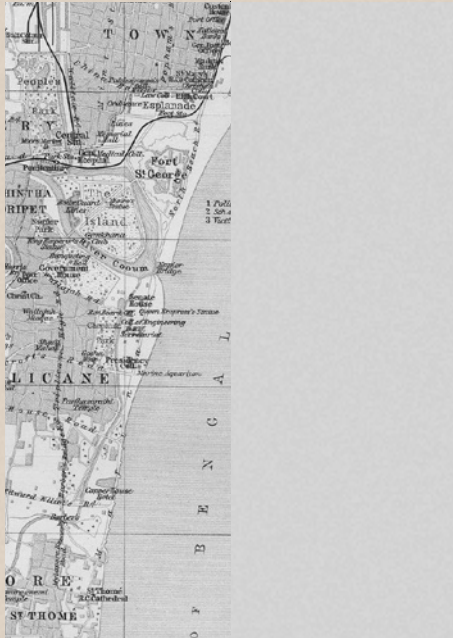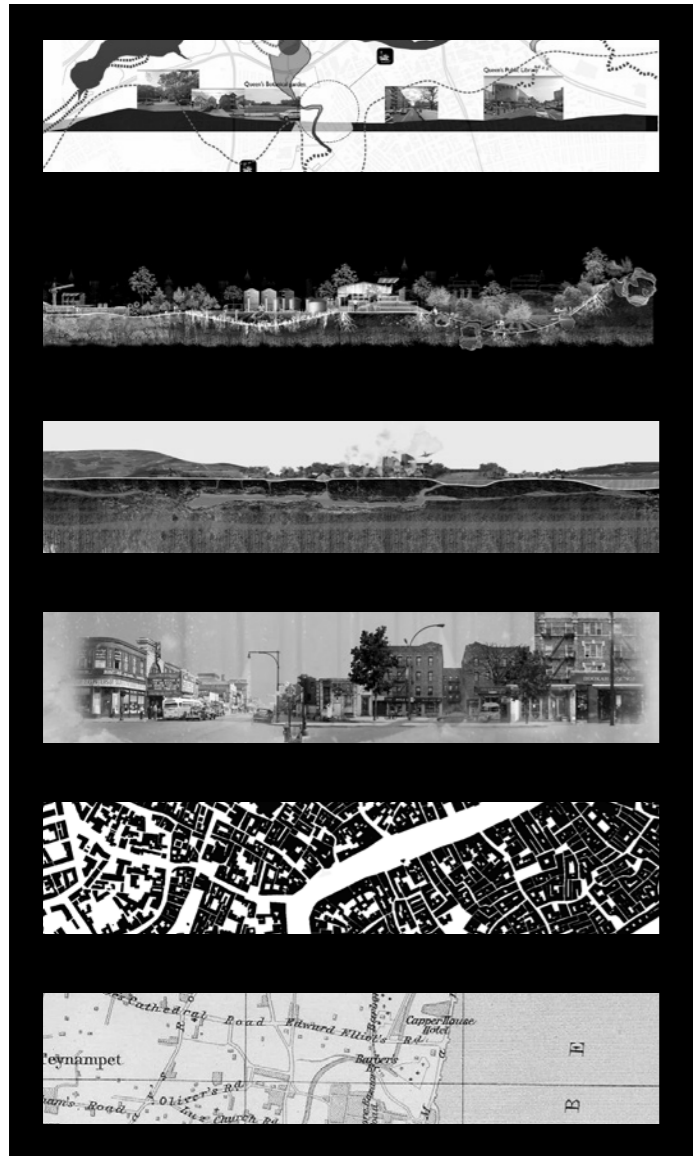# urban design
architecture
dialogue   thoughts
graphics design ideas

tanuja dhanasekaran
MSAUD Columbia **GSAPP**

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C O N T E N T S

01

INDUSTRIAL FABRIC IMAGINARY

COLLEGE POINT, FLUSHING, NEW YORK

"CITY EDGES" | Summer Studio | Columbia GSAPP

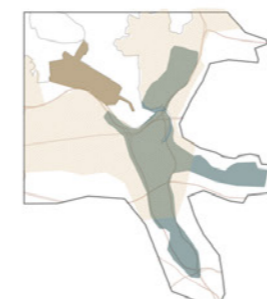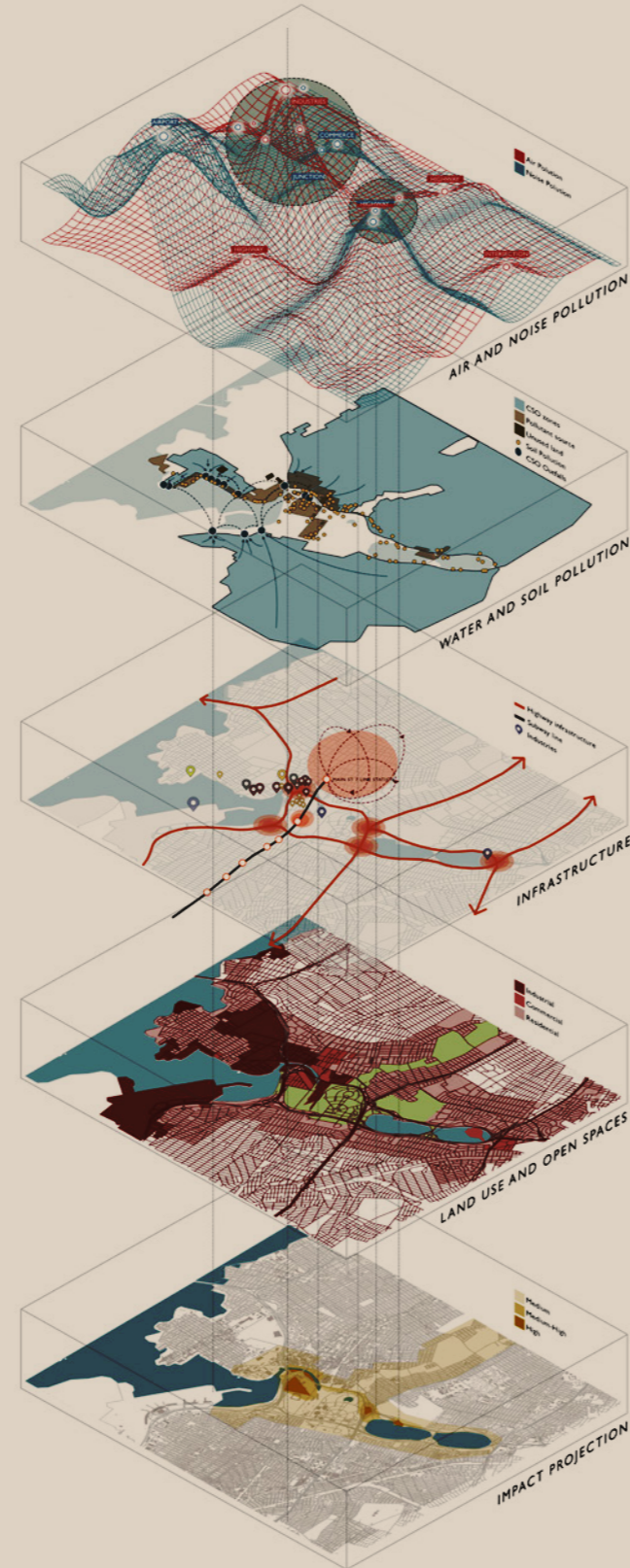Coordinated by *Nans Voron & Sagi Golan*

Team
Tanuja Dhanasekaran
Siyu Lei
Zhifan Li
Praditi Singh

The industrial waterfront zone at College Point is a waterfront site that is connected to its district via the Whitestone expressways and the College Point boulevard. It is lined with a number of cement and asphalt manufacturing plants along the edge. The industries cause heavy pollution - deteriorating edges, industrial toxins, CSO outfalls, plastic and toxic contamination of the water.
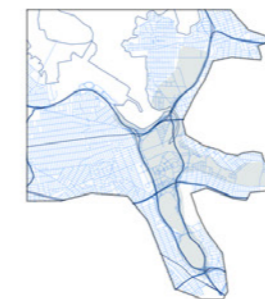
To find a way for these industries, people and water to co-exist together, we use ecological restoration as a toolkit - revitalizing the existing industrial fabric to promote social cohesion.

Remediating the waterfront
Transforming the industrial fabric
Improving accessibility to waterfront

Faculty: *Nans Voron, Sagi Golan, Noah Chasin, Austin Sakong, Galen Pardee*

AIR AND NOISE POLLUTION

WATER AND SOIL POLLUTION

INFRASTRUCTURE

LAND USE AND OPEN SPACES

IMPACT PROJECTION

Low — High
Salinity Level

Pollution

+I Industries
TR Transport related industries
AM Automobile Works

Reclaimed Land
Coastal Area
500 year floodplain
Salinity Degree

Primary Roads
Flushing Creek (original path)
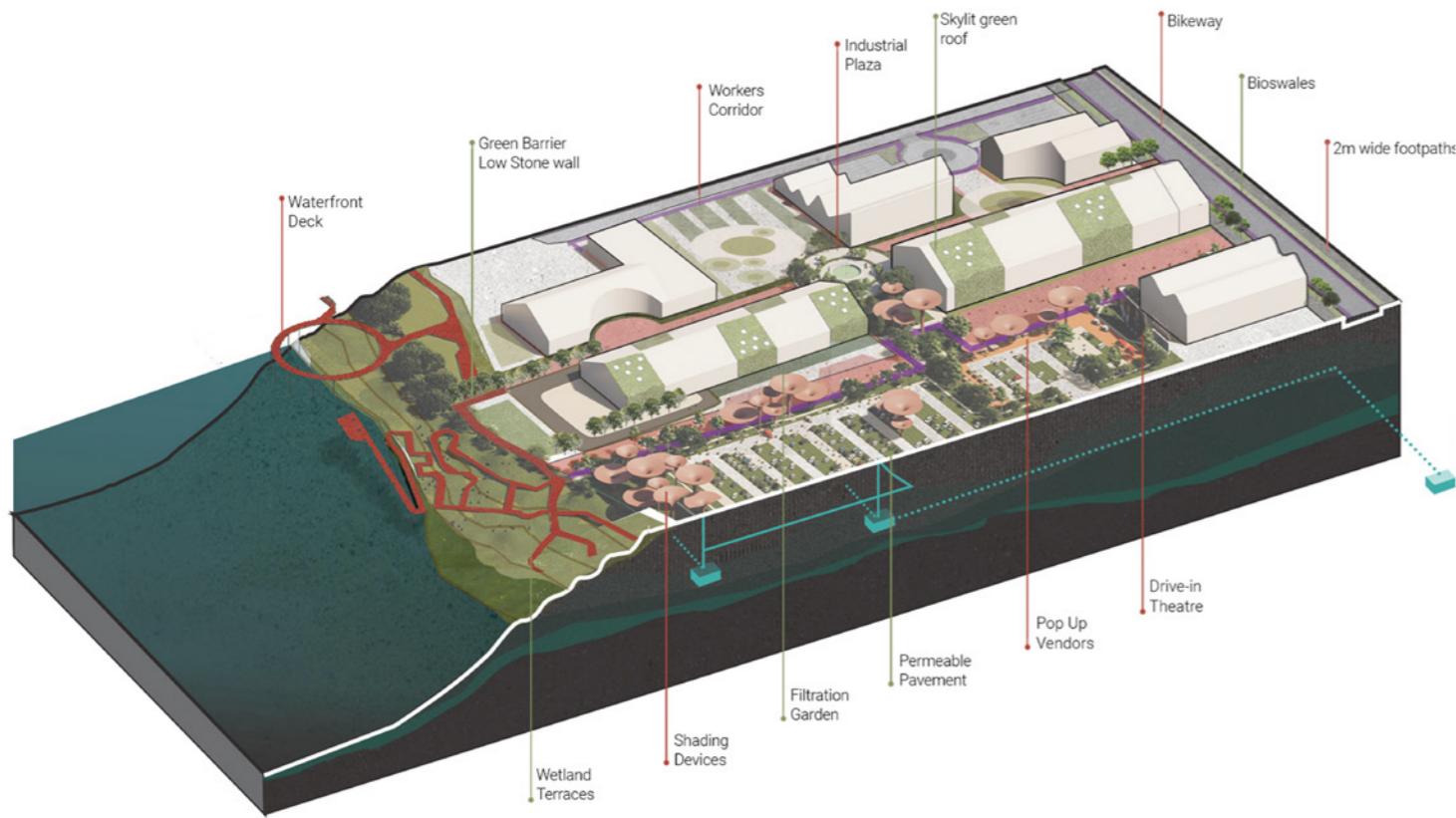Airplane Routes

Reclaimed Land & 500 year floodplain

Road Network
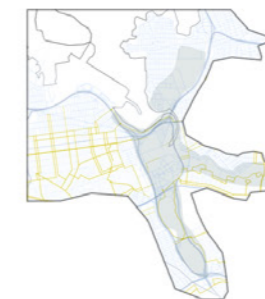
Bicycle Network

Metro Network

Community Parks
Utilisation of blocks
Available Land
Improve Green infrastructure
coverage and network

Green Facade
Roof Greening +Skylights
Vertical Greening
Increase 3D greening of site

Green Corridor
Continuous Green Corridor
Connects adjacent green
patches

Community Participation
Collaboration with schools
and neighbourhoods in urban
greening and Green
infrastructure

The urban fabric of these industries are transformed into sustainable built forms that safely store the manufactured products in warehouses. We imagine a series of plazas that connect the industrial area to the corridor parks and the waterfront. The barrier between industries and common people is thus removed and a public realm is enabled that integrates the industries and people with the water.

The proposed site would be transformed into a recreational space for the community, while retaining parts of the parking area catering to the Home Depot. Clusters of shading devices are introduced at regular intervals, to create a regulated and safe community space.

The overall aim is to collate the available land and leverage it to support the community and a pedestrian's requirements. Further, building on the 3D greening of site through permeable corridors and pocket parks and green facades helps in the long-term filtration of storm water run-off before entering the Flushing Bay.
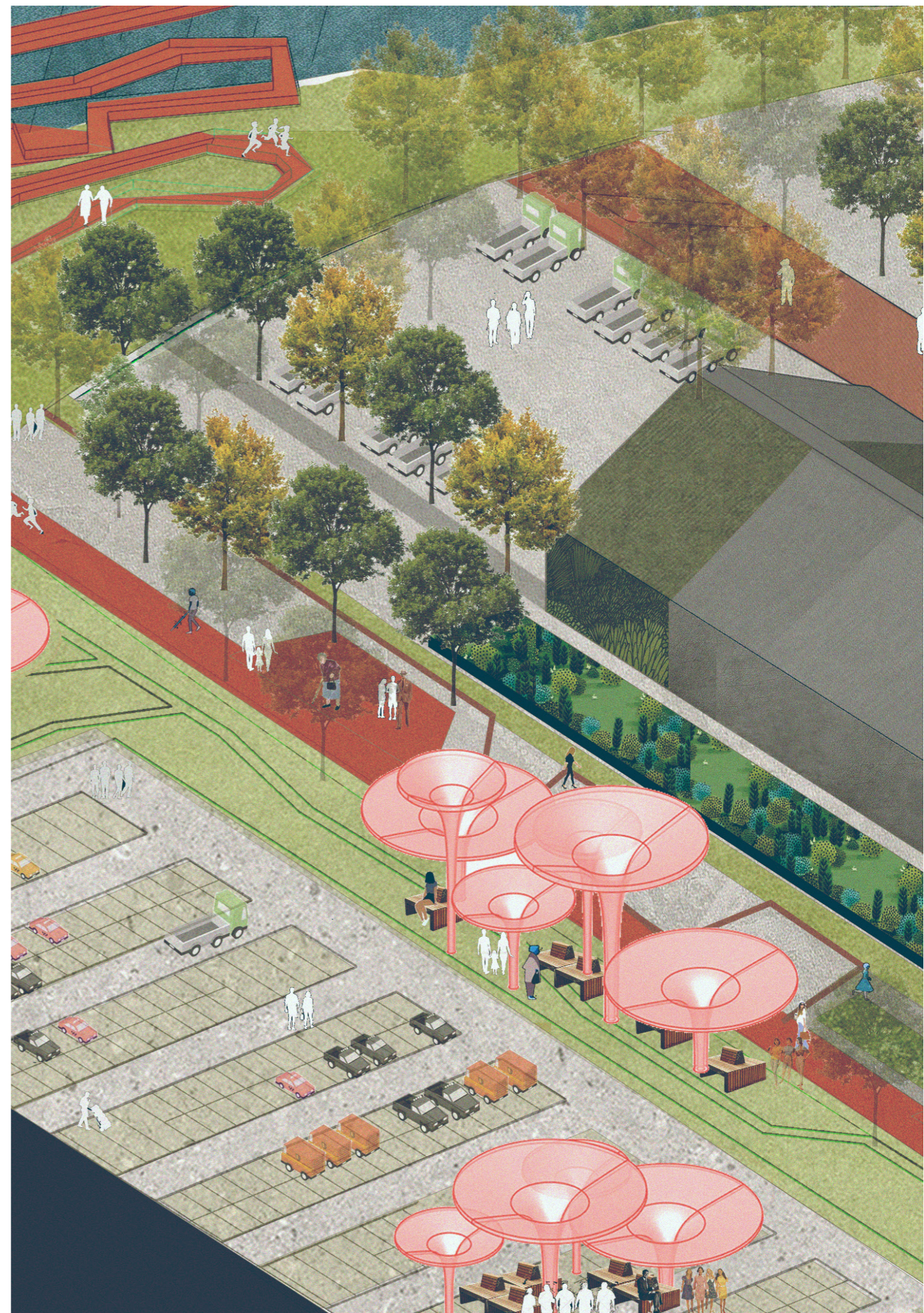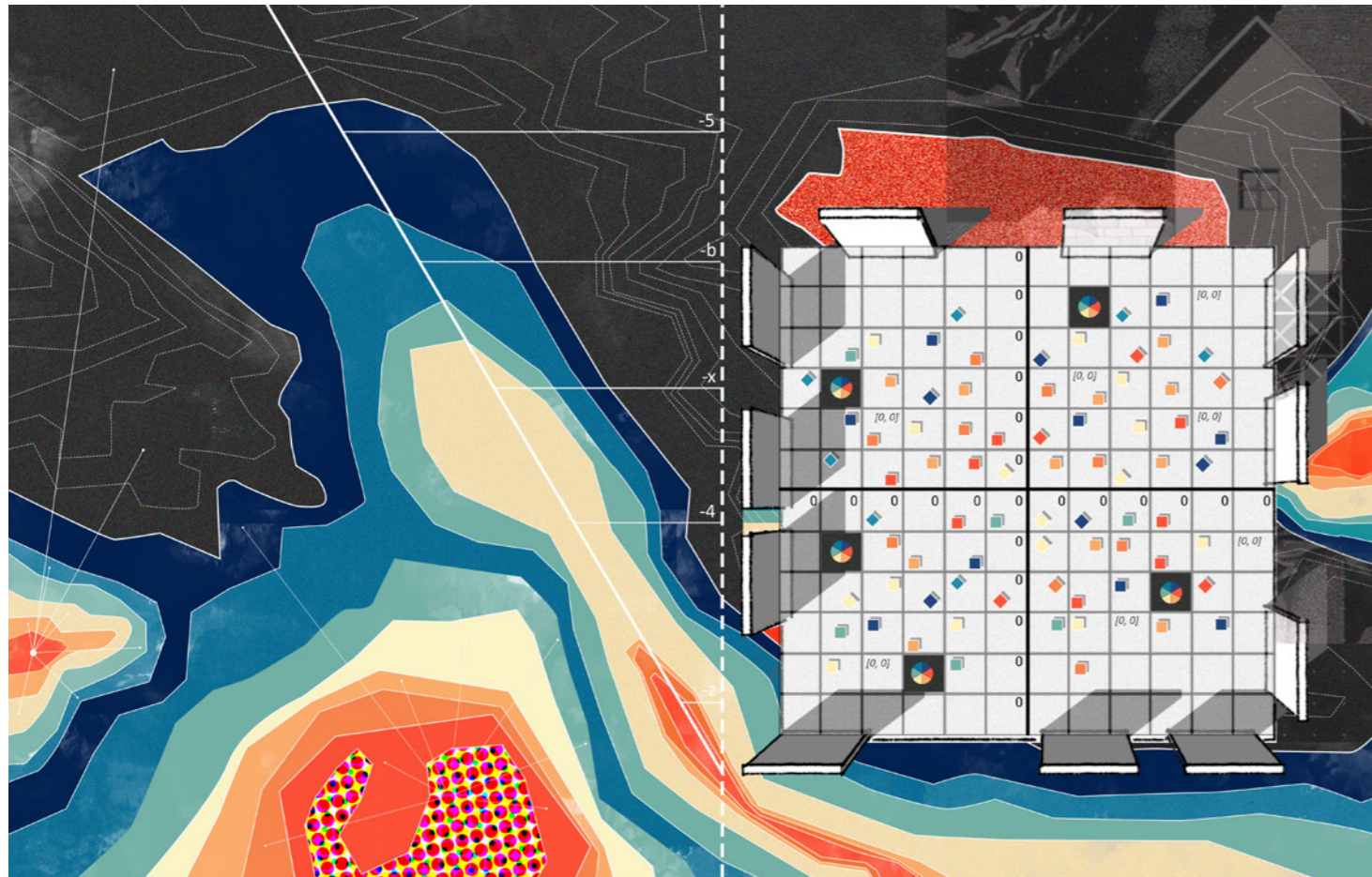
RESISTING
CASTE SYSTEM 02_a

Exploring the Caste system in India through diagrams and matrices. Samples considered are a pool of social and spatial elements that reflect the caste system, and the ways in which these samples have been successful in resisting the hierarchies.

(left to right)
Nochikuppam project, Chennai
Dr. Periyar
Samathuvapuram project, Tamil Nadu
North Sentinal Island, Indian terriroty
Dr. Ambedkar
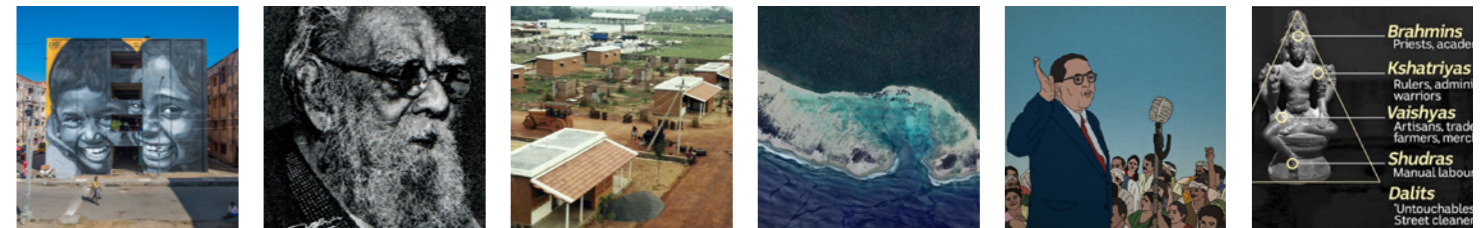
02b MODULAR URBAN INSERTIONS

Beyond static conceptions of space, modular urban insertions, in their layered nature, allow for multiple understandings of and potentials within site. As catalysts of change, low-cost high-impact modules activate sites of former refusal. Redefining programmatic and territorial boundaries in their conglomeration, it lends to community gathering and productive interaction.

(left to right)
Forest of Hope, Altos de Cazuca, Colombia, 2011
"Off the Grid", Main Parade Lawn, San Francisco, 2010
Sky Farms, Shenzhen, China, 2018
SCAPEs 103rd st. Community Garden, New York, 2011
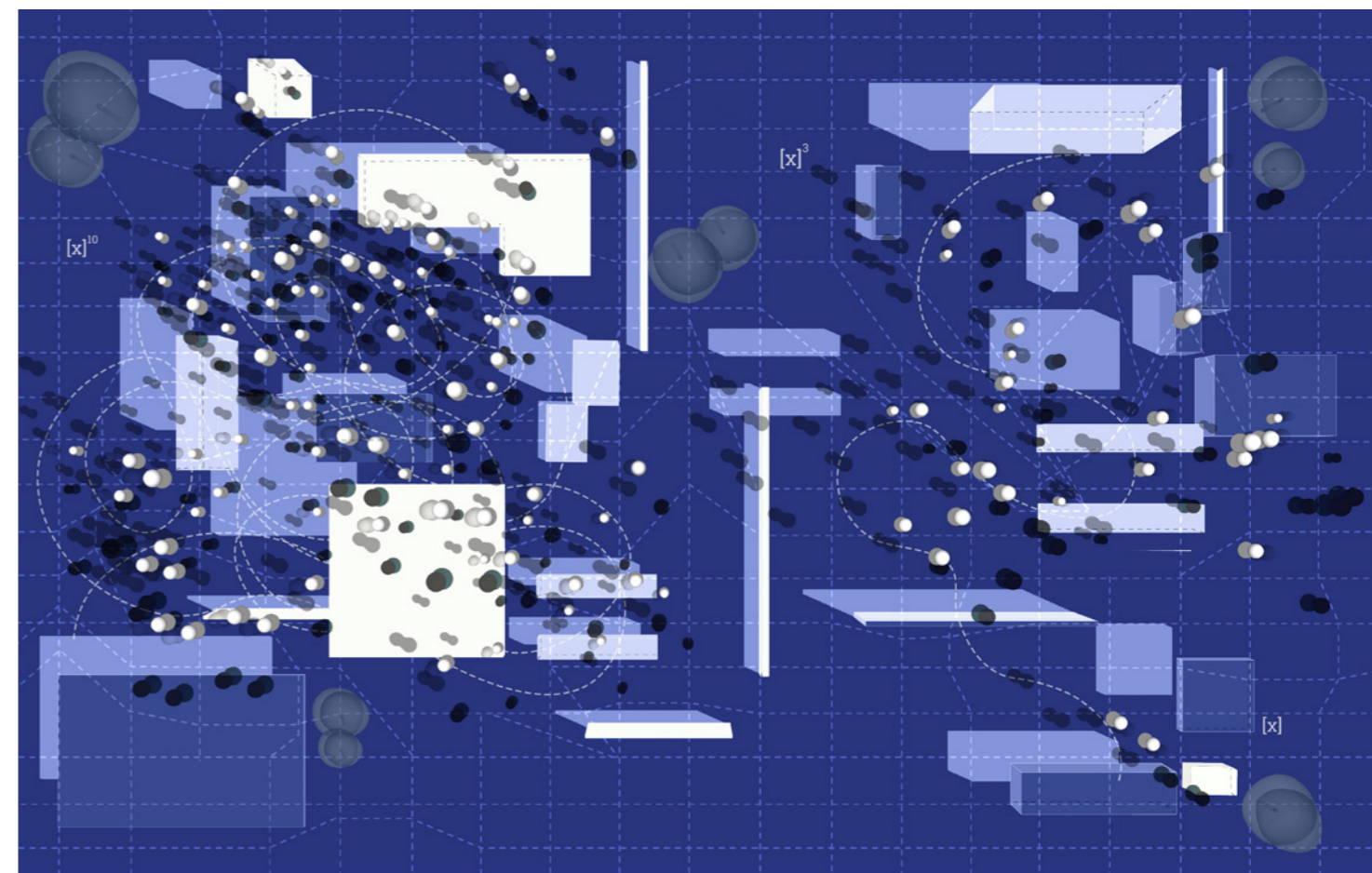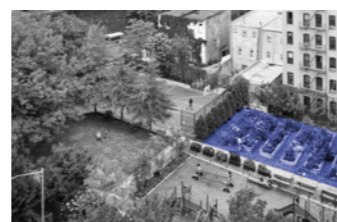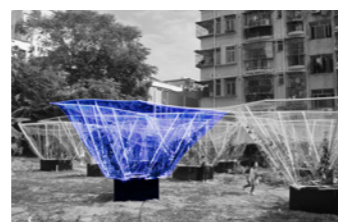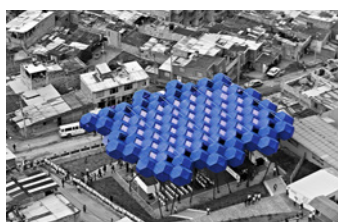
02
URBAN SOIL

WEST END, ATLANTA, GEORGIA

"ATLANTA AFTER PROPERTY" | **Fall Studio GSAPP**

Coordinated by *Emanuel Admassu*

Team
Giulia Chagas
Tanuja Dhanasekaran
Rhea Pai
Yasmine Katkhuda

In the delimitation of territory that has historically borderized land ownership and cultivation, agency now extends bey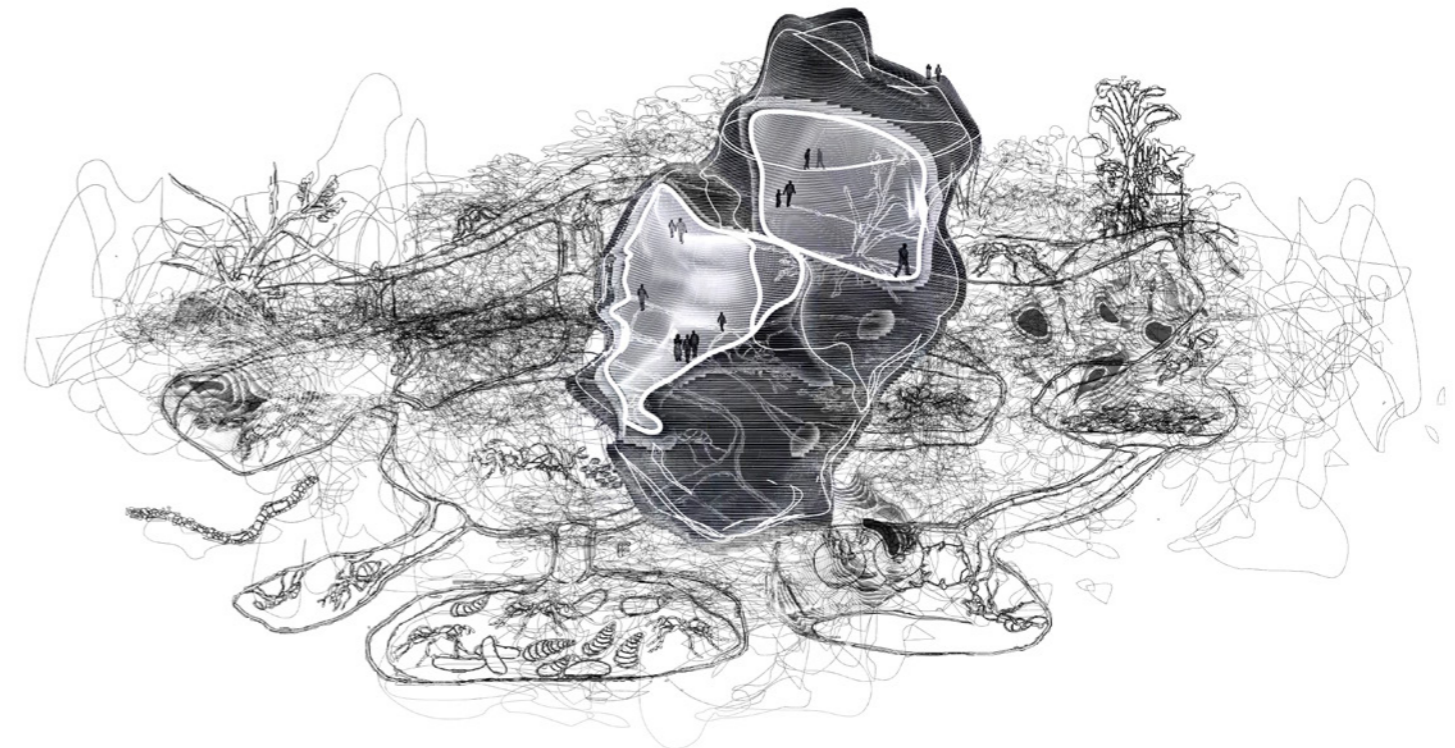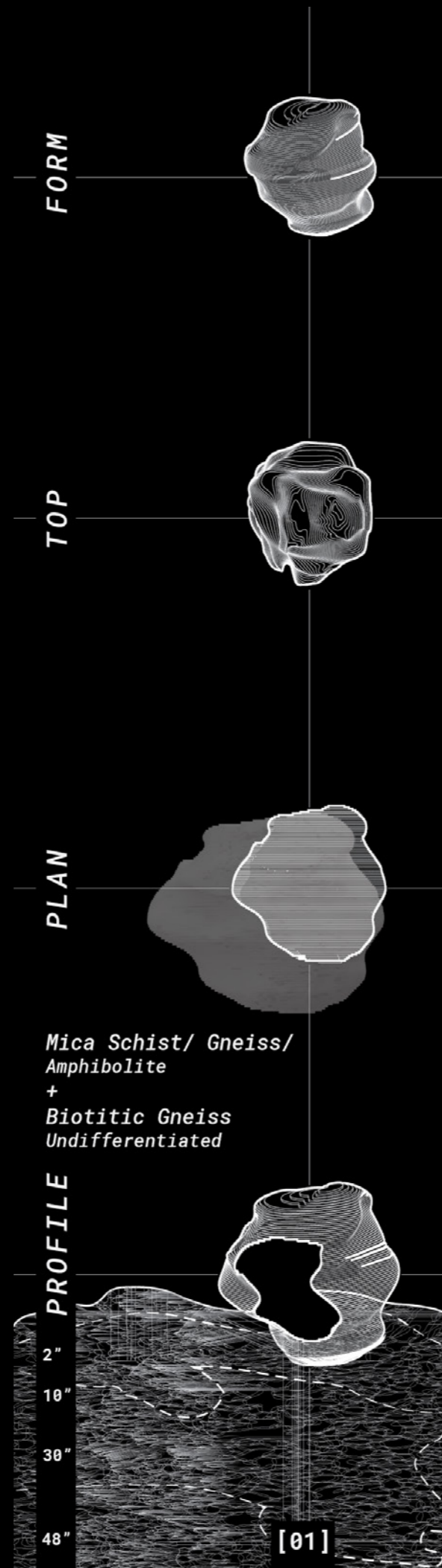ond the human to encompass other than human actors. Processes that take place in this transitional landscape are of the Earth - reconnecting with nature against capitalist ways of existing. Reclaiming the agency of the soil in this alternative entry to West End, positioning it as a catalyst for agricultural production within an epoch of social and ecological crisis.

In Georgia, and more specifically Atlanta, processing industries is a main source of economic pride and stability - but most industries operate in isolation scattered within and consequently fragmented across territory. Despite these large industries that operate and export - the region is burdened with food deserts that exist predominanetly along the south and west of the city center.

The proposed imaginary begins to build an integrated food production zone along the Atlanta BeltLine starting with West End as the proxy site.

The hypothesis reclaims the agency of soil as crucial to food, economy and historical memory.

Faculty: Emanuel Admassu, Nina Cooke John, Lexi Tsien, Chat Travieso

FORM

TOP

PLAN

Mica Schist/ Gneiss/
Amphibolite
+
Biotitic Gneiss
Undifferentiated

PROFILE

2"

10"

30"

48"

[01]

SOIL x HUMANS x MICROBES x ECOLOGY

URBAN SOIL · SOIL SURVEY · NEW POLICIES · COMMUNITY ENGAGEMENT · INVASIVE SPECIES · REGENRATIVE SPECIES · SOIL STRATIFICATION · PIONEER SPECIES · PROCESSING · FARMING · HARVESTING · STORAGE · FARMERS COMMUNITY · IRRIGATION · JOBS CREATION · TRANSPORTATION · CULTURAL EVENTS · RESTAURANTS · GROCERY STORES · ENERGY GENERATION · VERTICAL FARMING · INCUBATOR · LABOR TRAINING · MICRO ORGANISMS · MARKET + CONSUMER · WASTE PROCESSING · STORAGE · GROUND WATER · NATIVE SPECIES · FARMING · MICRO ORGANISMS · URBAN FOREST · RECYCLING · COMPOSTING · CYCLICAL SOIL REGENERATION · ECONOMIES OF SCALE

**PHASE 0**   **PHASE 1**   **PHASE 2**   **PHASE 3**   **PHASE 4**

As we trace the development through various stages, incremental changes in the soil and land are witnessed as it begins to heal and build off of itself. The remediation process weaves through social, ecological and infrastructural logics that reclaim the agency of soil and non-human entities.

GRAIN STORAGE x COMMUNAL HARVESTING
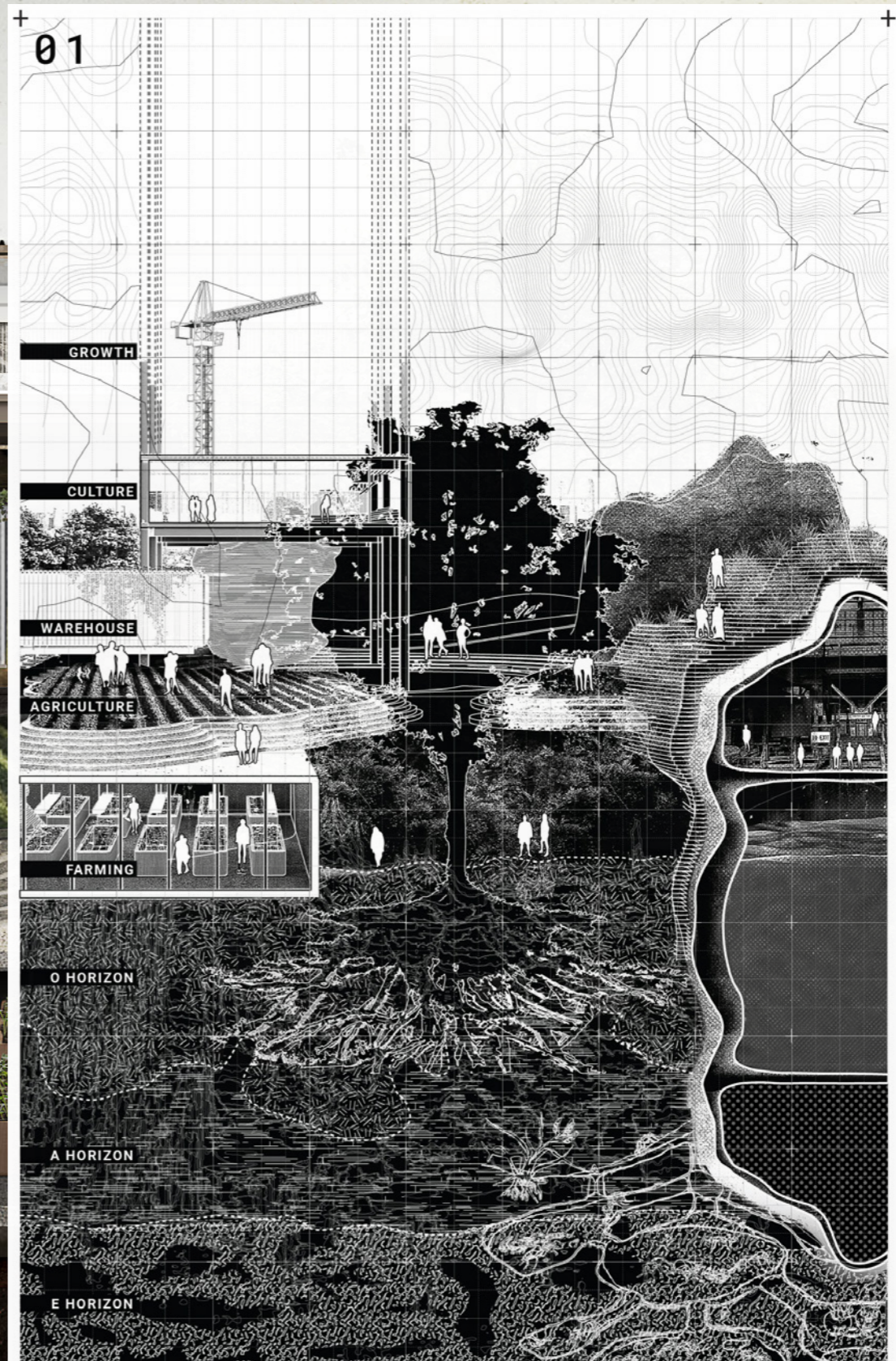

VERTICAL FARMING x LOCAL FARMERS
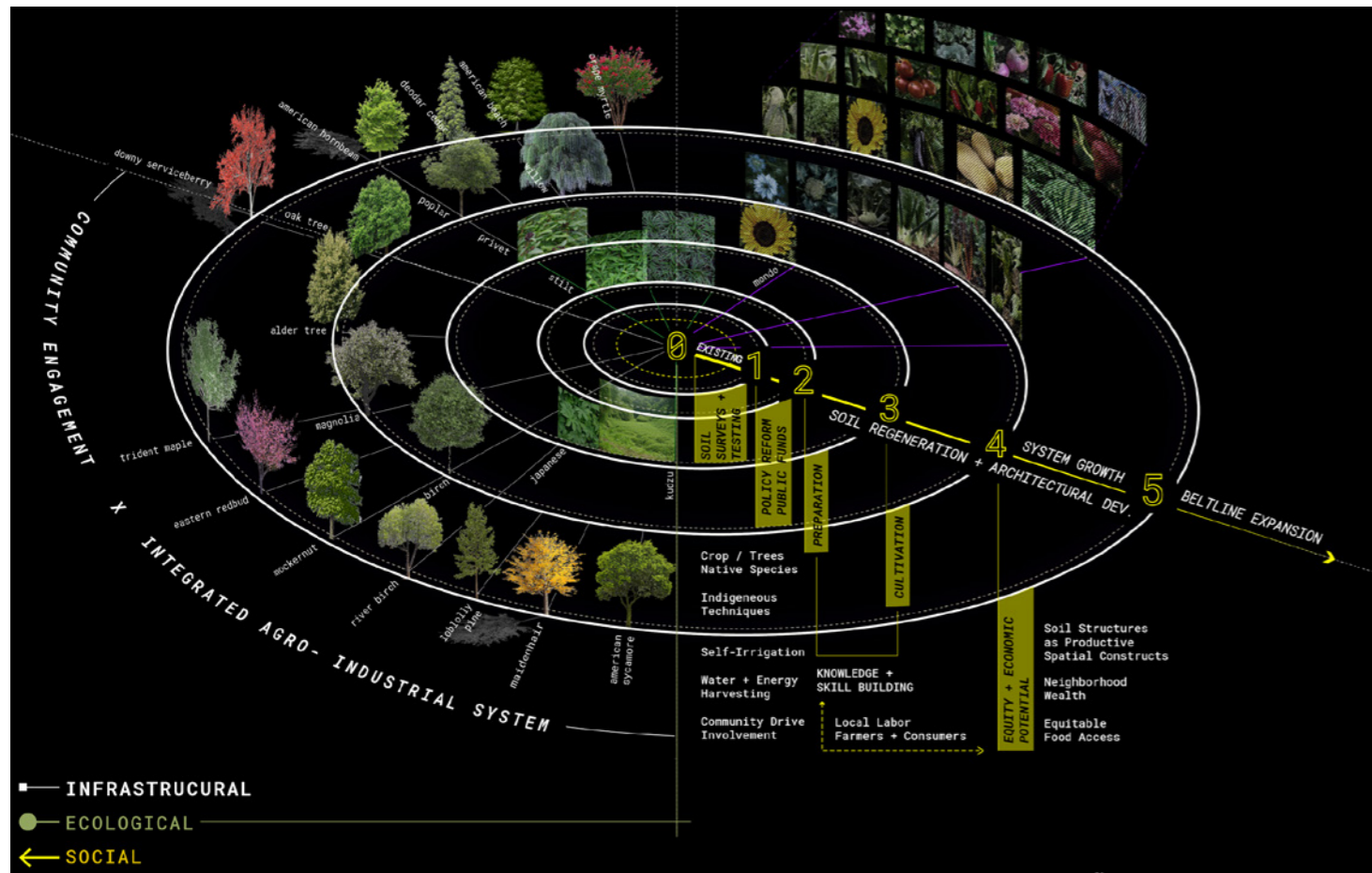
RESTORATIVE VEGETATION

SOIL REGENERATION

Through systematic and gradual phases of temporality, soil gains agency by taking over architectural elements and impenetrable surfaces in instances of contaminated urban soil. By processes of subtraction and addition, cut and fill, the topography of the site surface is altered to allow better aeration and breathable conditions for urban soil that has systemically been compacted beneath hardened concrete.

Labels on the diagram: 01, GROWTH, CULTURE, WAREHOUSE, AGRICULTURE, FARMING, O HORIZON, A HORIZON, E HORIZON

1 WEST END
2 MARTA RAIL
3 I-20 HIGHWAY
4 DOWNTOWN
5 BELTLINE LOOP
■ BROWNFIELDS
+ FOOD INDUSTRY
● FOOD DESERT

1 mi

ATLANTA, GA
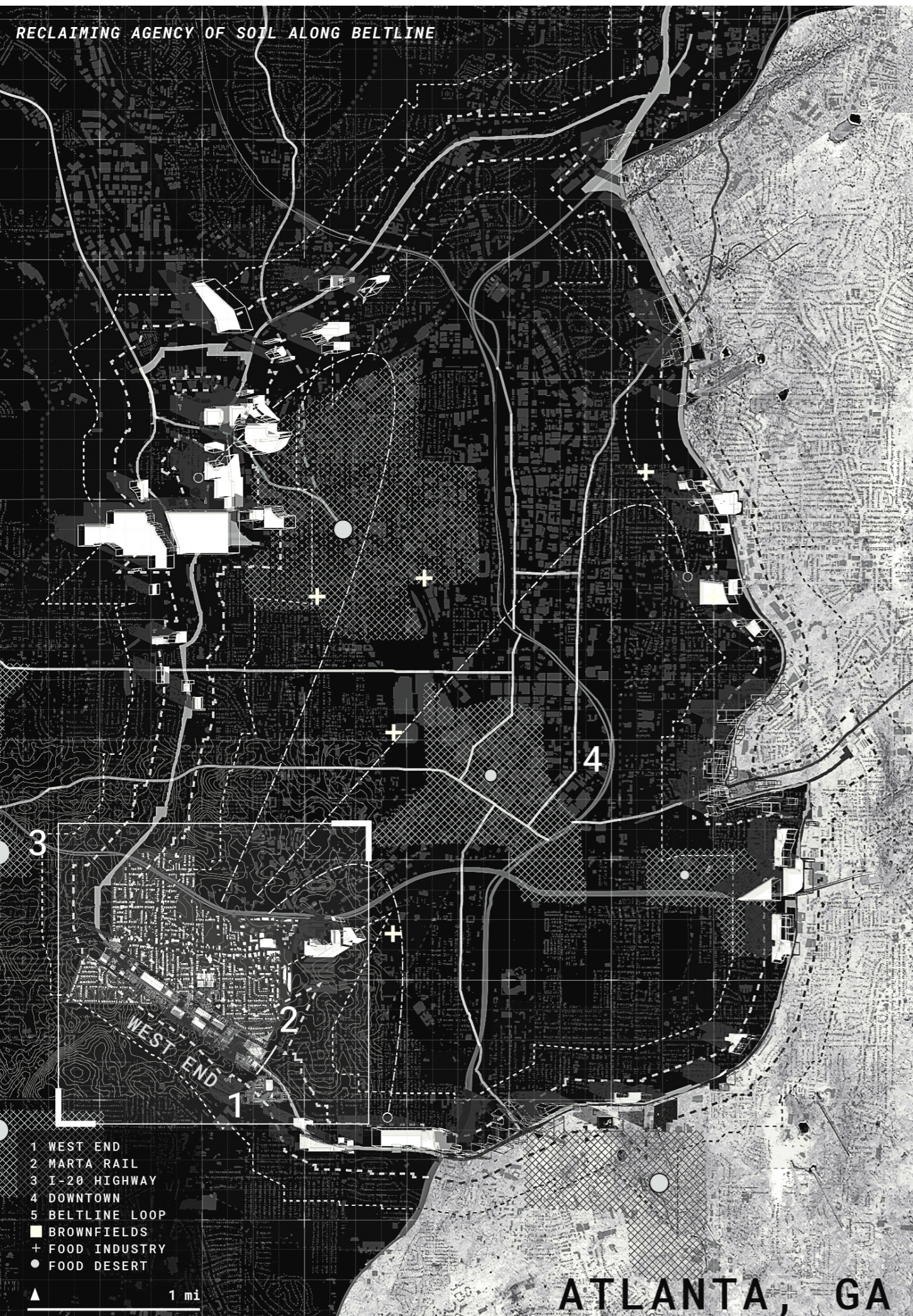
In crossing scales and agencies between human and other than human actors, this world after property envisions a future of cultivation that is no longer entangeled in land as value... but rather that of soil "towards another agrarian path that is still possible through the interconnectedness of struggles accross territory - where the vitality of the soil and wellbeing of Earth are all at stake."

03

RIO HONDO
BINATIONAL PARK

MEXICO + BELIZE ECO REGION

"RESILIENT COASTLINES" | Spring Studio | GSAPP

Coordinated by **Prof *Kate Orff***

Team
Daniela Deu
Tanuja Dhanasekaran
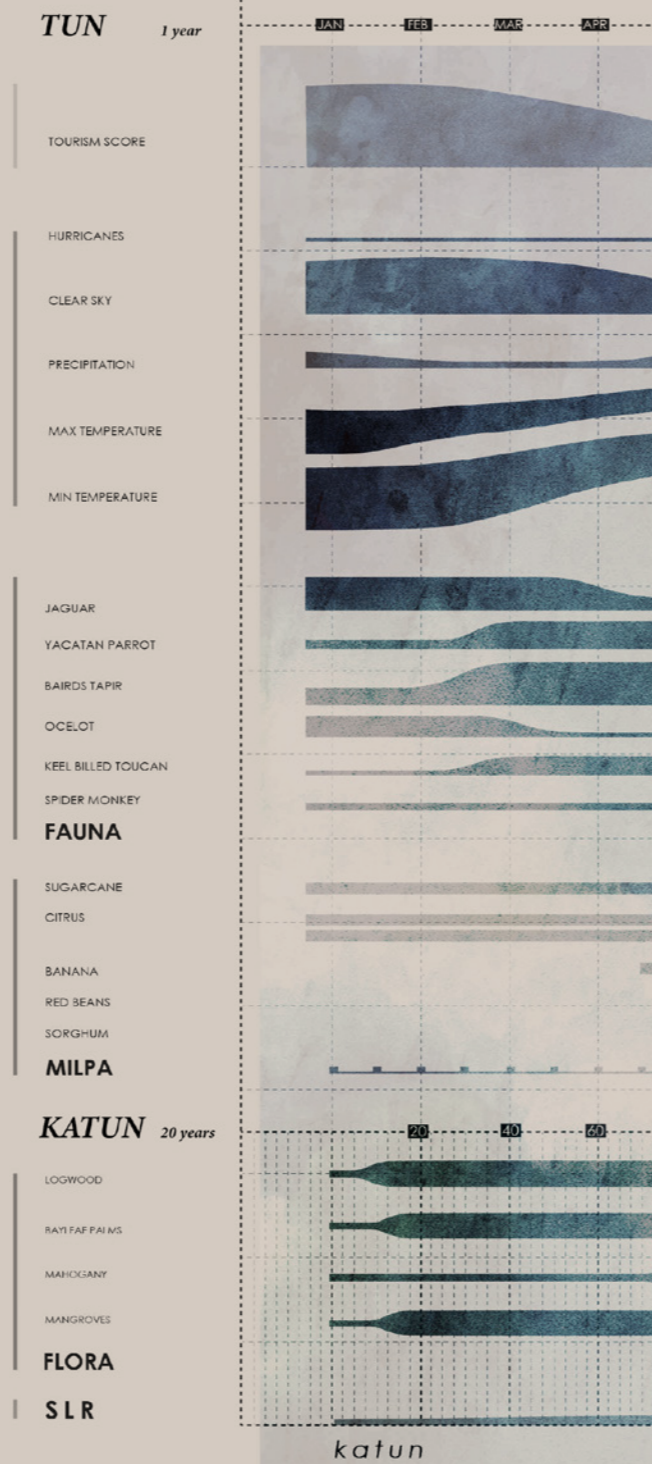*Kimberly Ramirez*
Carmen Yu

Rivers routinely defy cartographic depictions of borders as static, territorially bounded formations. While Rio Hondo serves as the political divide between Mexico and Belize, its watershed ecosystem is oblivious to such borderscapes. The river and its ecosystem exist as a continuum transcending all political divides. The porosity of the river is oftentimes ignored as differential policies across the two countries invariably have consequences over the entire watershed region and the ocean ecosystem which are both border-blind. So we ask: how can we protect the watershed and the rich ecosystem that thrives on it?

We draw inspiration from the Mayan Calendar which has markers at Year 1 (called the Tun), at year 20 (or Katun) and year 394 (or Bakatun). By acknowledging the stakeholders are not just people involved but also the eco-system of flora and fauna, we mapped the life cycles of indigenous species and weather cycles to study how these systems work together and influence one and another.
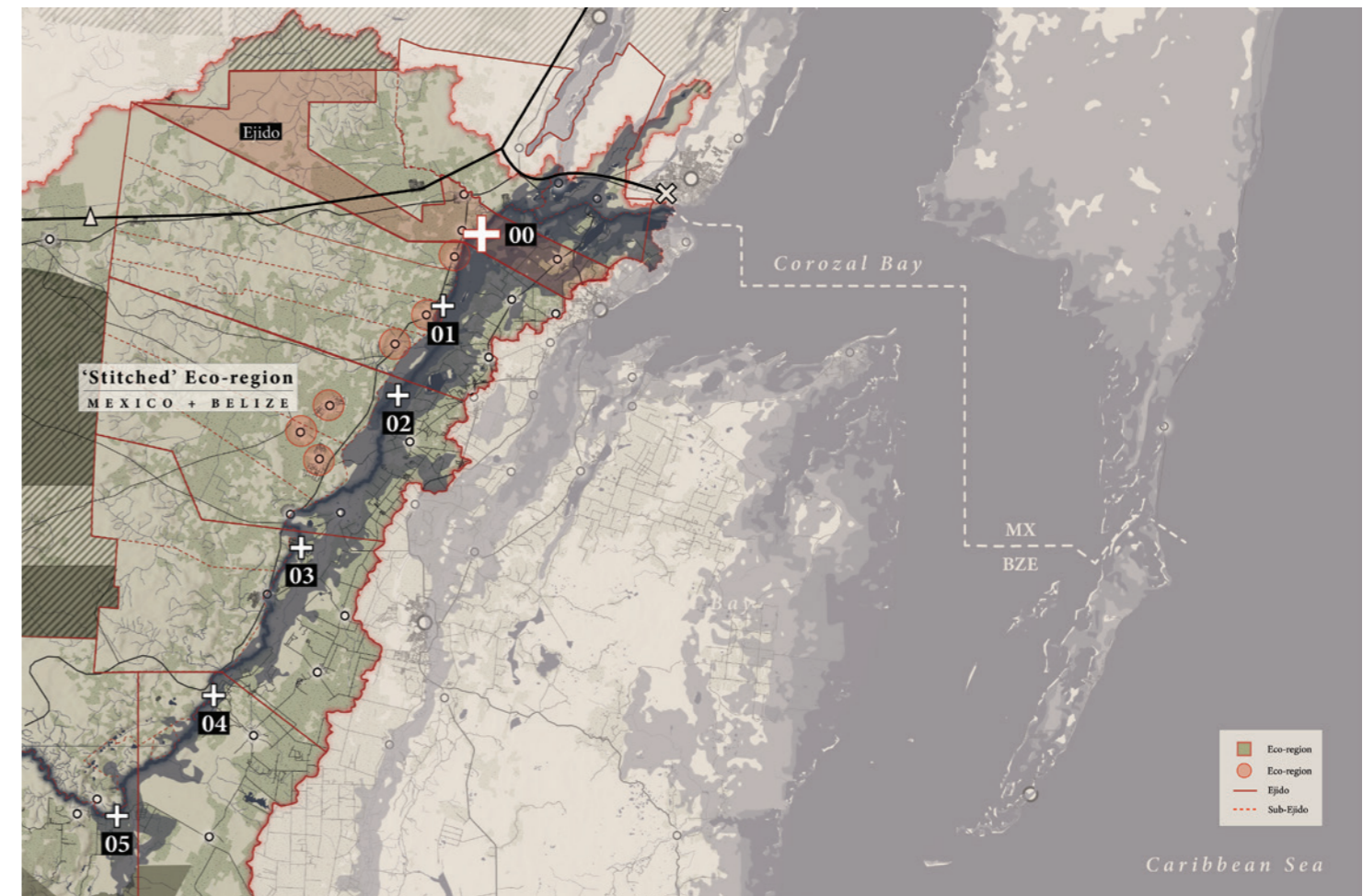
Faculty: *Kate Orff, Thad Pawlowski, Lorena Bello Gómez, Geeta Mehta, Adriana Chavez*


Eco - Calendar
Weather - Flora - Fauna

TUN   1 year

JAN   FEB   MAR   APR

TOURISM SCORE

HURRICANES

CLEAR SKY

PRECIPITATION

MAX TEMPERATURE

MIN TEMPERATURE

JAGUAR
YACATAN PARROT
BAIRDS TAPIR
OCELOT
KEEL BILLED TOUCAN
SPIDER MONKEY
FAUNA

SUGARCANE
CITRUS

BANANA
RED BEANS
SORGHUM
MILPA

KATUN   20 years

20   40   60

LOGWOOD

RAYI FAF PALMS

MAHOGANY

MANGROVES

FLORA

SLR

katun

POLITICAL BORDERS: Mexico + Belize

PROPOSED PLAN: "STITCHED" ECO-REGION encompassing Rio Hondo watershed

OBJECT STUDY

As the semester focussed on Coastal Resilience in Belize and Southern Mexico, the research started with the Object Study; a historical context of the Yucatan Peninsula. The chosen object, Mesoamerican Pyramids was studied for its historic, and contexual character and its relationship to Mayan farming practices which later informed the project.
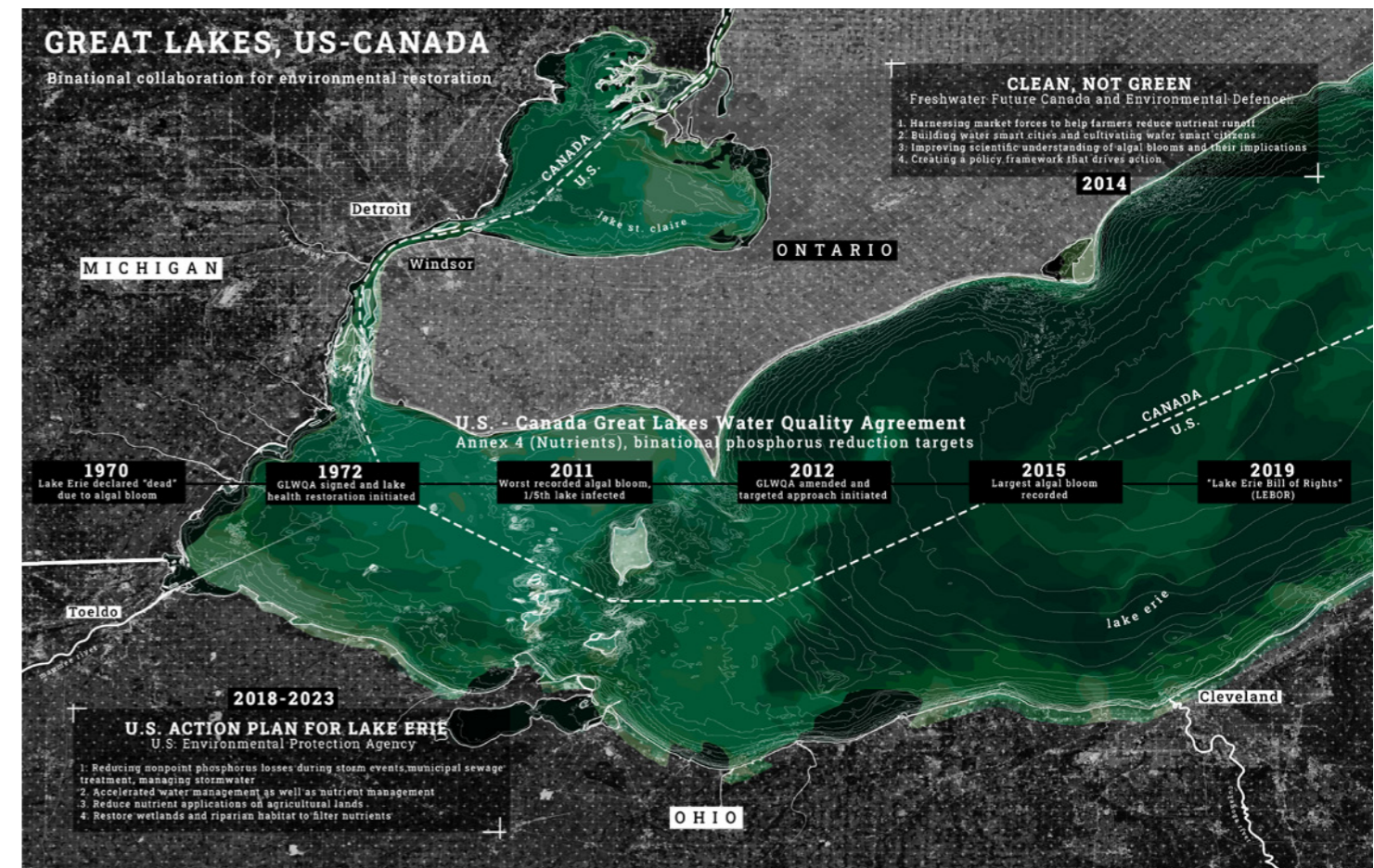
PRECEDENT STUDY

As the chosen site for the Coastal Resilience studio was located on the border of Mexico and Belize (Rio Hondo watershed), a precedent study was undertaken to understand successful cross-border collaboration.

The Binational collaboration for environmental restoration between US and Canada for the preservation of the Great Lakes.

CULTURAL ROOTS

This region has a rich history and Mayan ancestry. A core element to this culture is the understanding that ecological and human needs are interconnected with various other systems weaving, informing, and influencing each other.

This stewardship has been disrupted, but this knowledge continues to exist within these communities. Our proposal hopes to tap into it and re-center the care of this landscape to the communities that have historically tended to it.

Key practices and concepts

CEIBA is a tropical tree native to Mexico, Central America and the Caribbean. It served as beacons for the Maya, representing the deep connection that they had to their surrounding landscape, and larger systems such as the sky, the land, and the soil.
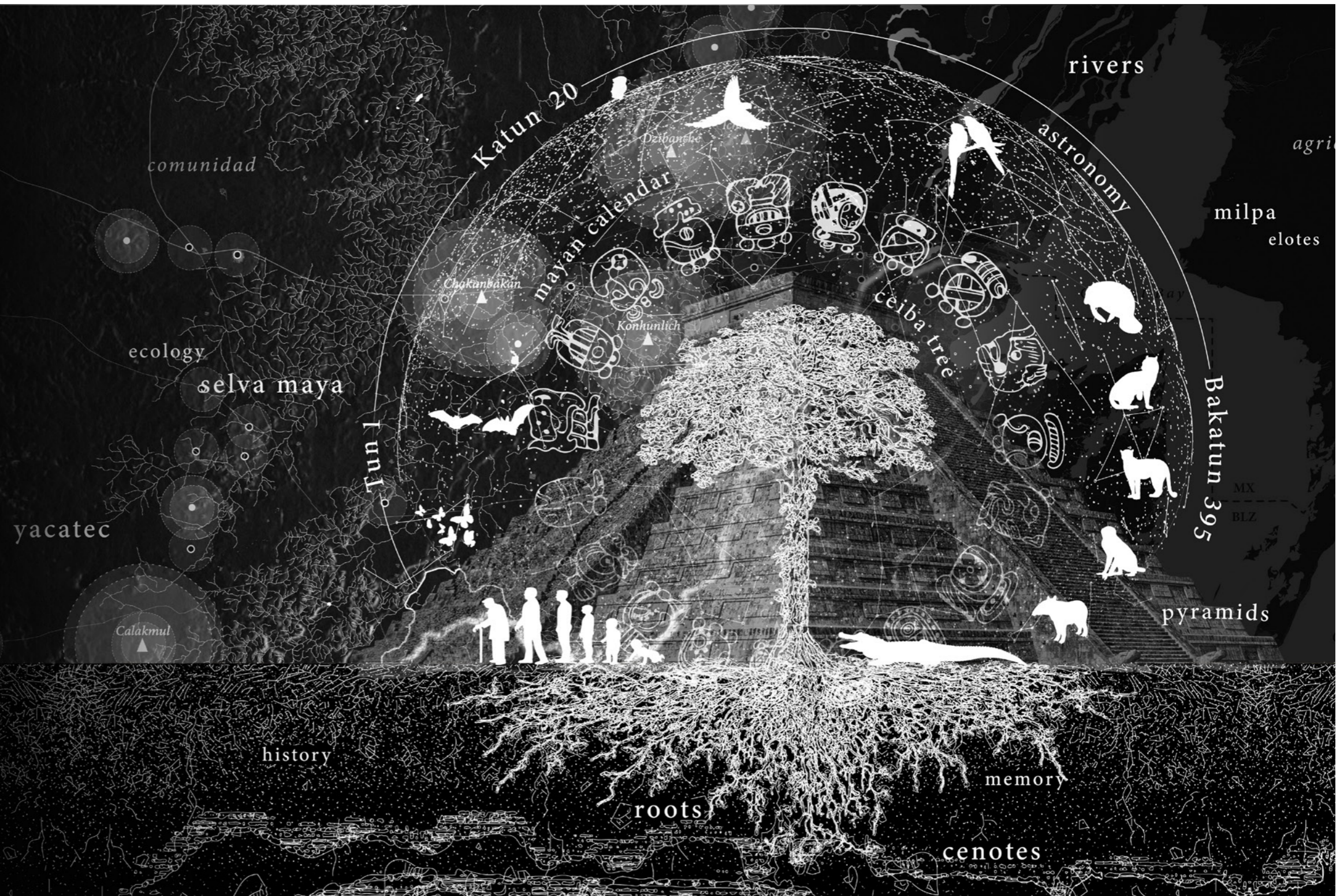
MAYAN CALENDAR Tun (1 year), Katun (20 years), Bakatun (295 years)

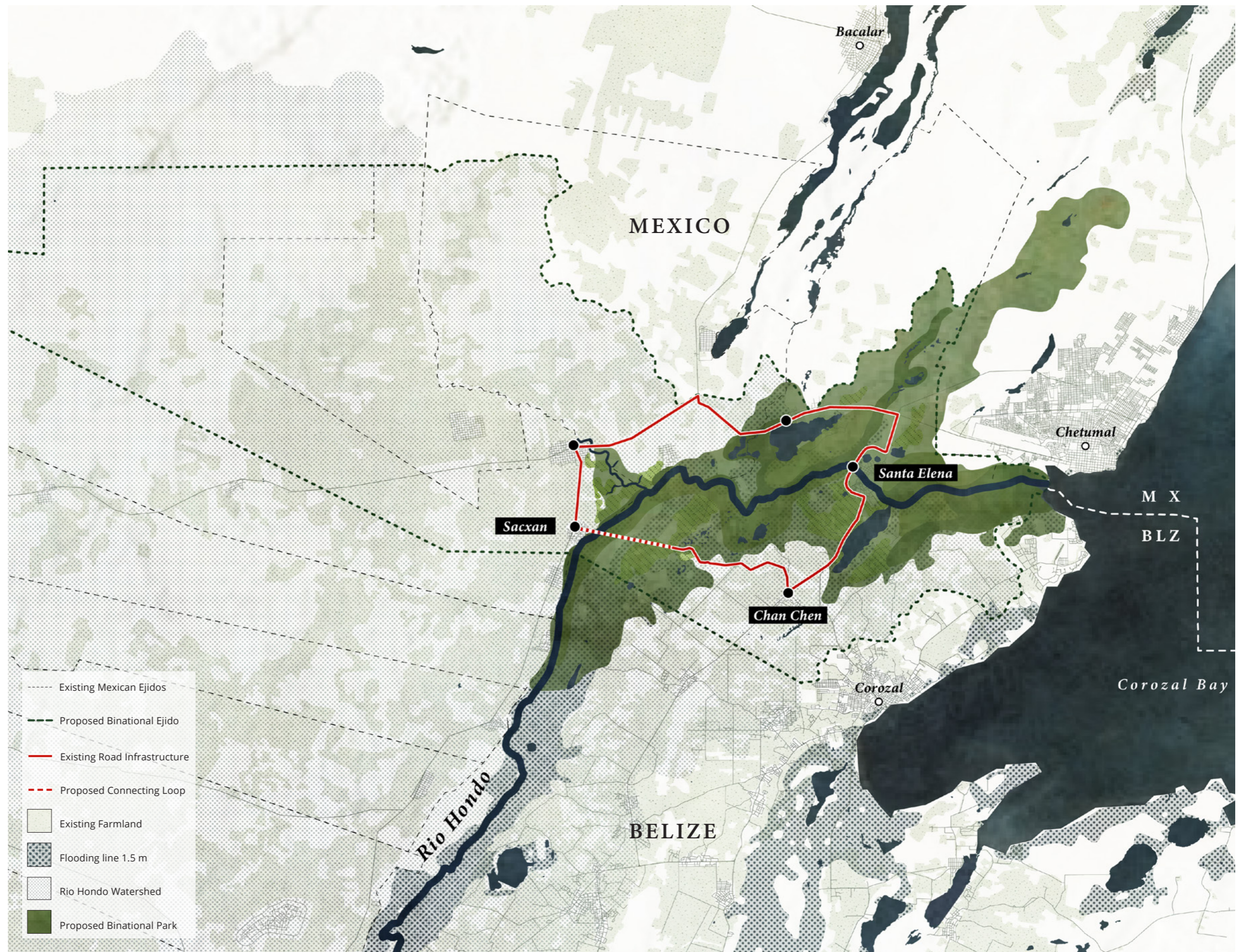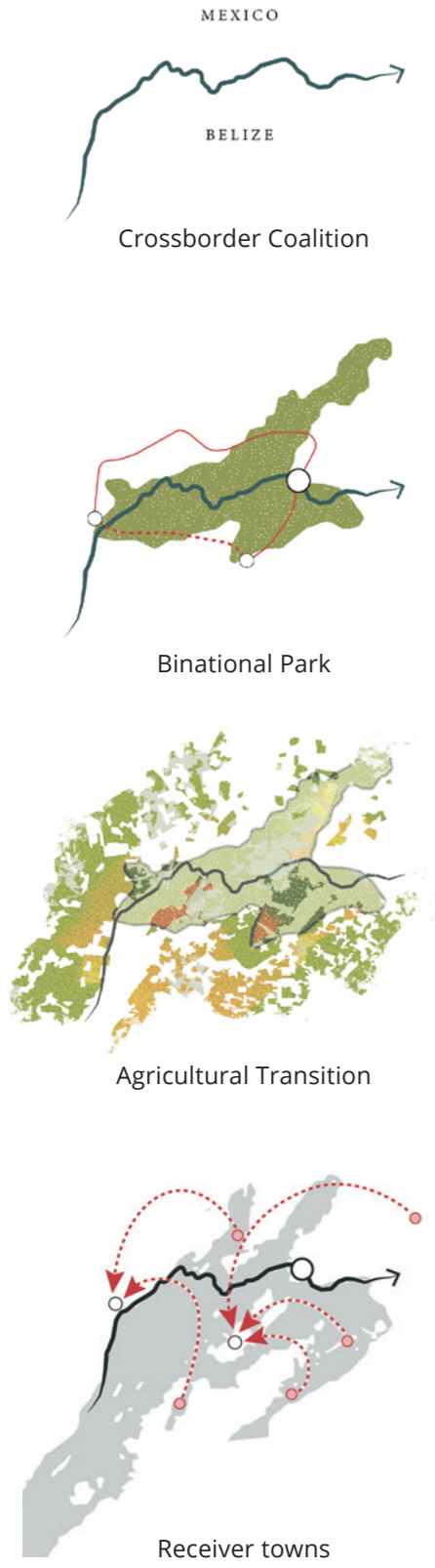**YUCATEC MAYA** are an indigenous Mayan community native to northern Belize and the Yucatan peninsula.

EJIDO is a piece of land farmed communally under a system supported by the Mexican state.

MILPA is an intercropping agricultural system used throughout Mesoamerica. This communal practice is central to a socio-cultural relationship between farmers, crops and land.

CENOTES are connected underground water systems unique to the Yucatan peninsula.
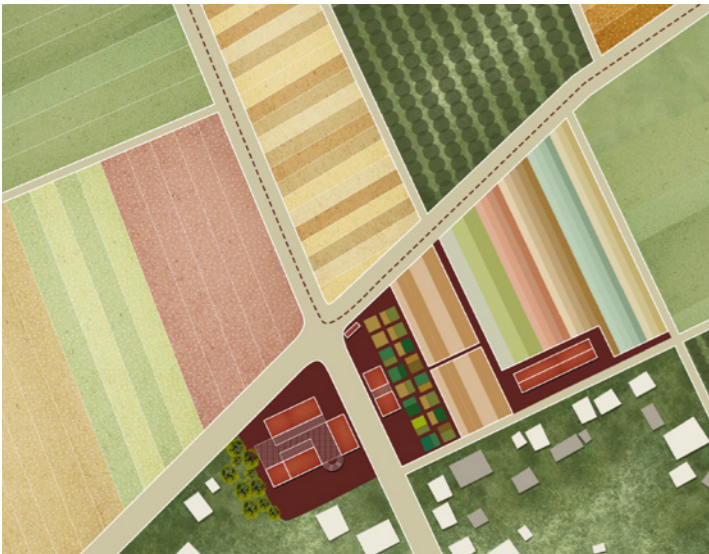
RIO HONDO
BI-NATIONAL PARK

MEXICO

BELIZE

Crossborder Coalition

Binational Park

Agricultural Transition

Receiver towns

MEXICO

Bacalar

Chetumal

M X

BLZ

Santa Elena

Sacxan

Chan Chen

Corozal

Corozal Bay

Rio Hondo

BELIZE

.... Existing Mexican Ejidos

– – – Proposed Binational Ejido

——— Existing Road Infrastructure

– – – Proposed Connecting Loop

Existing Farmland

Flooding line 1.5 m

Rio Hondo Watershed

Proposed Binational Park

STRATEGIES

BINATIONAL PARK
SANTA ELENA, BELIZE + MEXICO

The tax free zone at the **border crossing** between Sta. Elena and Subteniente Lopez is an existing financial binational cooperation model that we can build upon to establish a Binational park.

RISKS: Mangrove deforestation

AGRICULTURAL TRANSITION
CHAN CHEN, BELIZE

Chan Chen is currently a major sugarcane monoculture village. Pesticide and fertilizer use seep into the underground watertable and pollute the Rio Hondo. We propose to reintroduce *milpa* **and agroforestry** which are less extractive and can diversify crops.
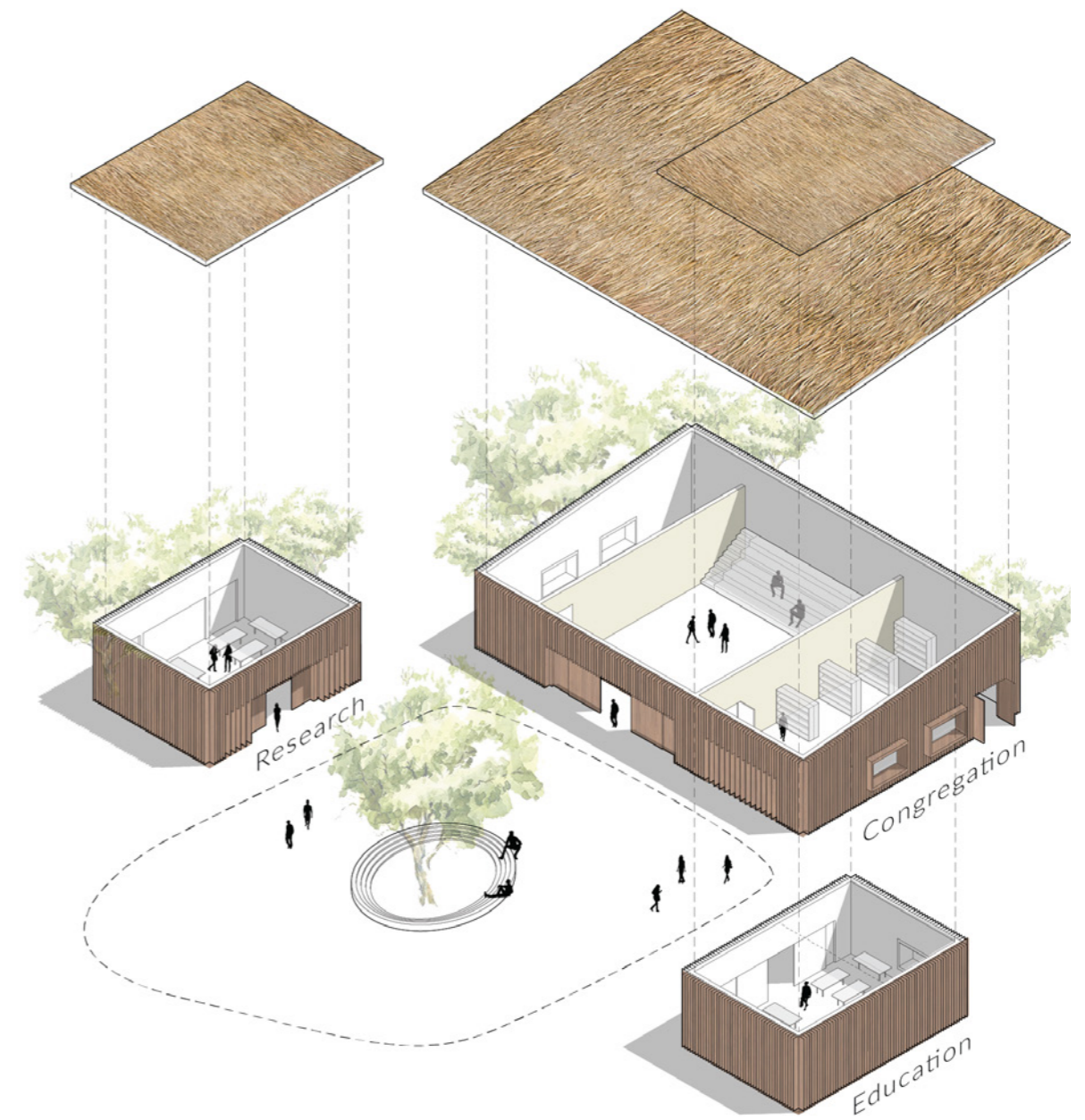
RISKS: Sugarcane monoculture

RECEIVER TOWNS
SACXAN, MEXICO

Sacxan sits on higher ground along the fault line that runs through the Rio Hondo, making it an ideal site to transition into a **receiver town** in the event of future flooding due to sea level rise and storm surges.
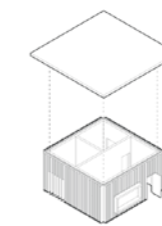
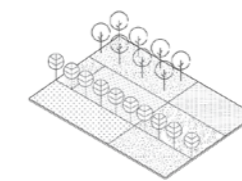**RISKS:** Flooding due to sea level rise

COALITION CENTER

Education
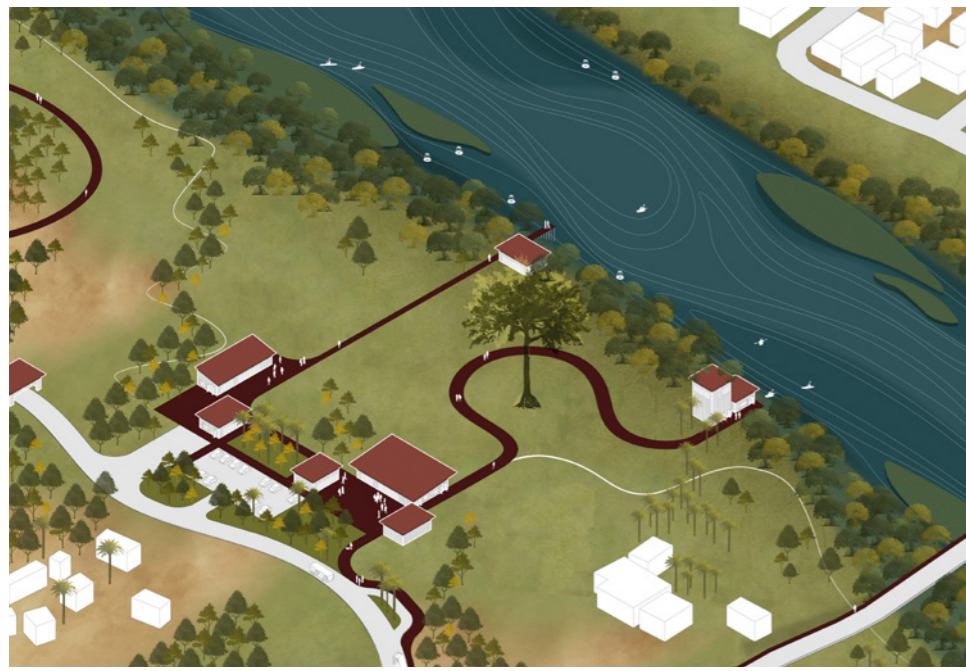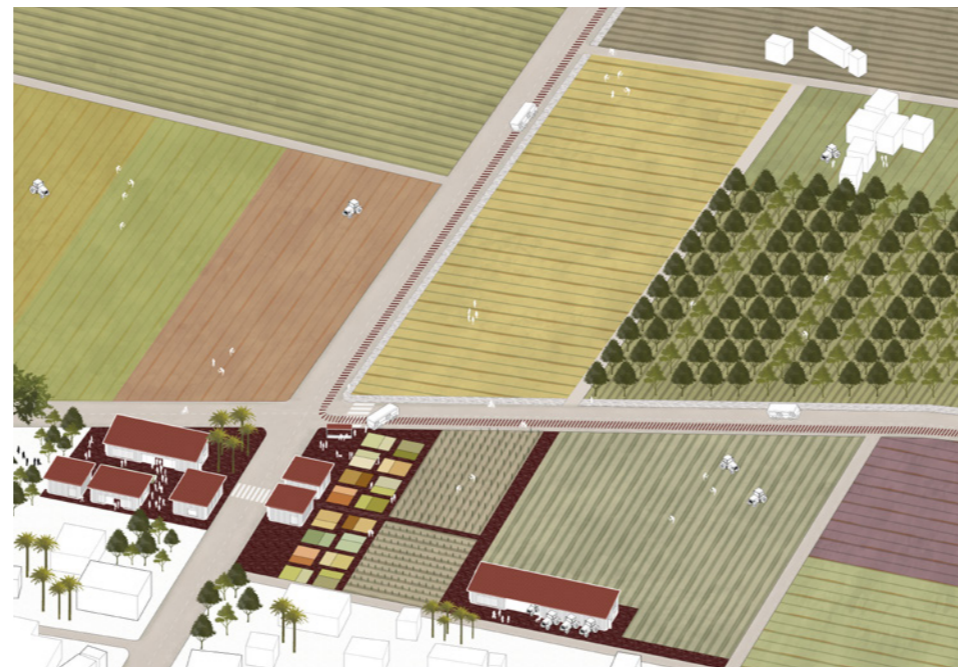
+

| Commnity | Infrastructure | Agriculture | Tourism |

BINATIONAL PARK
SANTA ELENA, BELIZE + MEXICO


AGRICULTURAL TRANSITION
CHAN CHEN, BELIZE

RECEIVER TOWNS
SACXAN, MEXICO

RIO HONDO BI-NATIONAL PARK
## Santa Elena | Mexico + Belize

The proposal revolves round the creation of a binational park. We extend the concept of the Mexican *Ejido* into Belize to form a **Transnational Ejido** that collectively manages and take sstewardship of the proposed Rio Hondo Bi-National park.
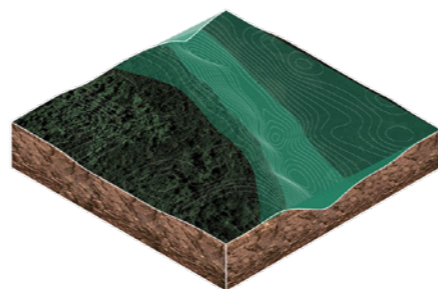
The shape of the park follows the watershed and projected flood line to buffer the river from agricultural run-off and development. Reforestation efforts will protect nearby resident from flood waters, and can help establish small scale regional eco-tourism therefore diversifying their economy.
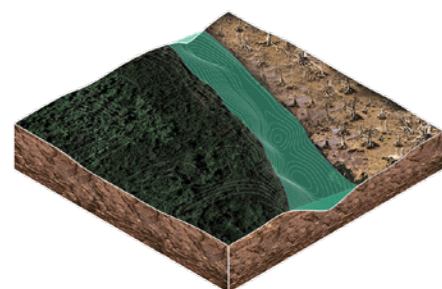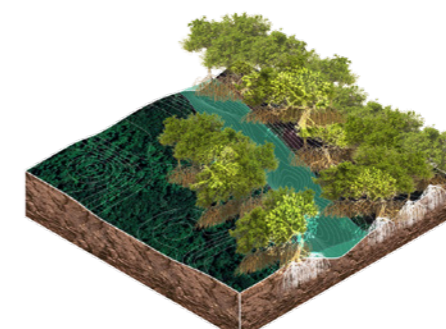

Mangrove deforestation

today
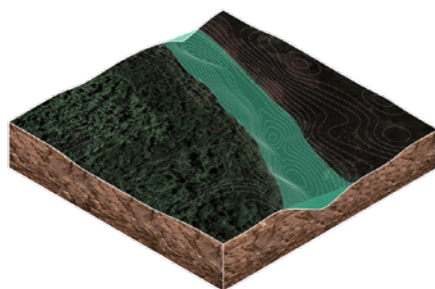
Swamp

today

Future flooding event

Bakatun 395 years

Reforestation

Tun 1 year

Mangrove forest

Katun 20 year

Eco-tourism

Katun 20 year

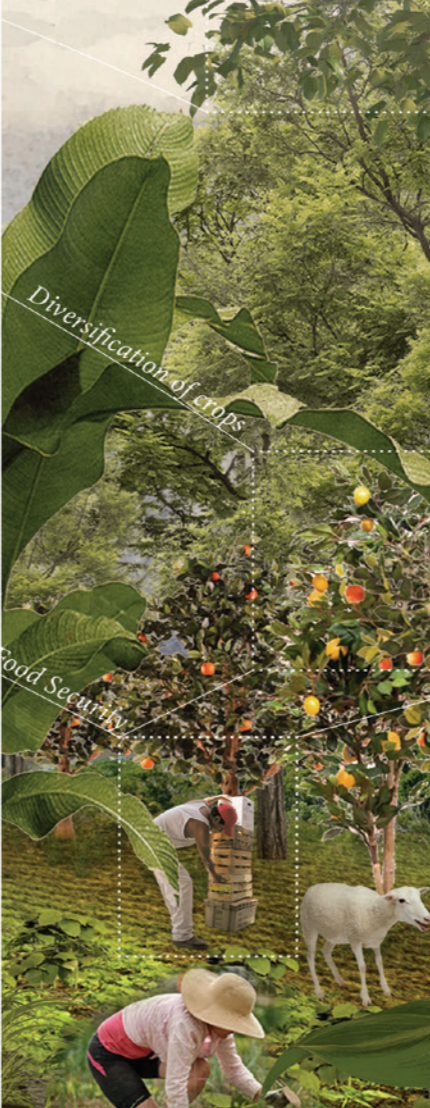# Agroforestry
Soil Restoration - Crop Diversification - Tourism

Present

Tun
1 Year

Katun
20 Years

Wood Harvesting when Mature

Diversification of crops

Coalition Center "The Stitch"

Resilience Officer

Intercropping & Nitrogen Fixation

Food Security

Livestock
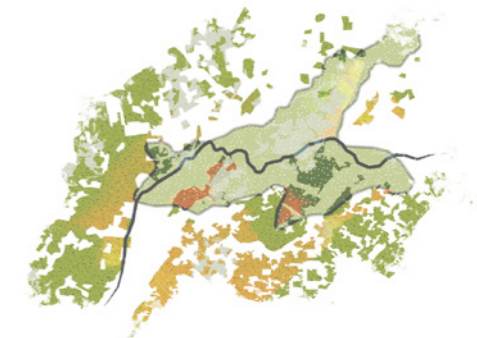
AGRICULTURAL TRANSITION
Chan Chen | Belize

The current agroindustry encroaches on the existing forests in the area. By incentivising agroforestry, it diversifies crops and begins to stitch the landscape back together. This layered model of agriculture becomes self sustaining in which crops work together to promote soil health. Livestock can also be incorporated, combining multiple systems together.

Within the year, tall fruit/nut trees can be planted to provide a large canopy and shade. These can be coupled with smaller fruit trees and low lying cash crops to begin to build a intertwined landscape. Livestock can be incorporated in which they provide rich fertilizer for the soil. Overtime people can begin to learn to live with their existing landscape and build off of it as well.

Land Use
today

Forest Restoration
tun 1 year

Pasture and Livestock
2 years

Intercropping
10 years

Crop diversification
Katun 20 years

Wood Harvesting
Katun 20 years

RECEIVER TOWNS
Sacxan | Mexico

In 80 years, sea level rise will become a more threating reality. The introduction of the **Coalition Center** would strengthen connections between villages along the Rio Hondo and prepare villages on higher elevations to receive an influx of people from coastal cities. Taking precedent from traditional Mayan housing clusters, existing blocks can densify around shared courtyards to receive these climate refugees.
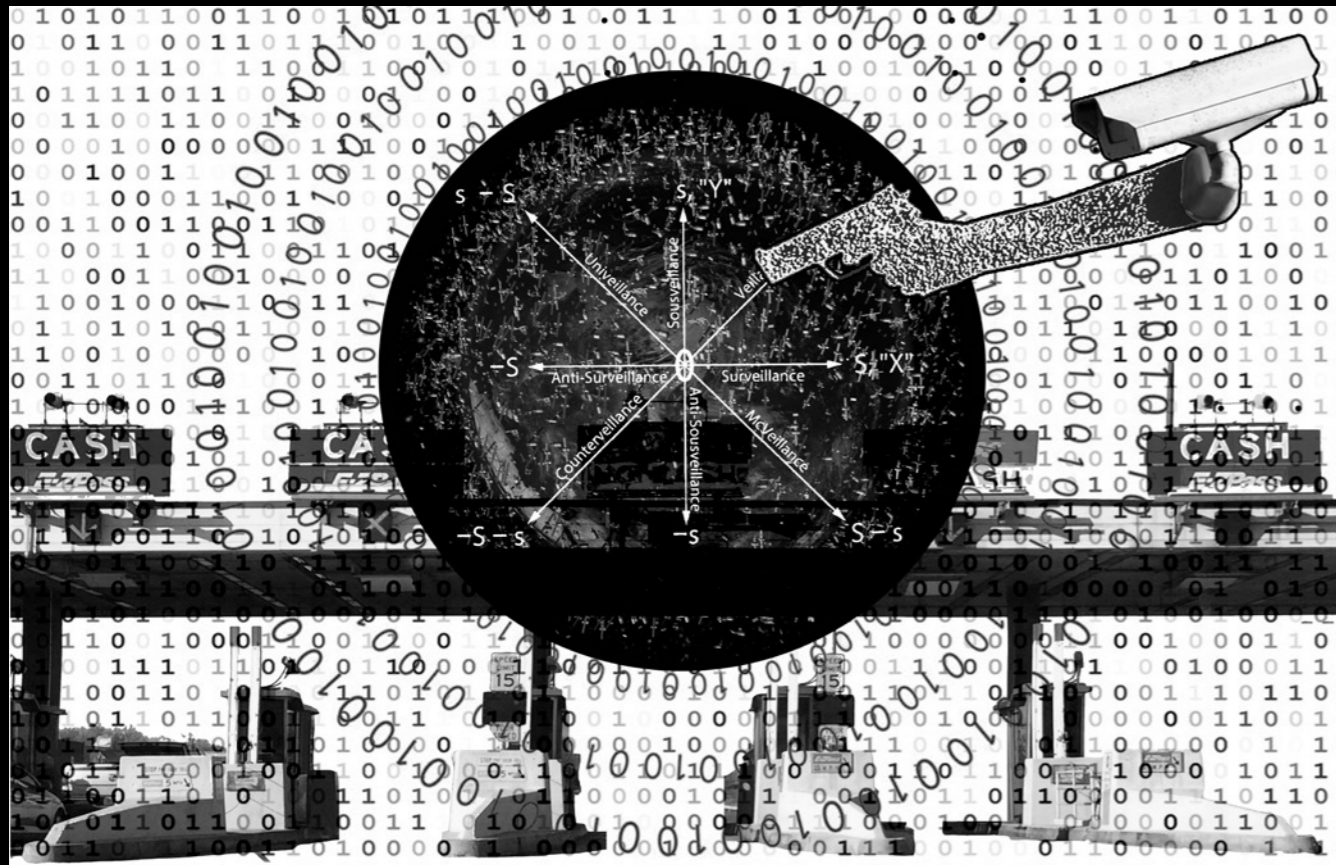
Receiver Towns

04
POWER TOOLS

VISUAL STUDIES
Instructor: Lexi Tsieng
Jelisa Blumberg

R E A D I N G +
I N T E R P R E T A T I O N

Dark Matters
Simone Brown

The author of Dark Matters, Simone Brown, has written a detailed account on the concepts of surveillance and racial surveillance in particular. The diagram is a curated collage of elements from the reading - centered on the earth and all its artificial satellites, almost disconfiguring the sphere, against the background of a binary data set.

SITE STUDY + INTERPRETATION

Steinway Street
Astoria, Queens

Drawing inspiration from the spirit of Steinway Street in Astoria, Queens, the drawing imagines the street within the community refridgerator. Projecting an element of time as a physical manifestation of street signage as "past" and "present", the ice in the freezer blends within a snowy day - bridging interior/exterior atmospheres as one.

05

FABRICS + TYPOLOGY

ARCHITECTURAL THEORY
Instructor: Prof Richard Plunz
Team
Cesar Delgado
Tanuja Dhanasekaran

VENICE | ITALY

concept for a future amphibious city

Over the years, subsidence, the gradual lowering of the surface of Venice, has contributed to the seasonal Acqua Alta ("high water") when much of the city's surface is occasionally covered at high tide.

The newly proposed fabric of Venice aims to integrate its diverse built form and programming such as the commercial, residential and public spaces while weaving the canals, piazzas, moments of faith, and the characteristically narrow passages into the fabric.It aims to tackle the phenomenon of Aqua Alta or the seasonal high tides of the Adriatic Sea surrounding the lagoon by the use of water channels that can hold the excess water during the floods.

VENICE CITY FABRIC
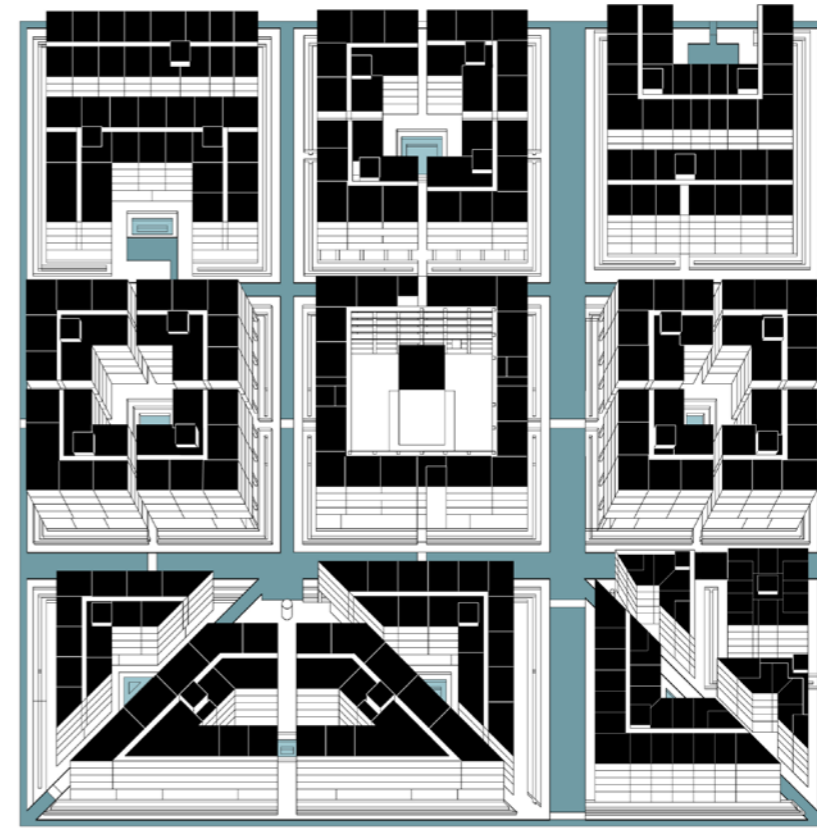
PROPOSED GRID WITH FLOODABLE CANALS

SELECTED GRID

MODULE TYPOLOGIES

The North comes to the South

ARCHITECTURE + DEVELOPMENT | Fall 2022
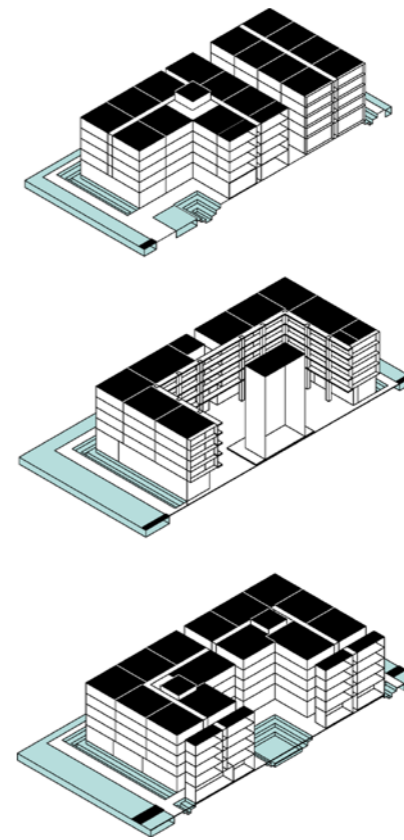*Instructor: Prof Ateya Khorakiwala*

[excerpt]

One of the primary implications of the caste system in Indian cities has been instances of residential segregation. Hierarchy and class come into play in the organic evolution of many Indian cities where one can find the lower caste communities settled along the outskirts of the cities whereas the higher castes occupy the central areas. The catalyst for such settlement patterns is more often attributed to occupation and proximity to places of work. It has been long observed that families in India tend to practice certain occupations that are passed down generationally. But such segregation also results in the ghettoization of minority groups and this type of stratification in the society is passed down many generations. While caste-based segregation is seen in most urban cities of India, I take the example of Chennai, a south Indian metropolitan city, and trace the development and characteristics of a neighborhood that is an example of caste, class, occupational and commercial based settlement.

Chennai in an urban context accommodates various communities in different parts of the city. The communities can be identified by caste, religion, occupation, and many other aspects. For example, the temple-centric neighborhood of Mylapore is a historic settlement that continues to be a Brahmin community to date. There is Triplicane and Royapettah which are essentially Muslim-occupied neighborhoods. The slums along Marina Beach houses the fishermen community while Poes Garden is a posh neighborhood that is home to influential politicians.

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While the list goes on, neighborhoods in north Chennai have a distinct character on their own. Sowcarpet, which is a neighborhood within the larger George Town area in north Chennai, is unique in the sense it is not only marked by caste, it is also the only neighborhood that is majorly occupied by migrants from northern India and who speak Hindi as opposed to the rest of the city of Chennai which speaks Tamil. The language difference needs an important mention as Chennai, and most of Tamil Nadu, is one region in India in which the majority of its people do not speak the Hindi language. This comes from a long sense of Tamil patriotism that essentially forefronts Tamil as the primary language in the state of Tamil Nadu.

The political parties of Tamil Nadu actively refuse to accept or adopt Hindi as a communicative language for any official purposes. Despite of such resistance to the north Indian language and culture in Chennai, Sowcarpet stands out in its own righteous manner. The Rajasthani and Gujarati descendants residing in Sowcarpet speak Hindi within their homes and Tamil outside. They have adopted a unique blend of both cultures and created a hybrid community of their own. They have lived in Sowcarpet over a few generations now and continue to thrive amidst a crowd that does not speak their language but actively engages in trade with them.

In this paper, I trace the historical development of this settlement and study the position of this neighborhood of Sowcarpet in the larger context of Chennai.
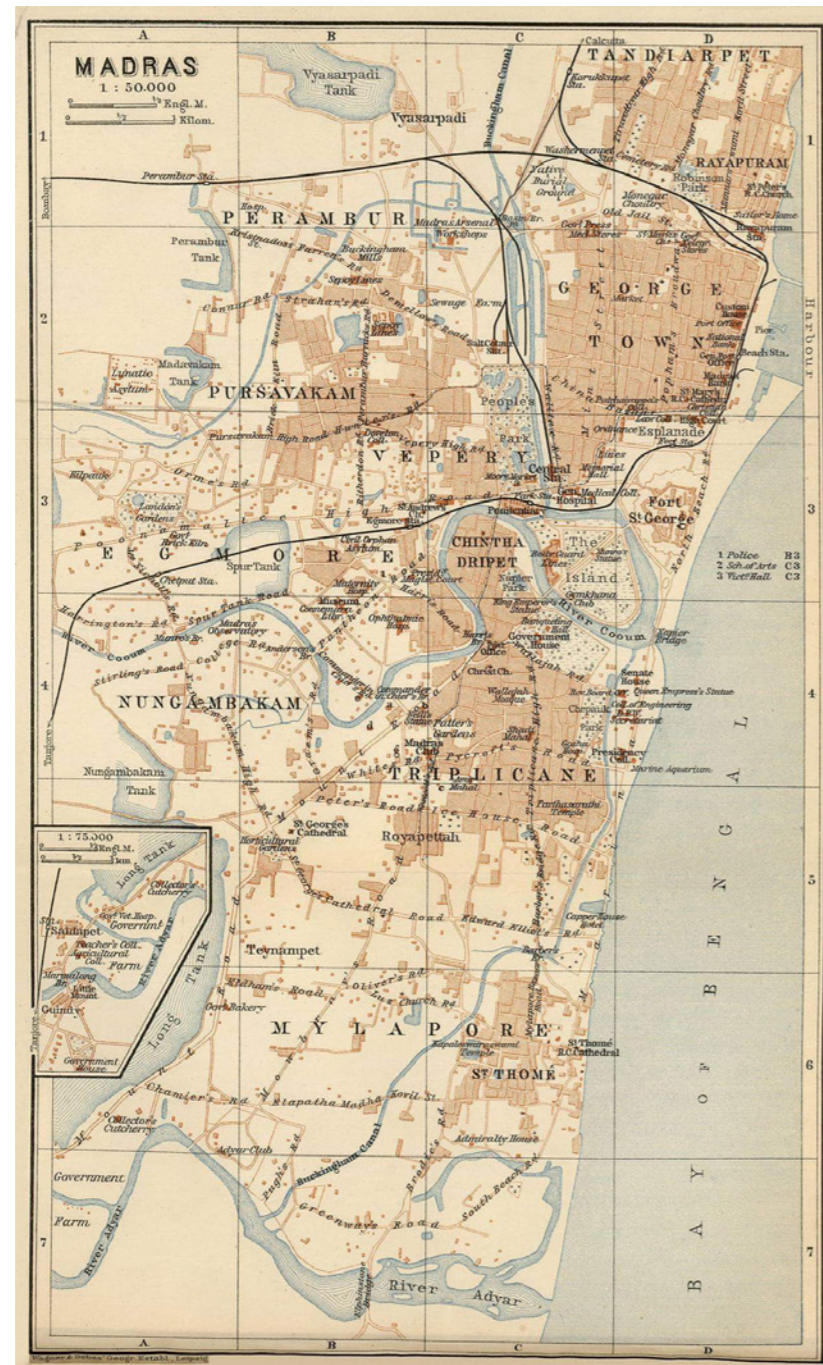
CHENNAI / MADRAS

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