish (Enabling Community Governance)

Enable long-term resilience through community-led governance, where residents collectively manage land, infrastructure, and ecosystems to ensure equitable and adaptive futures.



09 | Implementing Care Framework for Arroyo Alamar's Care Communities in the Neighbourhood Core



10 | Implementing Care Framework for Arroyo Alamar at the Interface of Residential Zone and Waterfront Access



11 | Strategy A, Care Infrastructure Nodes
Community kitchens bridge residential and industrial zones, activating streets into safe, walkable corridors.



13 | Strategy C, Regenerative Micro-Systems
Improved hard surfaces serve as community gardens and permeable infiltration zones to reduce urban water runoff into the River



12 | Strategy B, Distributed Care Economy Nodes
Repurposed junkyards and industrial truck parking lots transform underutilized land into vibrant social hubs.



14 | Strategy D, Socio-Ecological Learning Landscapes
A biodiverse waterfront strip restores public access to the arroyo while filtering out polluted urban runoff.

LA CUENCA ENSEÑA

ENVIRONMENTAL EDUCATION AS AN OPENING SPACE OF AWARENESS

Daniela Monroy / Mason Rape / Miguel Santiváñez / Samantha Nowak

What if nature was our classroom?

La Cuenca Enseña is a binational landscape classroom between San Diego and Tijuana, where education and community are the tools to preserve, connect, and activate the unique ecologies of the Tijuana River watershed.

Situated in the coast, canyon, estuary, and arroyo, landscape schools will connect public education, existing non-profit initiatives, and government agencies through shared stewardship and public programming.

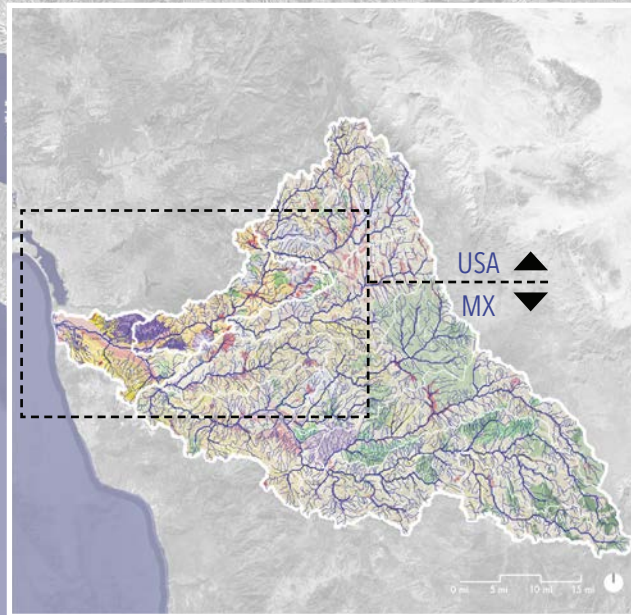
Threatened by maquiladora development, highway expansion, and river concretization, the Arroyo Alamar demands protection and advocacy, signifying our first point of intervention.

La Cuenca Enseña proposes unifying existing initiatives through ecological remediation and community programming – transforming sites of tension into open classrooms.



01 | Tijuana River Watershed

Water flows across borders, connecting diverse landscapes. By understanding the watershed at this scale, we reframe the region through ecology rather than politics.



ALAMAR SUB-BASIN

PACIFIC OCEAN

TIJUANA SUB-BASIN

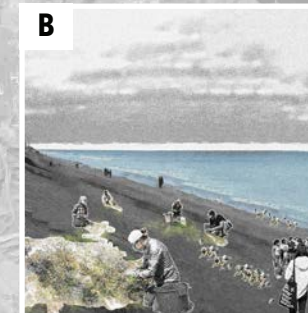
03 | Sub-Basin Landscapes

It is proposed that four distinct ecosystems become a classroom. This framework for binational collaboration is rooted in hydrology, not borders.

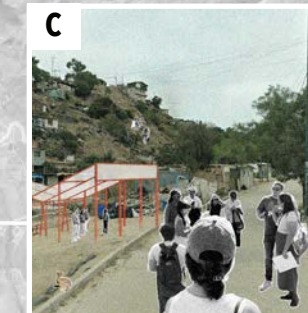
ESTUARY



COAST



CANYON

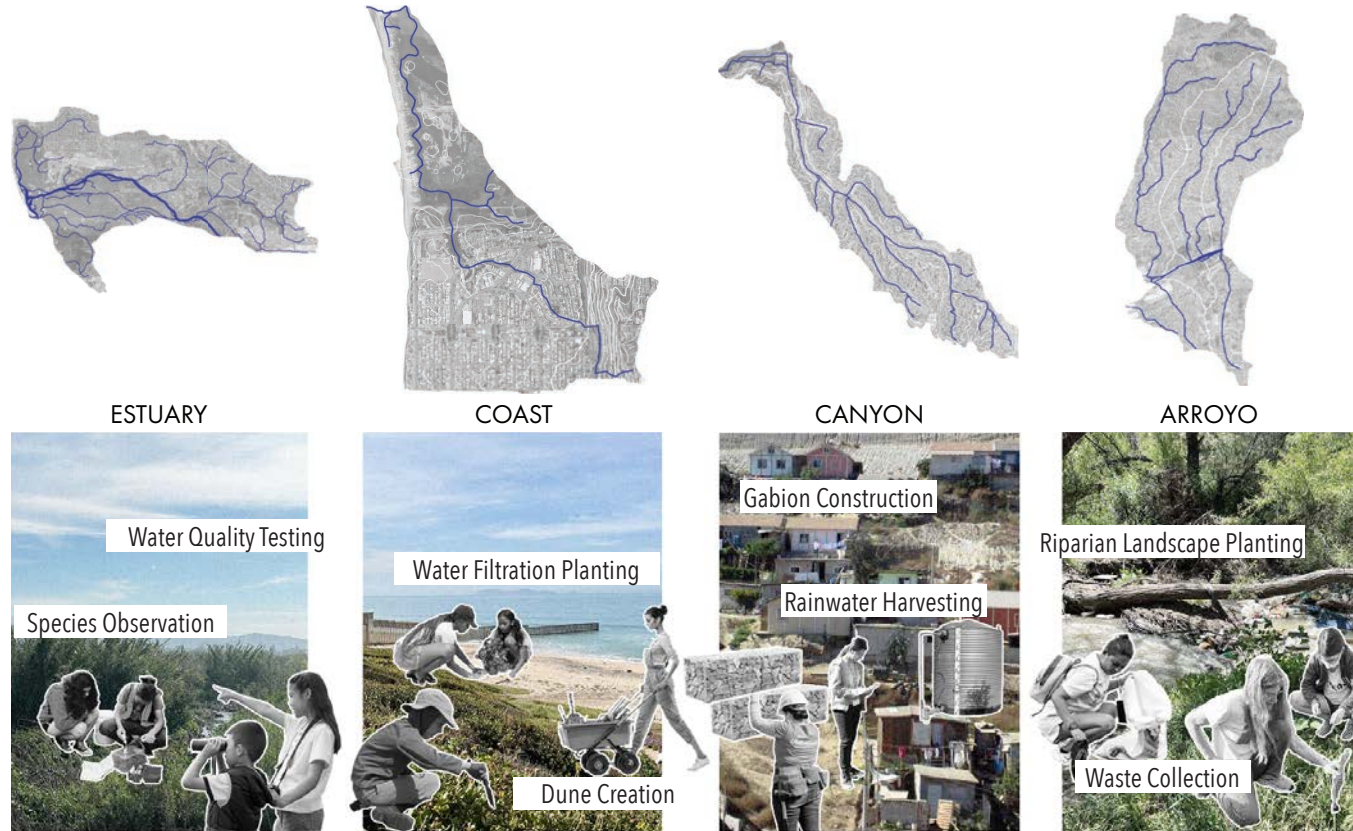


ARROYO



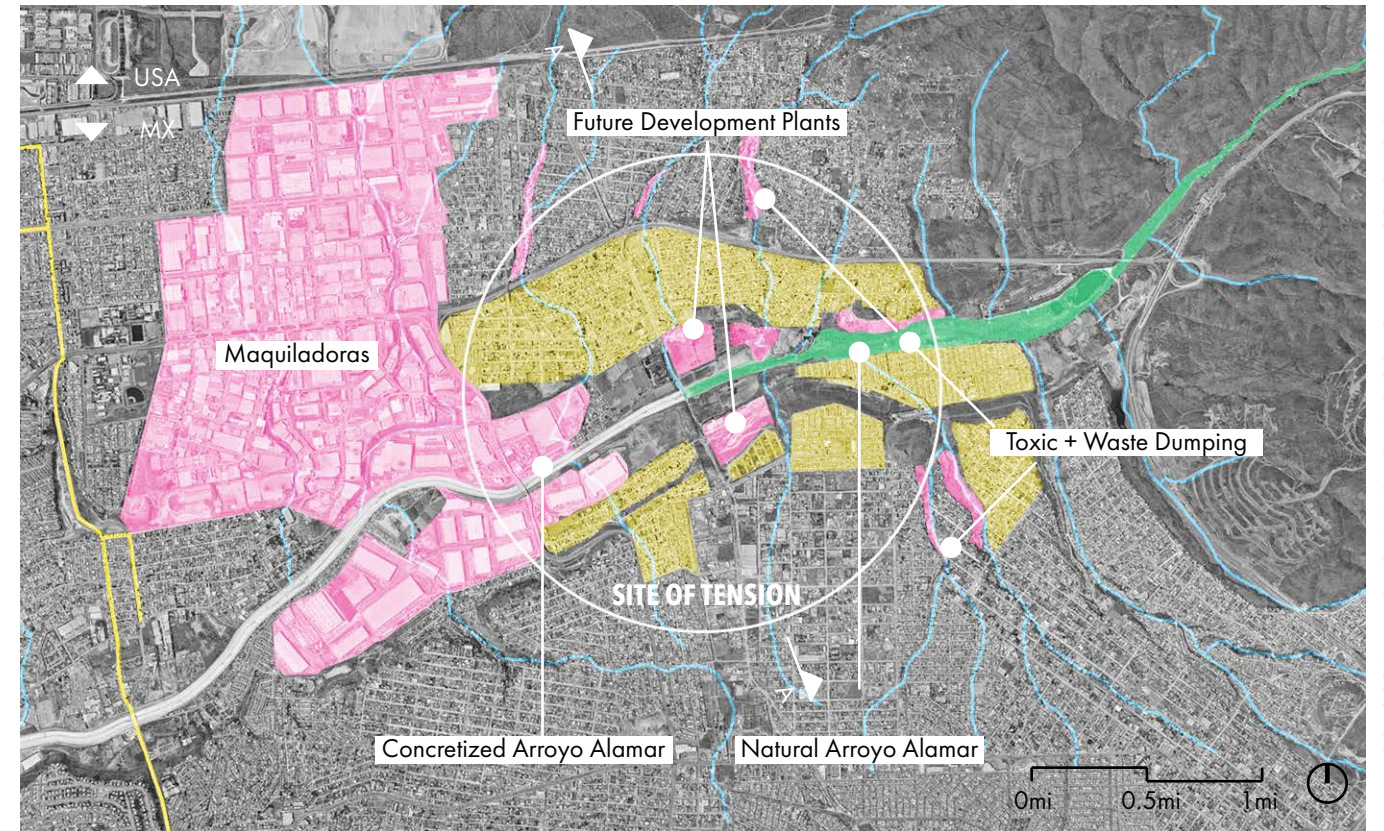
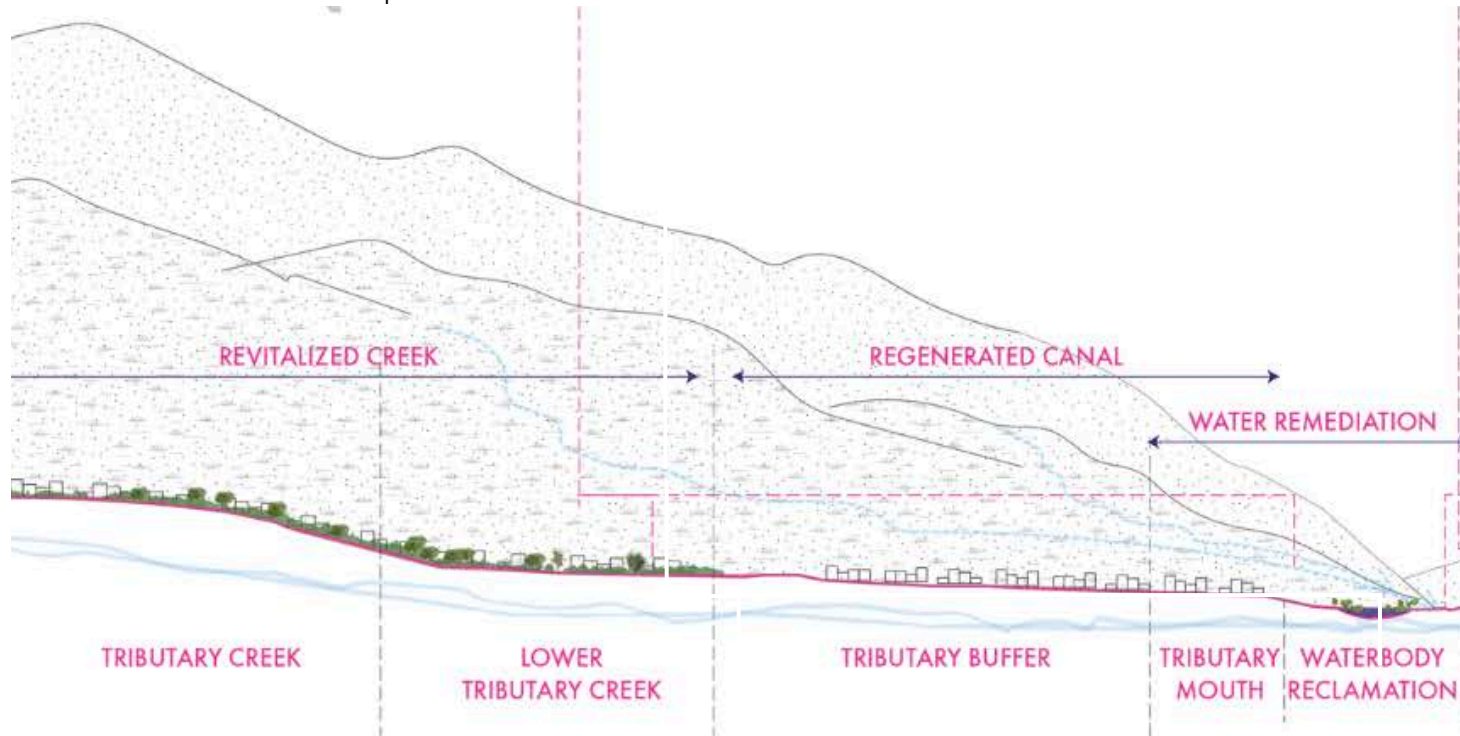
02 | Tijuana and Alamar Sub-Basins

Within this sub-basin, the Tijuana river meets the Alamar Arroyo between San Diego and Tijuana. This convergence becomes our site of intervention.



04 | Learning From the Landscape

Education and stewardship will position communities as partners. Field programs and ecological monitoring will bridge divides across the binational landscape.

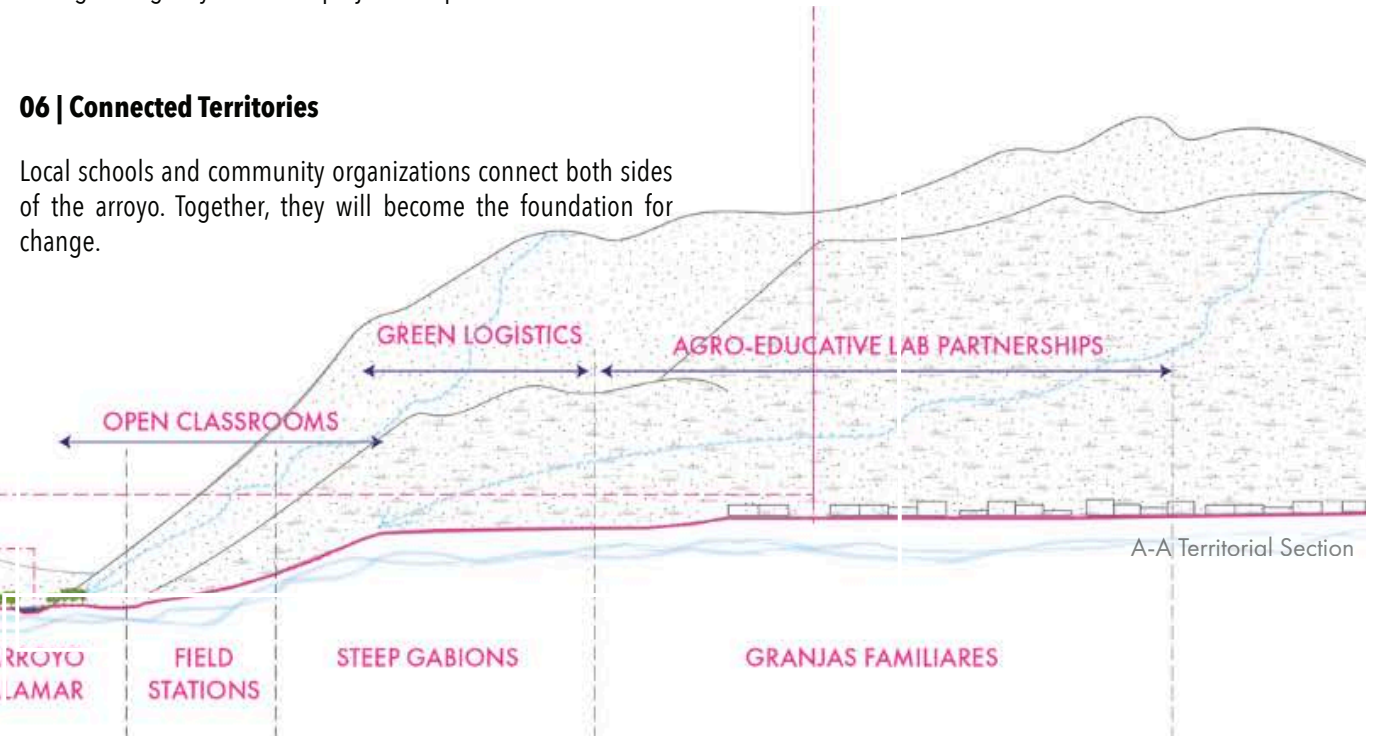


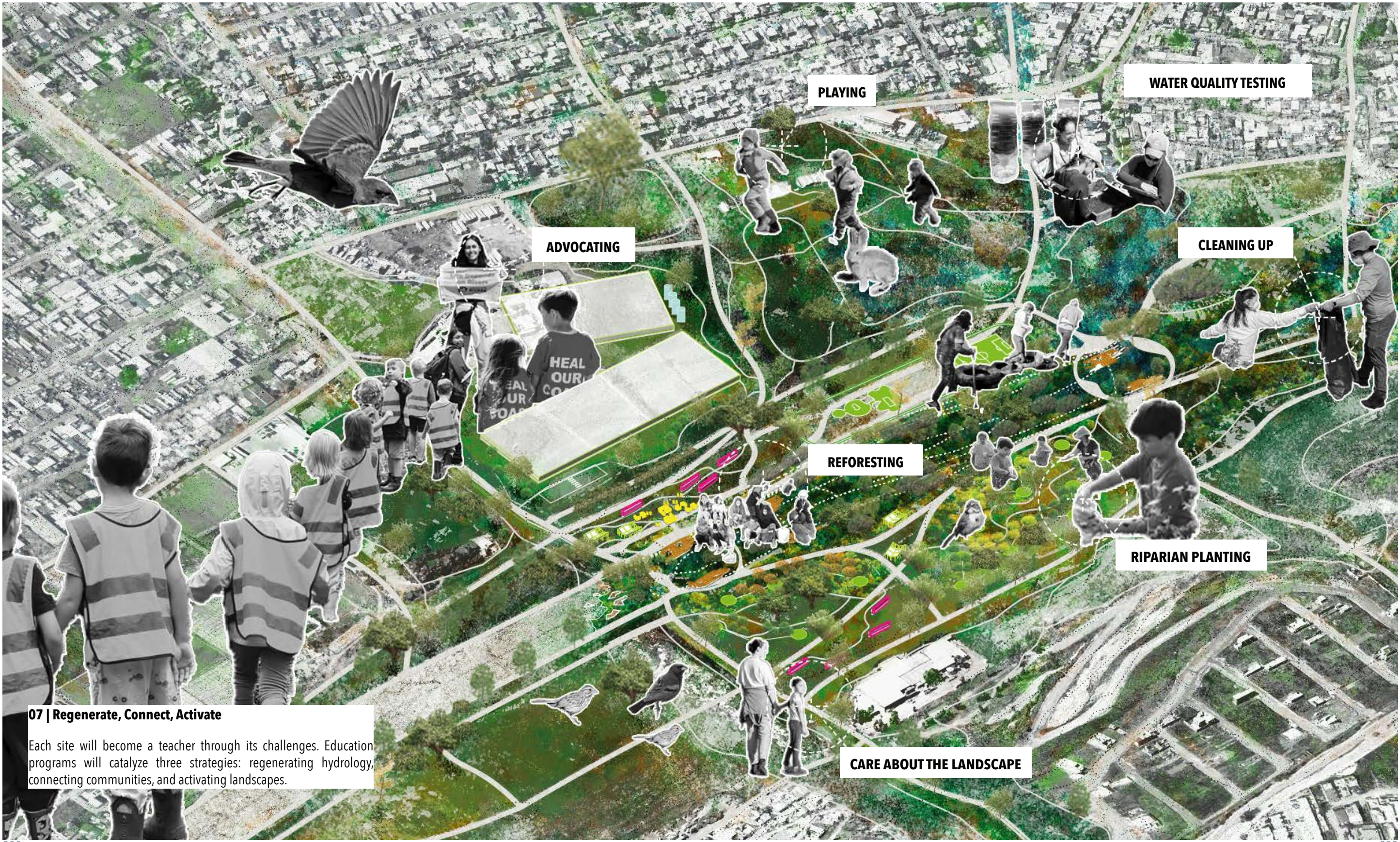
05 | Alamar Arroyo Threats

The last green corridor of the Alamar faces extinction from maquiladora expansion and highway construction. This ecological urgency drives the project of repair.

06 | Connected Territories

Local schools and community organizations connect both sides of the arroyo. Together, they will become the foundation for change.



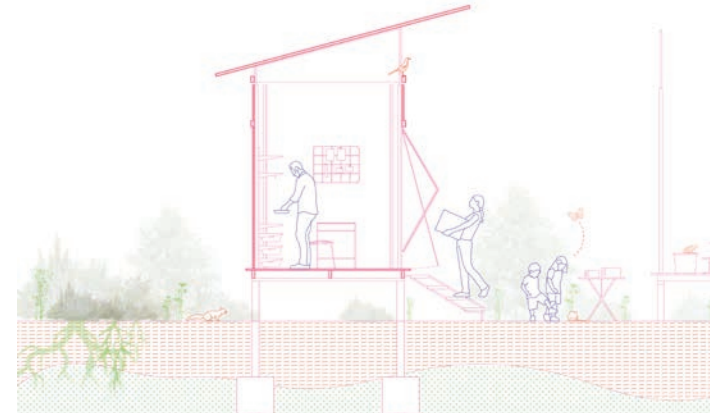


07 | Regenerate, Connect, Activate

Each site will become a teacher through its challenges. Education programs will catalyze three strategies: regenerating hydrology, connecting communities, and activating landscapes.

09 | Up from the Arroyo Alamar

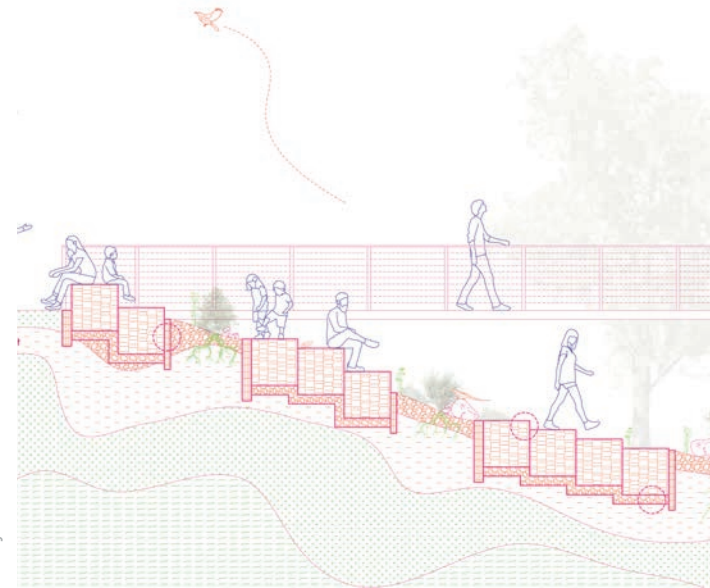
Steps will draw people into the landscape, creating space for play and learning. Repairing landscapes will become an act of care through community stewardship.



08 | Landscape As Learning Infrastructure

Where the natural arroyo meets the concrete channel, a new relationship emerges between landscape and infrastructure, a space for restoration, connection, and access to the water.

Interventions as field stations will become a space for learning about how to recycle, how to build, and how to work with reclaimed materials.



10 | Materiality and Integration

Structural rigor will meet landscape integration. Pavilions and ground systems are designed to work together thoughtfully.



TOWARDS IMPLEMENTATION

CLIMATE & POLICY PROVOCATIONS

ADAPTIVE CAPITAL

HOW CAN FINANCE AND GOVERNANCE BE ALIGNED TO SUPPORT LONG-TERM STEWARDSHIP OF A BINATIONAL WATERSHED?

By Jacob Benoist, Fabricio Correa Lara, Leyre Jimenez Martin-Moyano, Ines Mauduit, Daria Richman
Price In collaboration with: Waylon Matson, 4Walls International



View from the border wall. Ines Mauduit

This project explores how adaptive capital can function in the binational Tijuana River Watershed, a region where environmental conditions flow across the border, but governance and finance are fragmented. We developed a coordinated, cross-border adaptive platform that combines resilience finance, blended capital, insurance mechanisms, and governance coordination into one system. Through case studies of climate finance precedents, watershed governance models, and stakeholder perspectives, including field research from our trip to San Diego, we analyzed why existing structures are not working and identified where intervention was possible.

Friendship Park. Nanzi Muro >>>



<<< Adaptive Capital Cross
Border Finance Concept
<<< Adaptation and Resilience
Finance Glossary and Cases

PROBLEM UNDERSTANDING

In the Tijuana River watershed, communities live with chronic pollution, failing wastewater infrastructure, and 1,300 consecutive beach closures that harm health, ecosystems, and local economies across five jurisdictions. Billions of dollars flow through the Cali-Baja region every year, yet adaptation and climate resilience needs remain underfunded and fragmented, especially for communities. Existing institutions like NADBank and IBWC are not fully matching the scale of the crisis, leaving a governance and finance gap where those most affected have the least control over capital.

OUR PROCESS

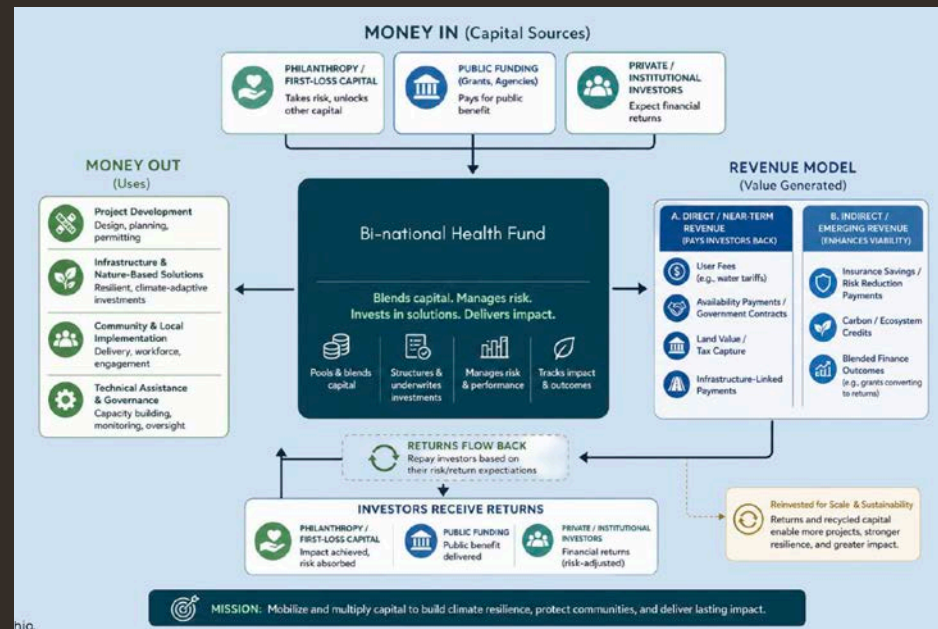
In the Tijuana River watershed, communities live with chronic pollution, failing wastewater infrastructure, and 1,300 consecutive beach closures that harm health, ecosystems, and local economies across five jurisdictions. Billions of dollars flow through the Cali-Baja region every year, yet adaptation and climate resilience needs remain underfunded and fragmented, especially for communities. Existing institutions like NADBank and IBWC are not fully matching the scale of the crisis, leaving a governance and finance gap where those most affected have the least control over capital.

EARLY LEARNINGS

- ABSENCE OF STRUCTURES THAT CAN REDIRECT EXISTING FLOWS.
- TOP-DOWN SYSTEMS ALONE ARE NOT ENOUGH.
- THE PEOPLE HOLDING THIS SYSTEM TOGETHER ARE ON THE GROUND.
- THE CURRENT MODEL IS NOT MEETING THE SCALE OF THE NEED.

EARLY QUESTIONS

- WHAT KINDS OF FUNDING MECHANISMS ALREADY EXIST?
- WHY ARE THE EXISTING SYSTEMS NOT ENOUGH?
- WHY IS FUNDING SO FRAGMENTED?



GOVERNING PRINCIPLES

- Framework is well defined and agreed upon by stakeholders
- Understanding financial mechanism and risk alleviation
- Tiered set of actions that ensures short, medium and long-term success of the fund with different stakeholders

FINANCIAL PRINCIPLES

- Adaptive capital flows across the border like water and pollution
- Adaptation finance is generated by and continuously reinvested into the communities most impacted
- Maquiladora growth directly contributes to watershed resilience
- Environmental risk reduction generates measurable returns

A STRATEGIC OPPORTUNITY: BINATIONAL RESILIENCE FUND CONCEPT

The governance model for the Binational Adaptive Capital Platform builds resilient finance through three phased steps, embedding community participation from day one via FPIC and local data frameworks. It starts immediately with NADBank/IBWC for quick capital deployment without new legislation, though limited to public actors. It would expand in 2-4 years via Joint Powers Authority to include cities and community reps like Casa Familiar; and in 5-10 years becomes a permanent Green Bank leveraging 8.6:1 private capital with co-governance on projects.

WHY NOW?

- USMCA Treaty - attach environmental finance commitments to NADBANK
- Shared financial exposure between five jurisdictions
- New Mexican law means mandated compliance for industrial discharge

Map of Sample Fund Stakeholders and Tijuana River Watershed >>>



**"IF YOU'RE NOT INNOVATING,
YOU'RE IMITATING"**

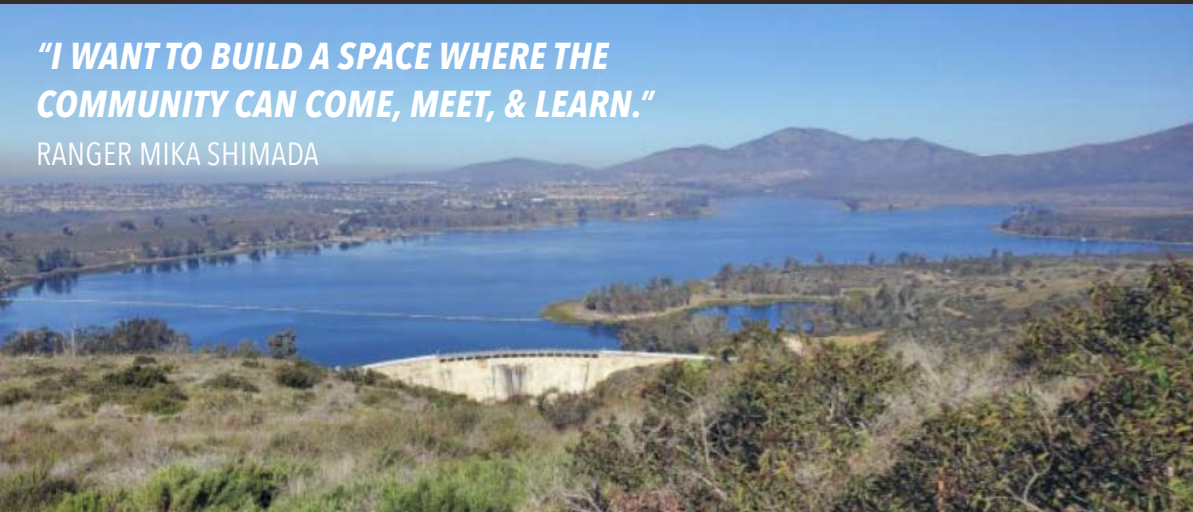
WAYLON MATSON, 4 WALLS
INTERNATIONAL

Image: Imperial Beach. Ines Mauduit

BINATIONAL BELONGING

HOW CAN OTAY VALLEY REGIONAL PARK FUNCTION AS A LIVING LEARNING LAB?

by Amara Leazer, Cassandra Kise, Ryann Busillo, Siddhi Vora
In collaboration with: Rangers Mika Shimada and Wendy Miller



Otay Valley Regional Park exists at the intersection of ecology, infrastructure, education, and public life. Unfortunately, the park remains underutilized by the community and institutionally fragmented, while facing challenges related to public safety, limited staffing, land loss, and low community engagement. In collaboration with Ranger Mika, this project explores how OVRP could be transformed into a living learning lab centered on stewardship, education, and community belonging. We seek to develop an actionable plan for OVRP to build pathways to community engagement, employment, and environmental education, while addressing the layered challenges OVRP faces.



<<< Link to
OVRP Learning Lab
Concept and Case Studies

What If....
**OVRP was a living learning
lab where stewardship created
belonging, education, & green
job pathways?**

PROJECT GOALS

- Build on operationalizing a living learning lab for the community
- Create an actionable framework
- Design for access and belonging
- Translate case studies and precedent into OVRP-specific learnings

FOCUS AREAS

- Community Engagement
- Green Jobs
- Vulnerable Populations
- Funding Methods

CASE STUDIES AND APPLICATIONS



GULL ISLAND INSTITUTE, FALMOUTH, MA
Gull Island Institute shows how place-based education & stewardship can cultivate early engagement, workforce pathways, & sustained relationships between communities, schools, and the landscape.



FLOATING UNIVERSITY, BERLIN
Built within a former rainwater retention basin, Floating University shows how underutilized infrastructure can become living learning labs with ecological experimentation, education, & public programming.



OUTDOOR LAB FOUNDATION, GOLDEN
This is a 501(c)(3) that serves ~5,000 sixth-grade public school students/year through immersive, week-long experiences & is one of the few district-wide outdoor education programs in the U.S.



BRONX RIVER ALLIANCE, NEW YORK
The Bronx River Alliance shows that community governance, local hiring, & consistent activation, paired with dedicated partners, can unlock transformation & funding beyond what public agencies achieve alone.

KEY PRINCIPLES

- Governance before programming
- Activation as evidence - prototype, test, experiment
- Built-pipelines/pathways to green jobs and training
- Institutional anchors to
- Unlock scale

POTENTIAL PARTNERS

- Sweetwater Union High School District
- Southwestern College
- Local nonprofits
- Tribal & cultural knowledge holders
- Conservation groups

POTENTIAL PROGRAMS

- Science workshops
- Youth stewardship crews
- Habitat restoration days
- Seasonal field Courses
- Community design workshops
- Artist residencies & public events



LIVING LAB ROADMAP AND ACTION LAYERS

EXPERIMENTATION BEGINS NOW

- Audit & map all current programming
- Identify regions within the park that could be revitalized for new programming
- Prototype the experience of the future: invite in local artists or educators to temporarily activate the space & host a culminating event
- Pilot a small program like a green job workshop or citizen science days: gather data regarding participation, retention, & learning outcomes as a evidence for future funding
- Host a community competition or workshop to name the "living lab"

PLACE-BASED LEARNING & SERVICE

- Pilot a summer semester program with the Sweetwater Union High School District
- Host a "syllabus-of-the-future" workshop day to dream up what opportunities may pair well between community wants and current park needs.
- Partner with Southwestern Community College's new B.S. in Transborder Building Design & Technology program to design facilities and classrooms

LONG-TERM FINANCIAL HEALTH

- Budget Audit >> Identify unstable funding and capital freed by shifting to a Living Lab model
- Financial Model Feasibility >> Test foundation vs. conservation trust structures against long-term goals
- Stakeholder Working Group >> Convene principals, community college, & workforce partners around long-term investment
- Land Value Capture >> Assess river-adjacent real estate as a sustainable finance mechanism

SPATIAL STORYTELLING

HOW CAN SPATIAL STORYTELLING MAKE INVISIBLE ENVIRONMENTAL AND NARRATIVE SYSTEMS LEGIBLE AND ACTIONABLE?

by Antonio Mochmann, Dara Towriss, Emily Su
In collaboration with: San Diego Coastkeeper & Proyecto, Fronterizo de Educación Ambiental (PFEA)



Saturn Boulevard Sewage Hotspot. Credit: Dara T.

Many competing narratives exist around the US-MX border, but not all voices are heard. What difference would it make if these stories were shared? What if there was a way to capture these stories in a systematic fashion, where harm was documented with geographic and temporal specificity to create an ever-growing record of impact, displaying the breadth of affected voices across this binational region? Our project combines field research from our trip to San Diego and post-trip interviews with key stakeholders to explore these questions through the lens of a theory of change. We leverage platforms like ArcGIS and its StoryMaps feature to experiment different ways to capture, collect, and display these narratives.



<<< Links to
Presentation &
Storymap

CORE CHALLENGE: MANY NARRATIVES, NOT ALL ARE HEARD

"Low-income communities of color near Saturn Boulevard face higher rates of asthma, nausea, and respiratory illness."

Sarah Davidson, Surfrider San Diego

"I firmly believe that by next year, the sewage problem will go away."

Rep. at U.S. International Boundary and Water Commission

"[There is a deep] disconnect about who is in the coastal communities. [Some people] do not see themselves on the coast."

Darbi Berry, San Diego SDRCC

KEY LEARNINGS

Certain narratives reduce a decades-long, multi-layered crisis to an infrastructure fix that's almost done, and leaves out entirely the communities, the health impacts, and the history that got us here. We realized the need to highlight the many stories lost underneath these powerful organizational and institutional narratives.

WHAT IF...?

Residents & stakeholders from the U.S. and Mexico viewed their sides of the watershed as reflecting each other?

We imagined the border did not exist, and the region was governed by natural boundaries?

The watershed was seen, planned, and managed as a continuous, connecting life force and corridor for the region?

THEORY OF CHANGE

Personal, georeferenced stories collected over time become a living evidentiary record, one that supports litigation, moves legislators, and makes it harder for institutions to claim the problem is solved when communities say it isn't.



Theory of change model

"80% OF SAN DIEGANS HAVE NEVER SEEN THE BORDER."

TEDDY CRUZ

CORE ASSUMPTIONS

1. Stories resonate and illicit action on several fronts, from the community to the federal levels
2. People will want to share their stories and lived experiences
3. People, insofar as they are able, desire to work together to address the many challenges within the border region

PRINCIPLES FOR IMPLEMENTATION

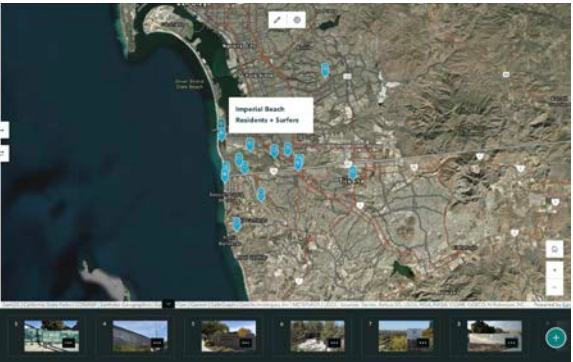
Inspired by Participatory Action Research (PAR):

- Community members as co-owners and co-producers
- Emphasis on local context + empowerment
- Communities ownership of story collection process

BORDER STORIES INITIATIVE

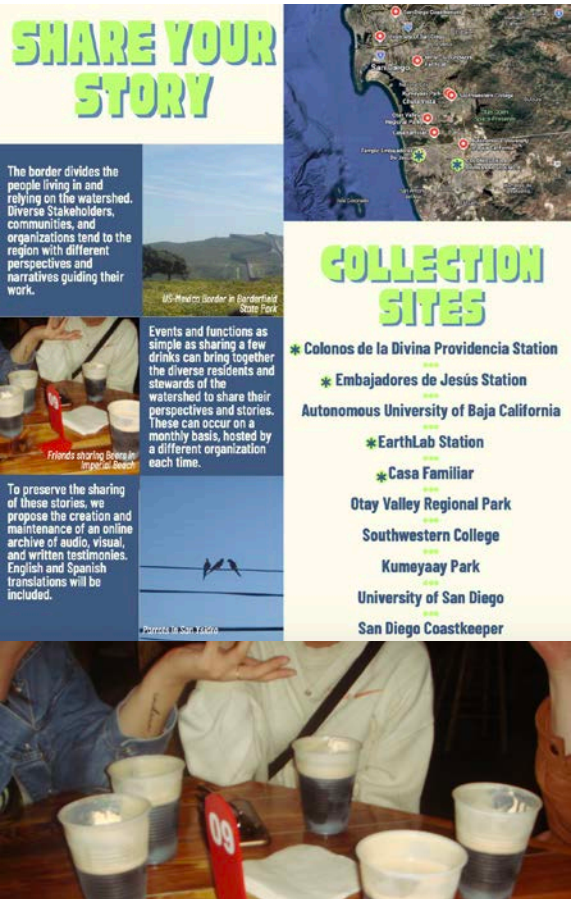
The sewage crisis is not a U.S. problem or a Mexican problem alone; it's a shared environmental condition with asymmetric challenges and resources on both sides of the border. Stories help reveal and mobilize this.

We are proposing an initiative to collect and archive stories from across the Cali-baja region. Participating organizations will act as collection sites which could entail something as simple as sharing drinks to facilitate a space to share stories and perspectives. To illuminate narratives surrounding informal settlements that are overlooked, collection sites in Tijuana are vital to this initiative. Universities and Kumeyaay Park as collection sites would foster young and indigenous voices as well.



"WE MUST LEARN THE TRUTH AND KNOW THE HISTORY."

NANZI MURO



<<< ARCGIS STORY MAP TOUR : A LIVING ARCHIVE

We created an ArcGIS story tour, including the key people and places within the watershed, like surfers and Imperial Beach residents. We also included residents of Tijuana. This is what the online archive from the Border Stories Initiative could look as a starting point for future work.



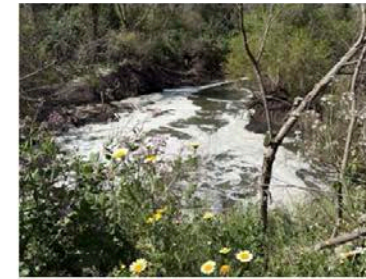
APPENDIX

ACTIONS AND THE CLASSROOM

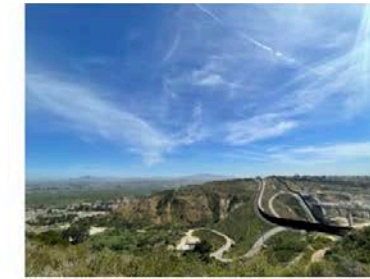
Earth Studio challenges students to move from understanding complexity to operating within it. Learning to practice climate resilience requires sitting with complexity, contradiction, and uncertainty.

The work of climate adaptation and resilience is rarely straightforward, and neither is learning how to practice it. Over the course of Earth Studio, students engaged deeply with places shaped by climate risk, uneven histories, contested futures, and the lived realities of communities navigating profound change—an experience that can be as personally challenging as it is intellectually expansive.

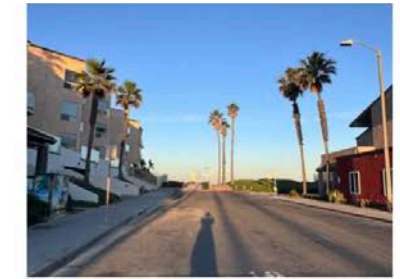
In doing so, students were asked to sit with complexity, contradiction, and uncertainty while working across disciplines, perspectives, and ways of knowing. The reflections collected here offer a window into that journey, capturing moments of learning, discomfort, inspiration, connection, and transformation that emerged through research, design, collaboration, and engagement. Together, they speak not only to climate action, but to the importance of education as a practice of listening, relationship, and imagining more just and resilient futures.



1 Building Resilience • Infrastructure of Interdependence



2 Relationships Build Resilience



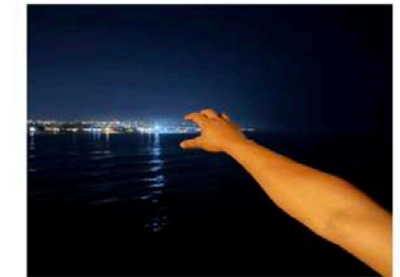
3 Polycrisis Reality



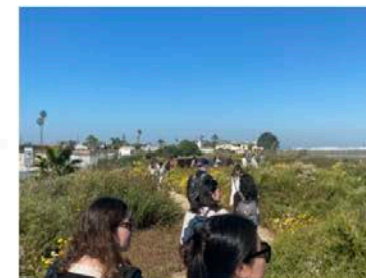
4 "We're going to see the wall fall within our lifetime"



5 From Observation to Responsibility



6 A New Lifelong Learning Model



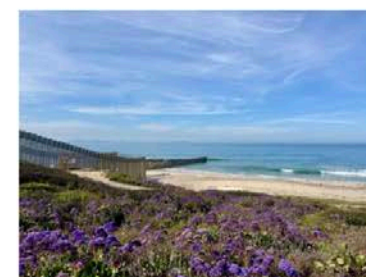
7 Dedicating Yourself to Optimism and Driving Change



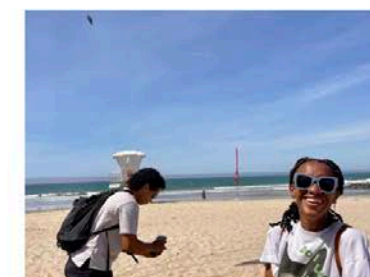
8 Before We Intervene, We Must Belong



9 Power, Positionality, and Partnership



10 How to Embody a Methodology



11 When Value is Not Always Visible



12 Working Through Complexity: Lessons from Earth Studio





 COLUMBIA CLIMATE SCHOOL
Climate, Earth, and Society

In Collaboration With:

Southwestern College, SWC
School of Arts, Communication, Design & Media
Chula Vista, CA