

Surabhi Dahivalkar

Urban Design |

Columbi University, GSAPP

Portfolio Narrative

Mending the River Continuum

Belize. | Spring '22 Urban Design Studio III, GSAPP, Columbia University

Investigating Sea spots, Sea of Marmara

Resilient Coastlines, | Spring '22 Seminar, GSAPP, Columbia University

Conflict Urbanism

Dharavi, Mumbai , India | Spring '22 Elective, GSAPP, Columbia University

De- Centralize the river

Regional Cities and Context: Atlanta After Proper, Chattahooche River. | Fall '21 Urban Design Studio II, GSAPP, Columbia University

Urbanization in Global South

Fall '21 Elective, GSAPP, Columbia University

Made in Willets Point

Flushing Creek, New York | Summer '21 Urban Design Studio I, GSAPP, Columbia University

Urban Design Studio III, GSAPP Spring 2022.

Lead by Faculties:

Kate Orff, Geeta Mehta, Thaddeus

Pawlowski, Adriana Chavez, Lorena Gomez, Victoria

Vuono

'Today, the Mesoamerican Reef provides essential coastal and marine ecosystem services, sustains key economic sectors (especially fisheries and tourism), supports the livelihoods of millions of people, and contributes to protecting coastal communities against adverse effects of climate change. At the same time, the Caribbean coastlines of Mesoamerica (e.g., Mexico, Belize, Guatemala, and Honduras) are among the most vulnerable regions worldwide to climate impacts (Reynolds, 2019). As Columbia's Cynthia Rosenzweig of CCSR explains, "Coral reefs are already experiencing damage [from climate change], and they're projected to experience significantly more damage, even at temperature rises of 1.5 and 2 degrees Celsius" above pre-industrial levels.'

'This studio will explore positive, regenerative "ridge to roof to reef" vision for key towns, cities and farms along the coast. Our goal with this urban design studio is to understand how marine & fisheries restoration, climate mitigation, and local jobs & prosperity can combine across the system in different sites and scales. In the Belize context, innovative coastal zoning, land-use standards, new management and resilience concepts have created ground for alternative forms of water driven development patterns.'

-Studio brief

Team Members:

*Bianca Bryant, Surabhi Dahivalkar,
Cesar Delgado, Jake Tiernan.*

Mending the River Continuum, Belize

The evolution of agriculture from indigenous to corporate practices has compounded the pollution of the river continuum (flow of water from the source of watersheds to reef) within Belize, leading to the destruction of natural ecosystems from headwaters to reefs. Independence and Mango Creek will restore and revitalize the river continuum by transitioning to a fluid, nature-based agricultural system that actively prepares the communities from the economic and environmental effects that will stem from climate change.

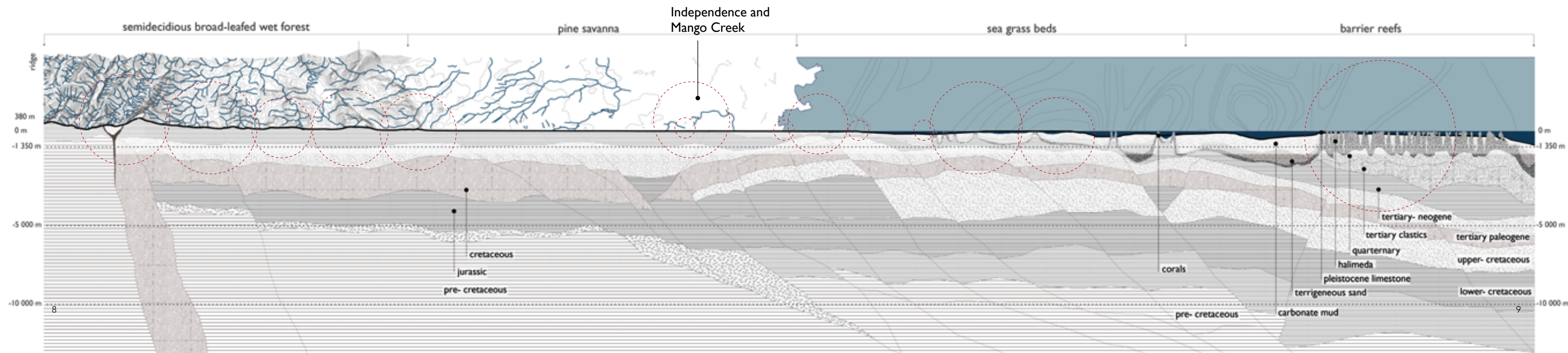
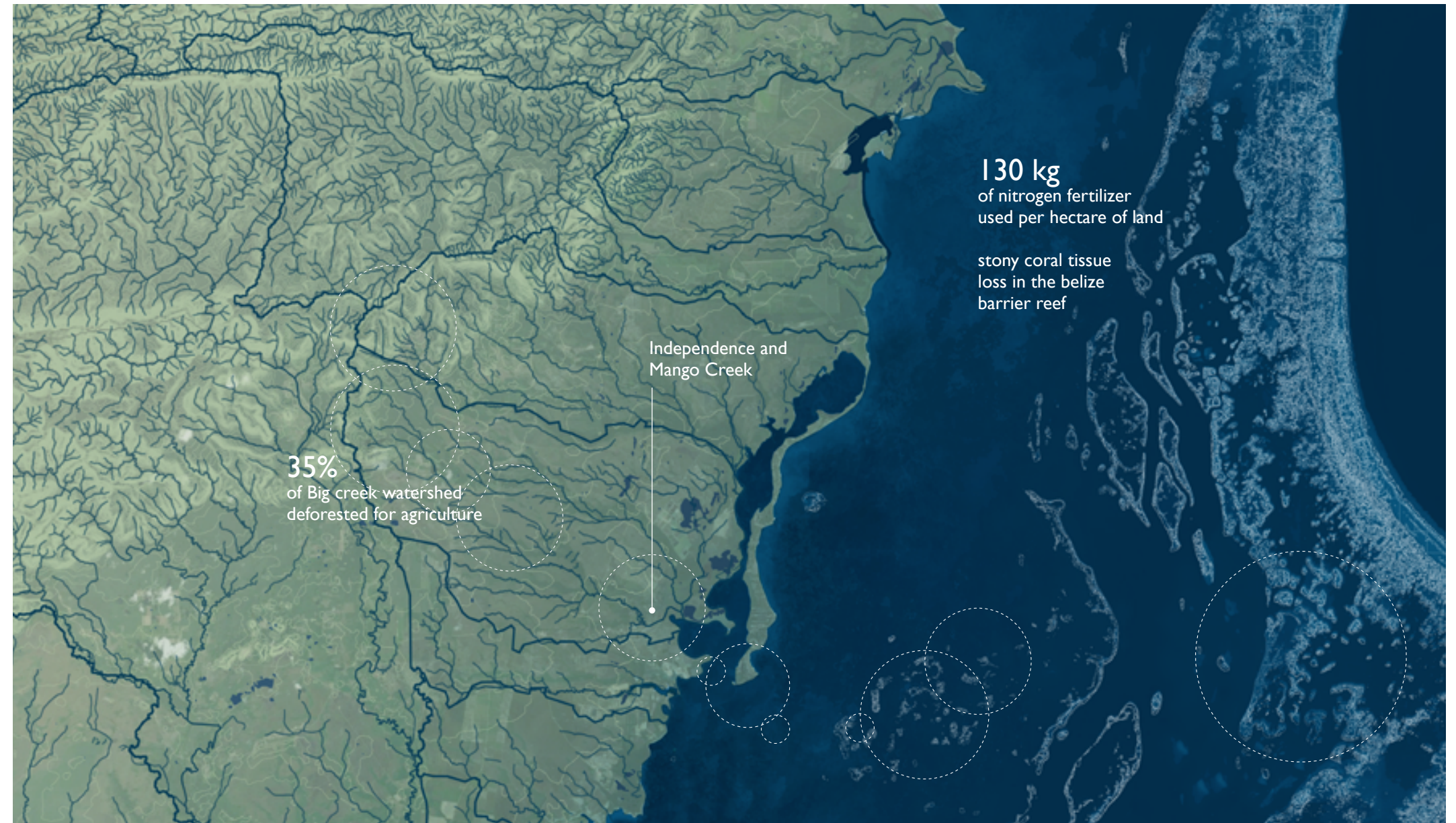


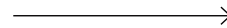
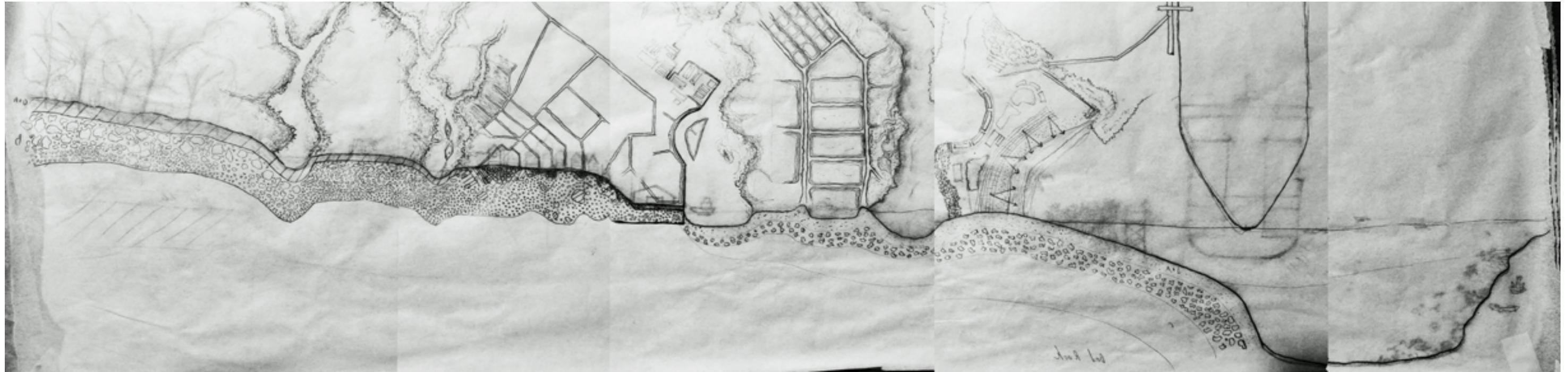
Watersheds:
effects of capitalism on ecosystems

These creeks are bounded by seven major watersheds, with water flowing from headwaters in the Cockscomb Basin to the Belize Barrier Reef system many kilometers away. As parts of the River Continuum, they're impacted and shaped by whats around them.

Our site sits along a coastal area adjacent to the Meso-American Great Barrier Reef. The reef is currently suffering from Stony Coral Tissue Loss disease, an issue driven by excess Nitrogen.

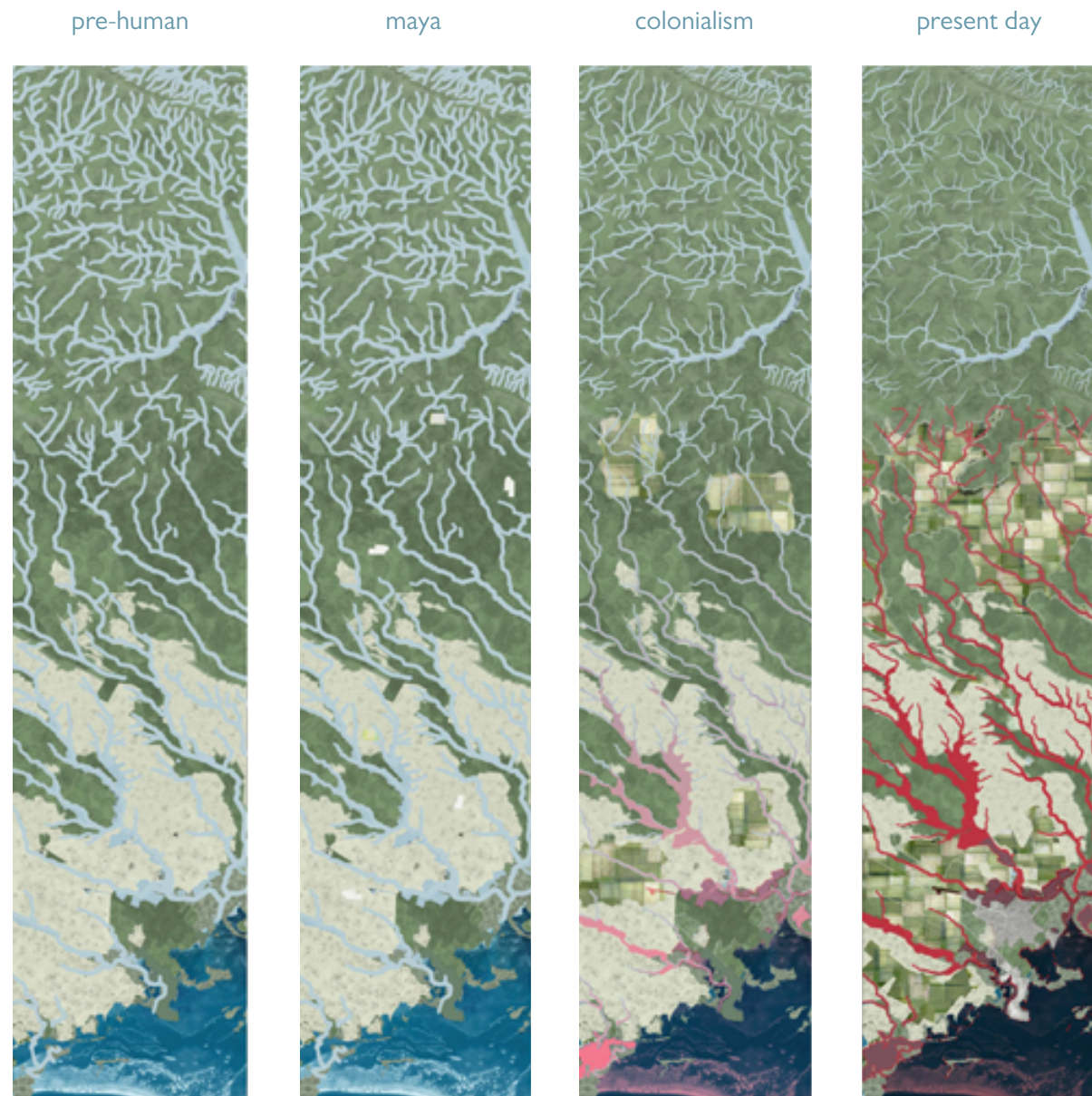
Overtime tectonic activity and erosion of bedrock by water has created fertile alluvial soils within the **river continuum** which have fostered rich ecosystem diversity and bountiful agricultural soil.





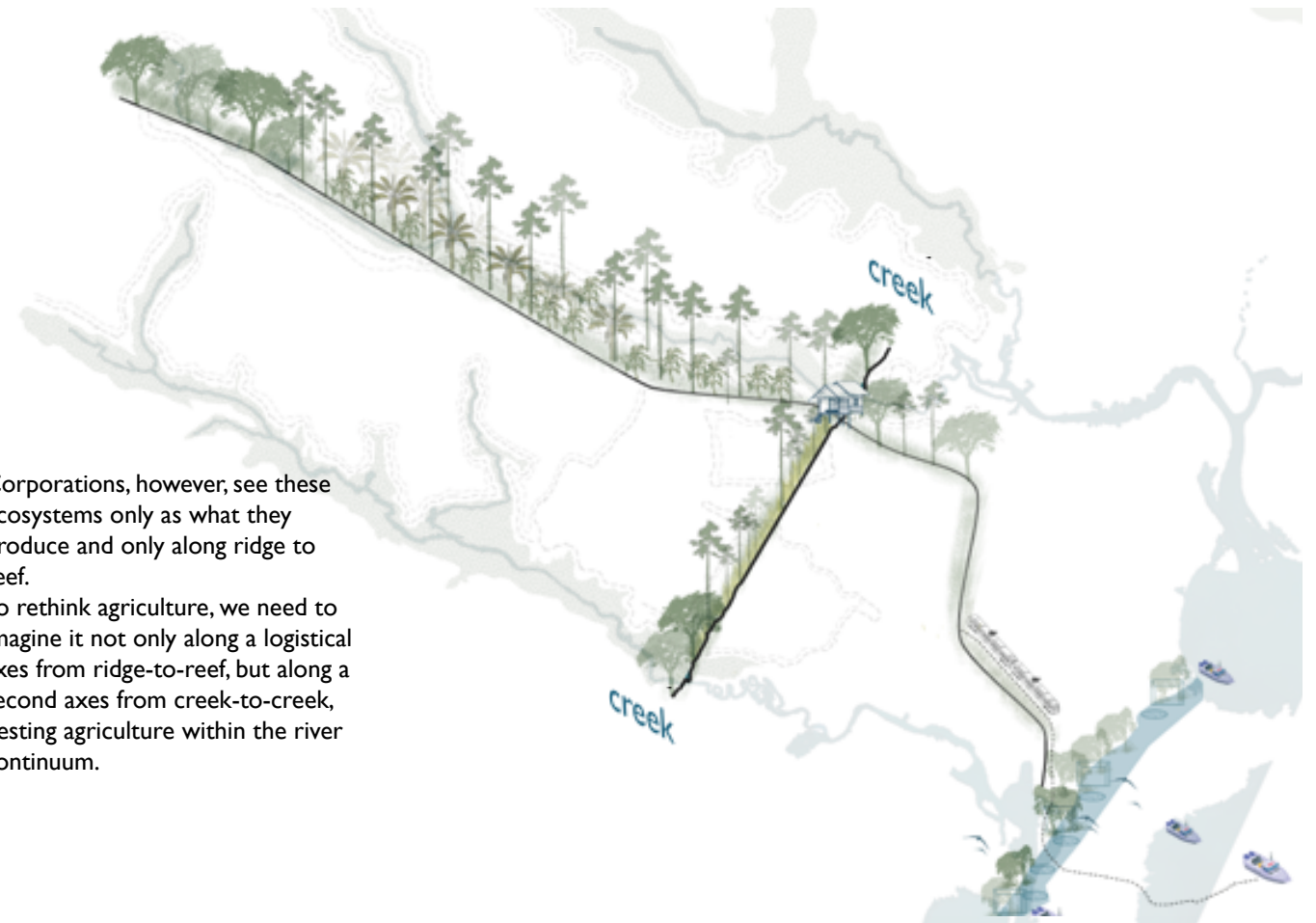
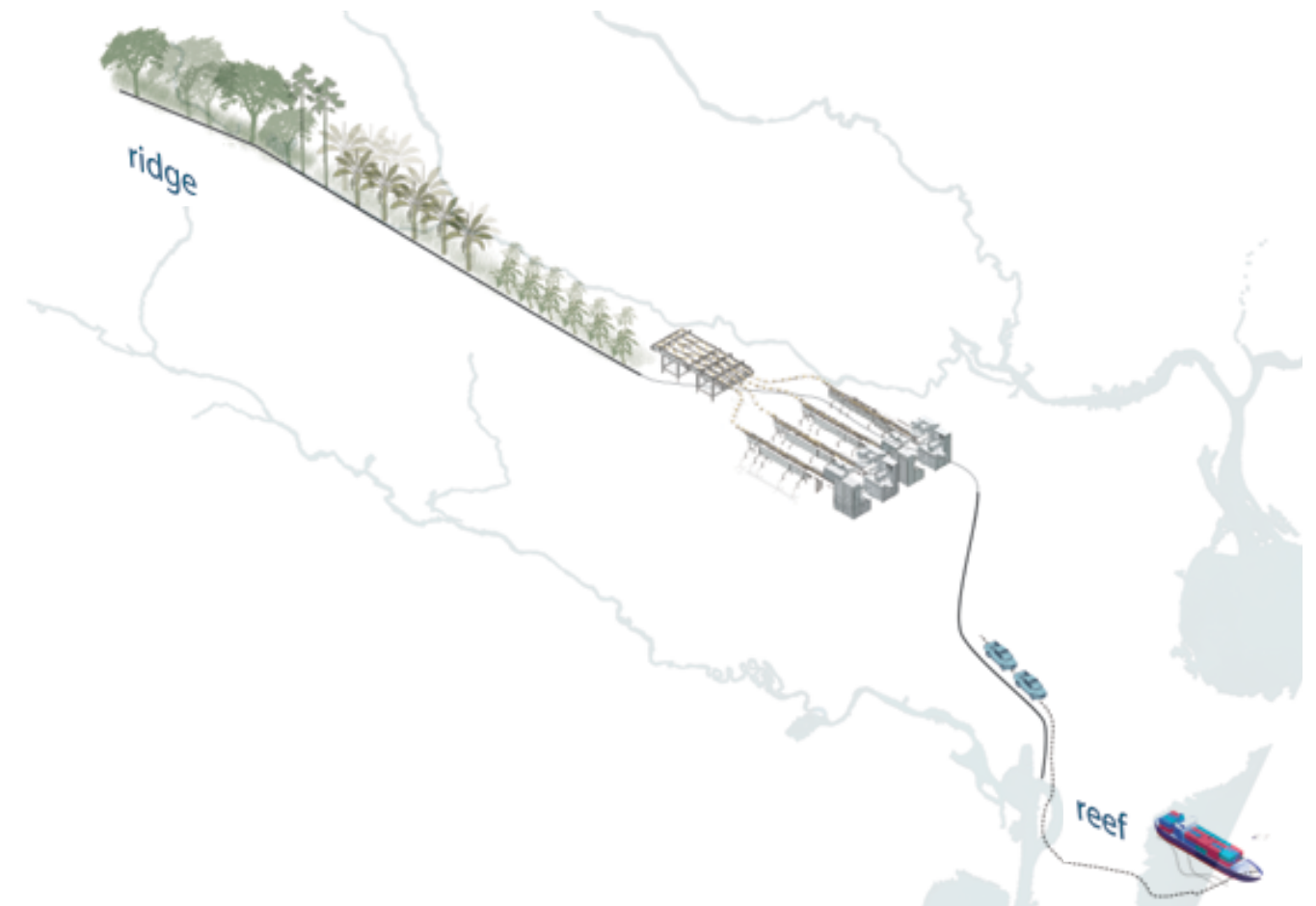
Compounding effects of fragmented landscape along the watershed:

- deforestation of rainforest
- extractive agriculture production
- rural- urban form
- corporate export facilities
- extractive aquaculture
- extractive tourism
- degradation of sea grass beds & coral reefs

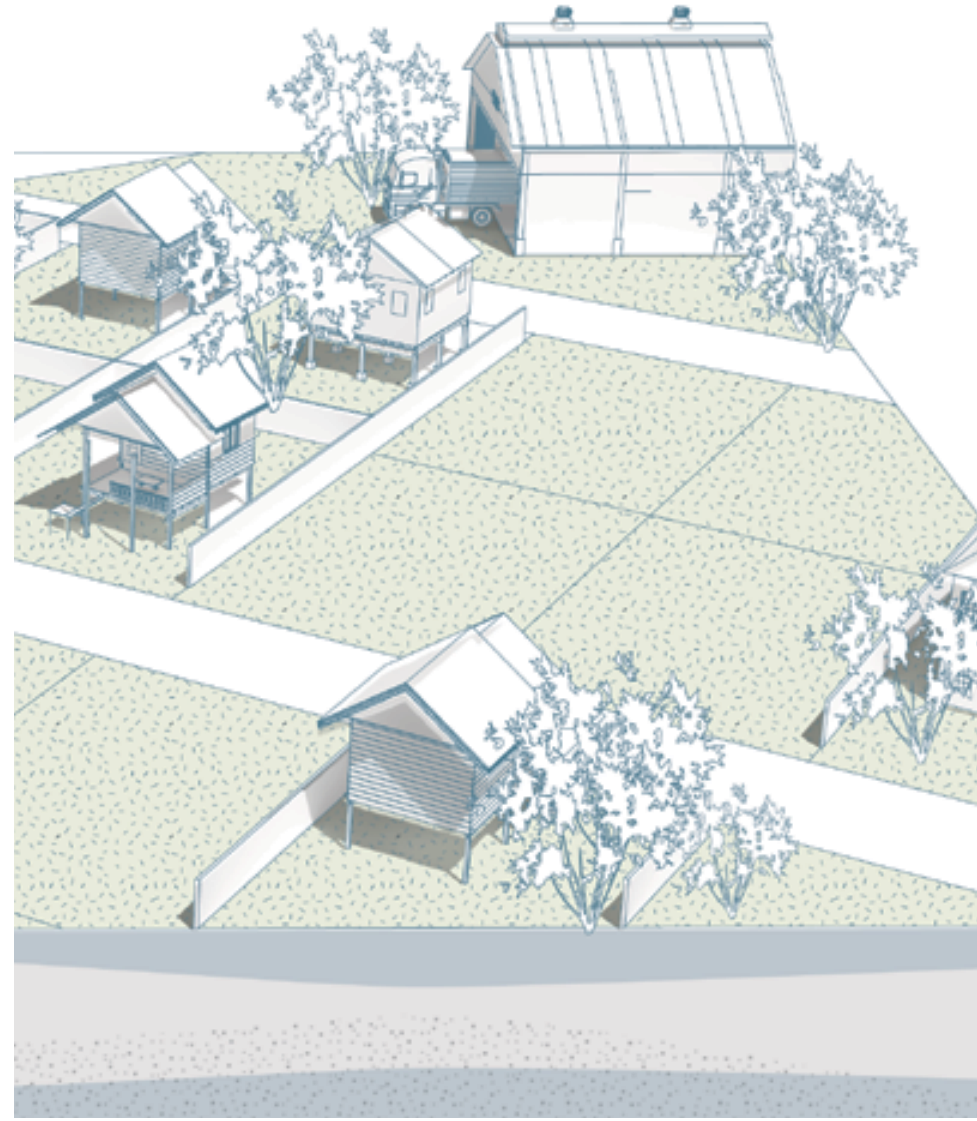
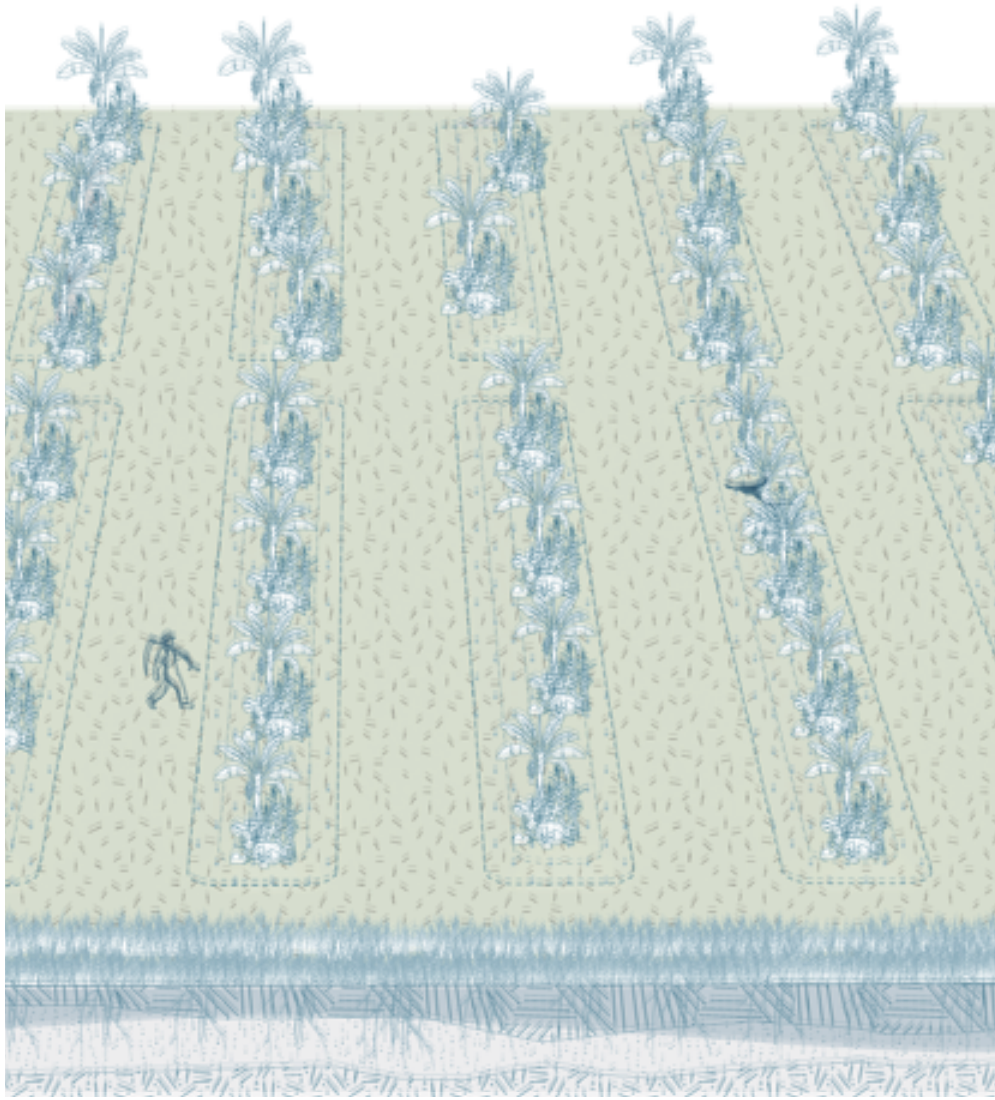


History of Colonialism: timeline of river continuum

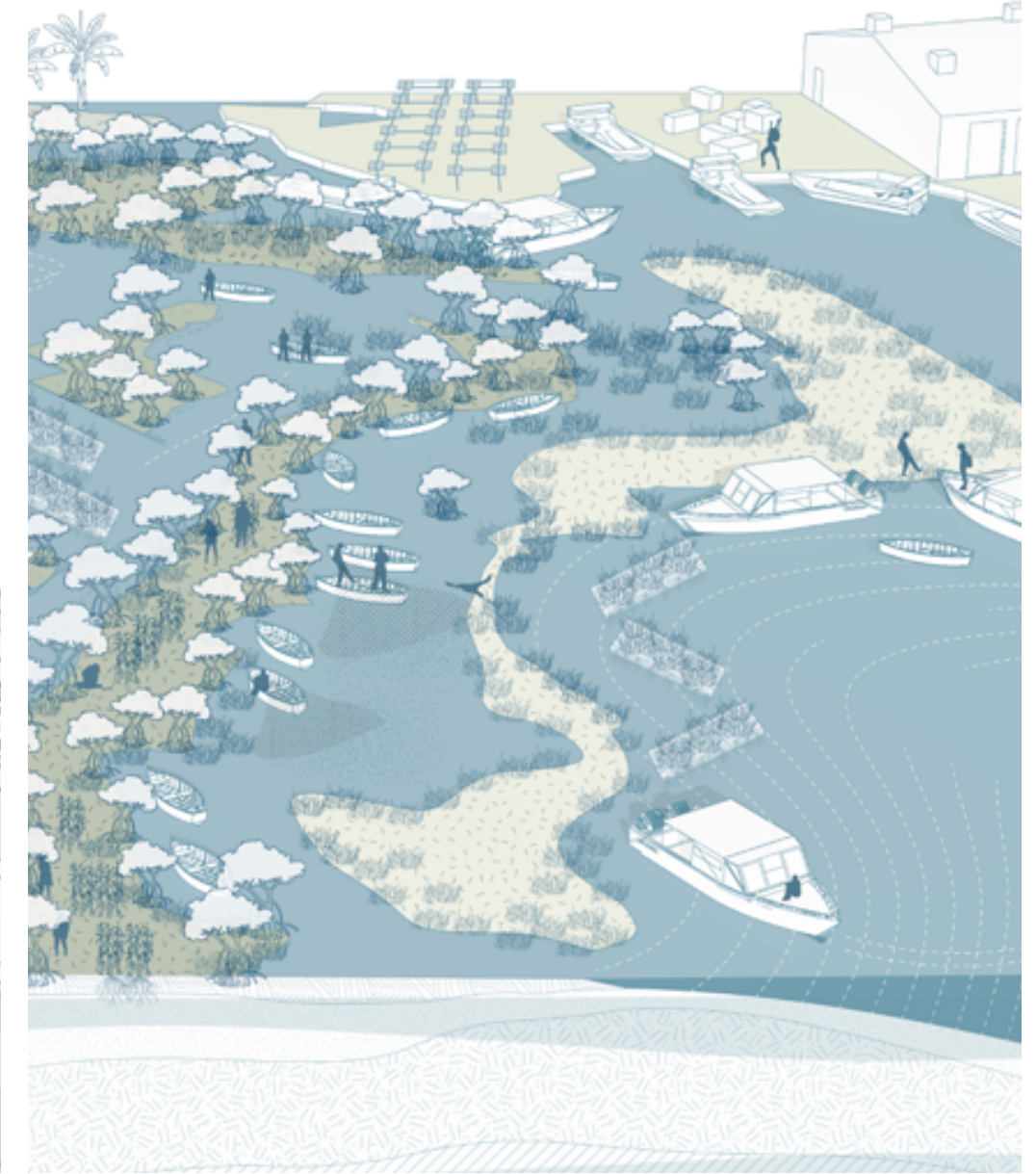
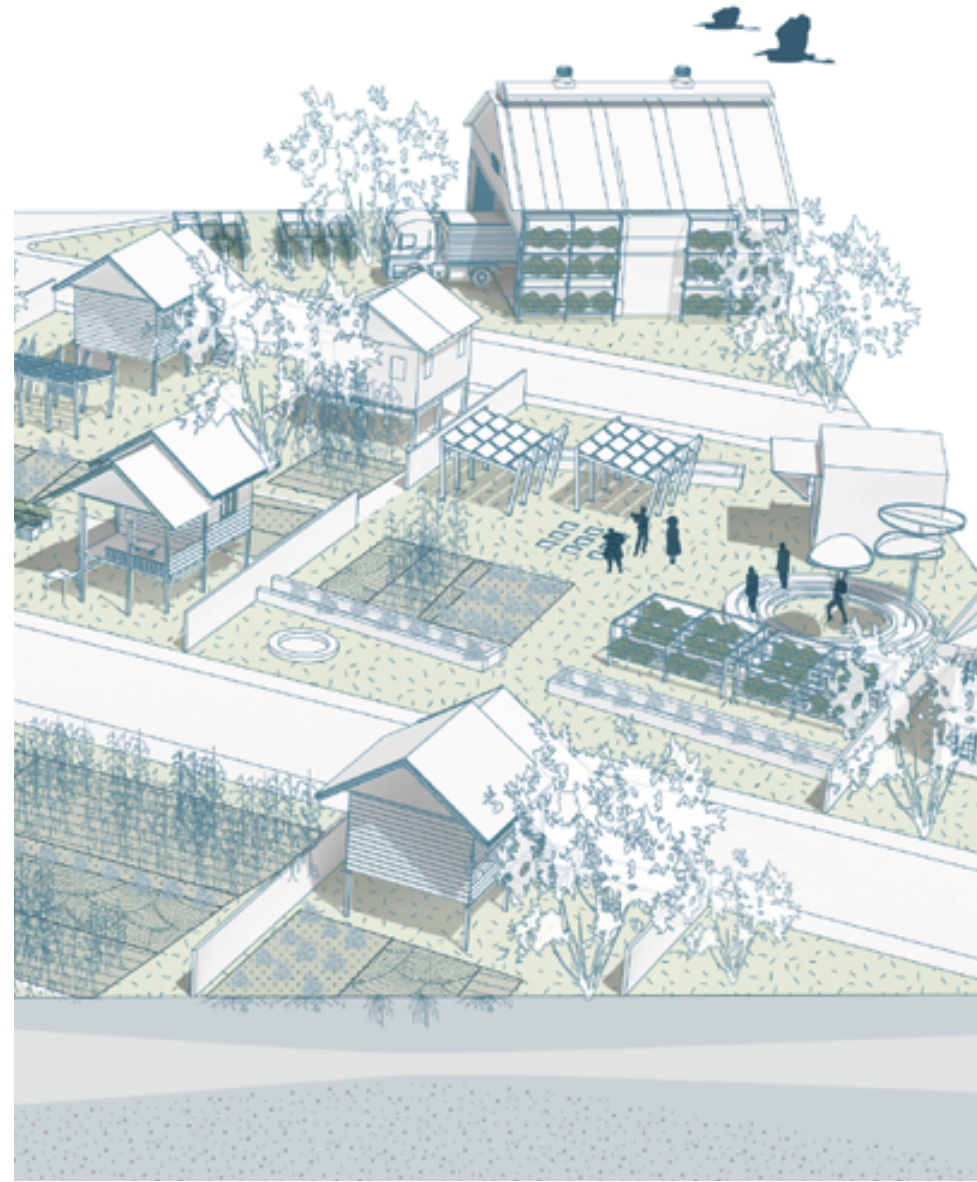
- Originally, position in river continuum led to rich ecosystem diversity.
- Maya farmers noticed this and farmed the land in an intimate give and take system.
- Colonized by the British and Spanish in the 16th century and, alongside imported, enslaved workers, were forced to work the land in intensive, detrimental ways.
- Today these practices continue as international agriculture conglomerates continue to harm the environment and local workers



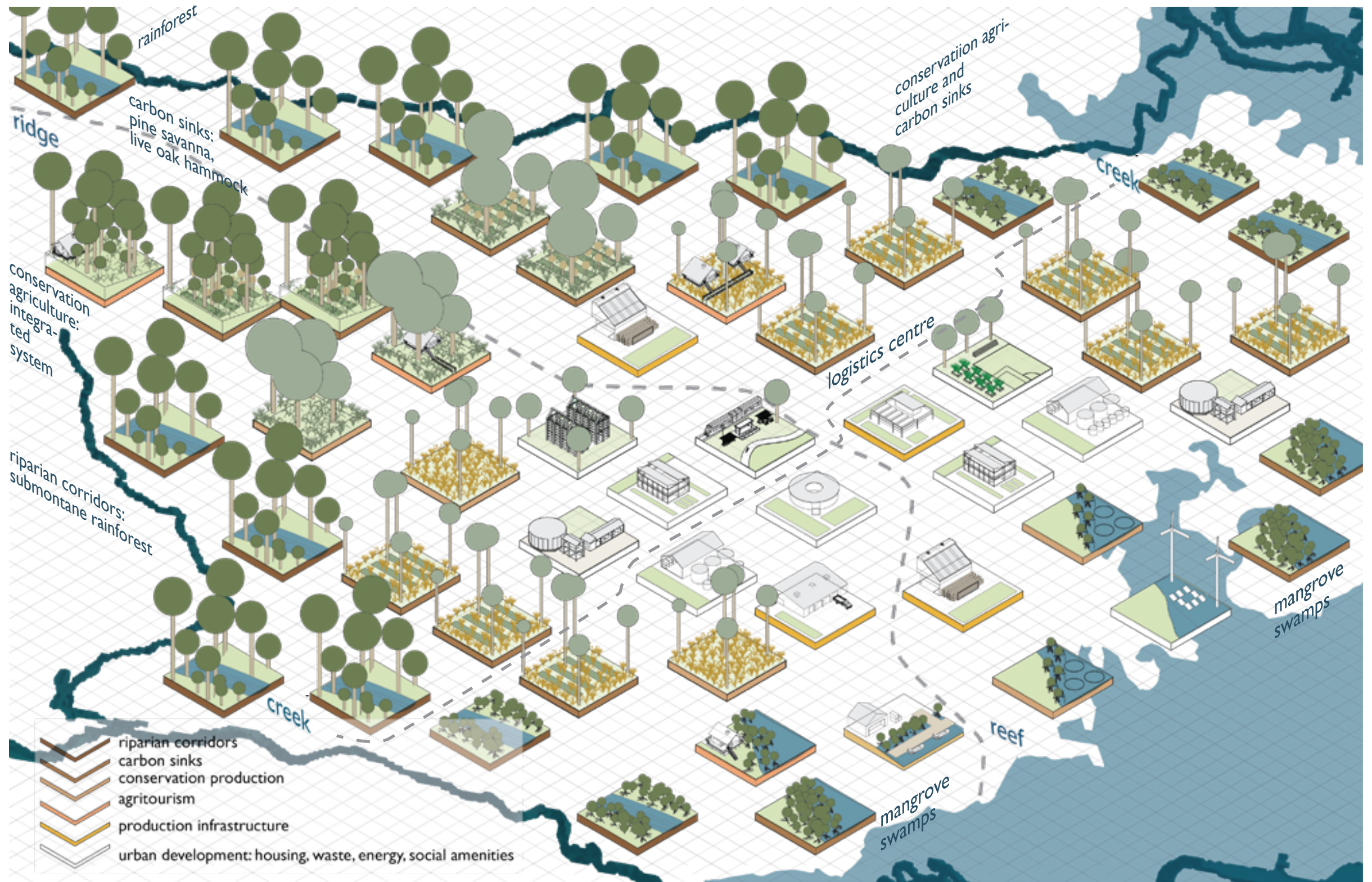
Corporations, however, see these ecosystems only as what they produce and only along ridge to reef.
 To rethink agriculture, we need to imagine it not only along a logistical axes from ridge-to-reef, but along a second axes from creek-to-creek, nesting agriculture within the river continuum.



Corporate agricultural practices at at 3 points: production in Inland, processing and packaging in rural urban area, and export facilities at coast



The shift to conservation agriculture paired with the traditional path of agricultural logistics creates a chain that is healthier for communities and the environment alike and prepare for coastalmitigation against SLR.



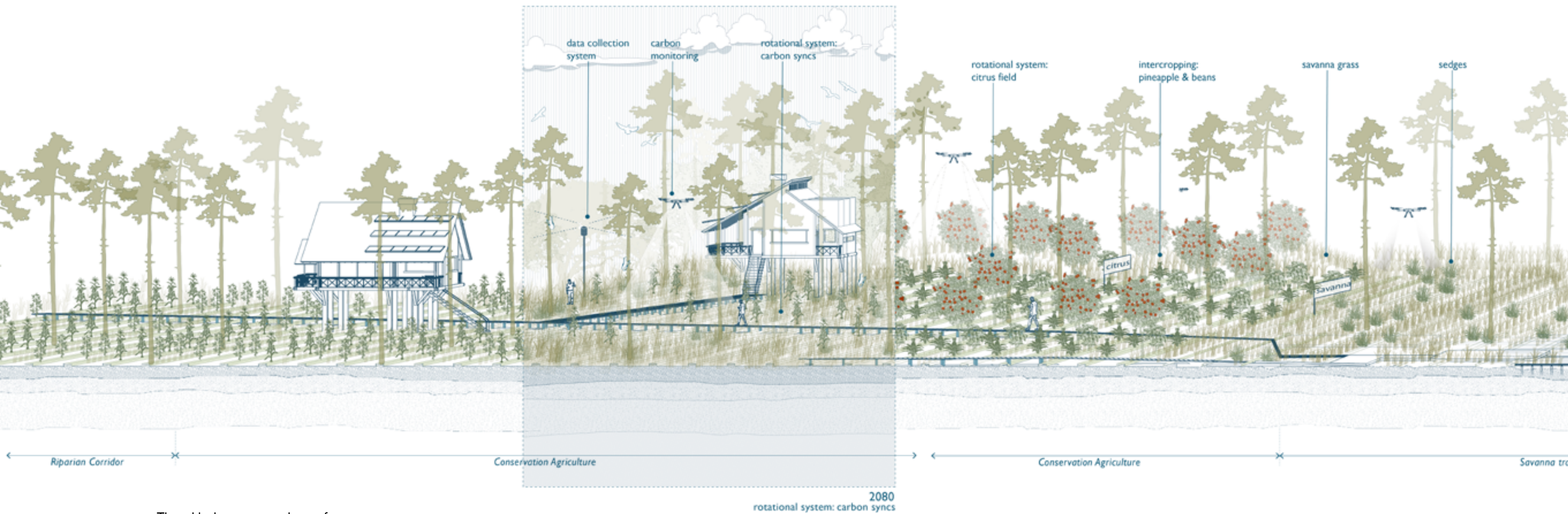
- + increased nitrogen processing
- + deep tap roots improve soil
- + healthy carbon sink environmental remediation
- + mangrove swamp coastal nurseries

The River Continuum Alliance will combine the tactics of government land concession, land trust, carbon credits, and cooperative labor force to form a community-centered organization whose top priority is to mend the river continuum.

A proposal of block system as a unit of change to simultaneously protect the landscape and build local wealth by diversifying revenue streams.

Production in this system comes from conservation agriculture, which is an all-natural agricultural strategy that utilizes intercropping and rotational methods to prioritize soil health which in turn keeps water bodies and the reef clean and healthy

Another revenue stream, agri-tourism, can be applied to **carbon sink and conservation agriculture blocks.**



2050 These blocks come together to form a mosaic where agricultural production is bordered by ecotourism and carbon sinks, with agrovoltatics and precision agriculture technologies interspersed throughout.

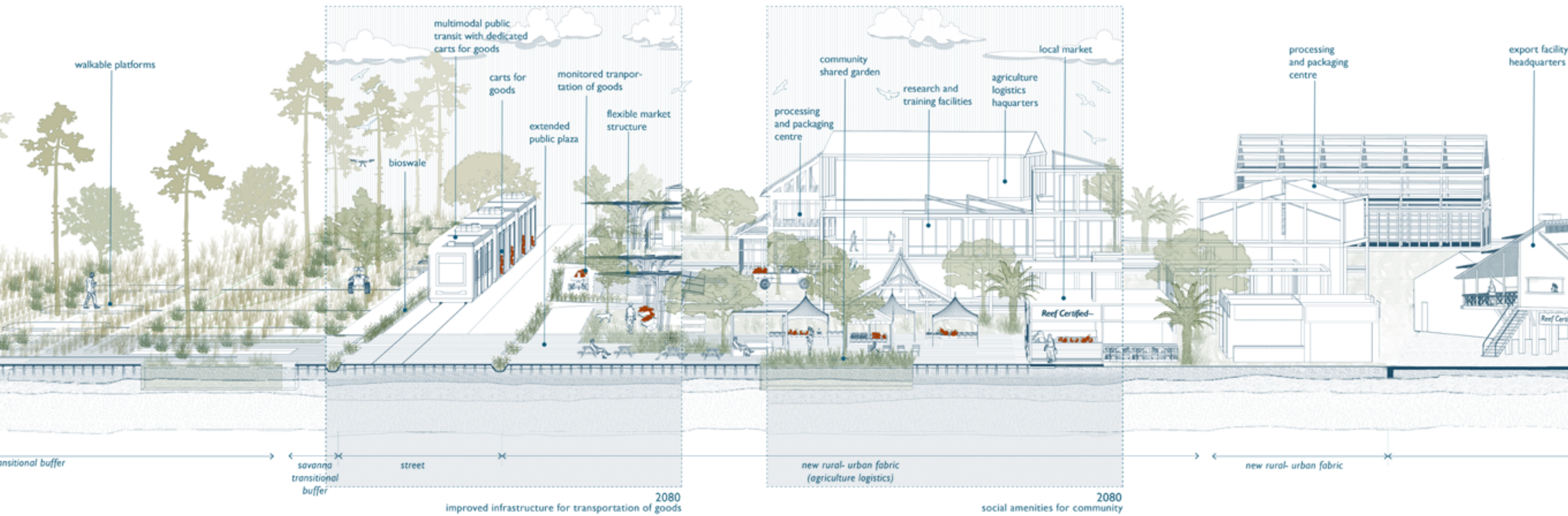
2080 A rotational system is created to enable community wealth building through returning profits generated by intercrop production and leasing carbon credit. Controlled burns mimicking naturally occurring wildfire “reset” blocks after either use once trees have matured and been harvested.



2050



2080



2050 The urban core becomes a hub for agriculture related knowledge, training, technology, and innovation

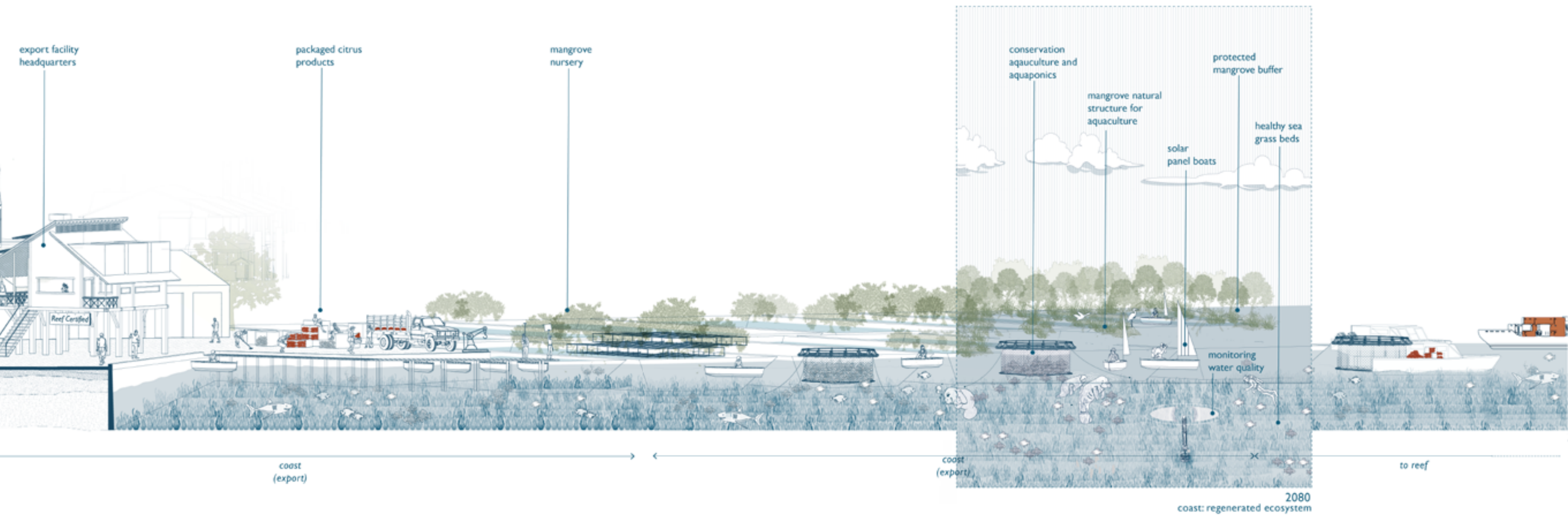
2080 Facilities are provided to improve logistical chain, Members of the alliance can get training to learn about operations within the field



2050



2050

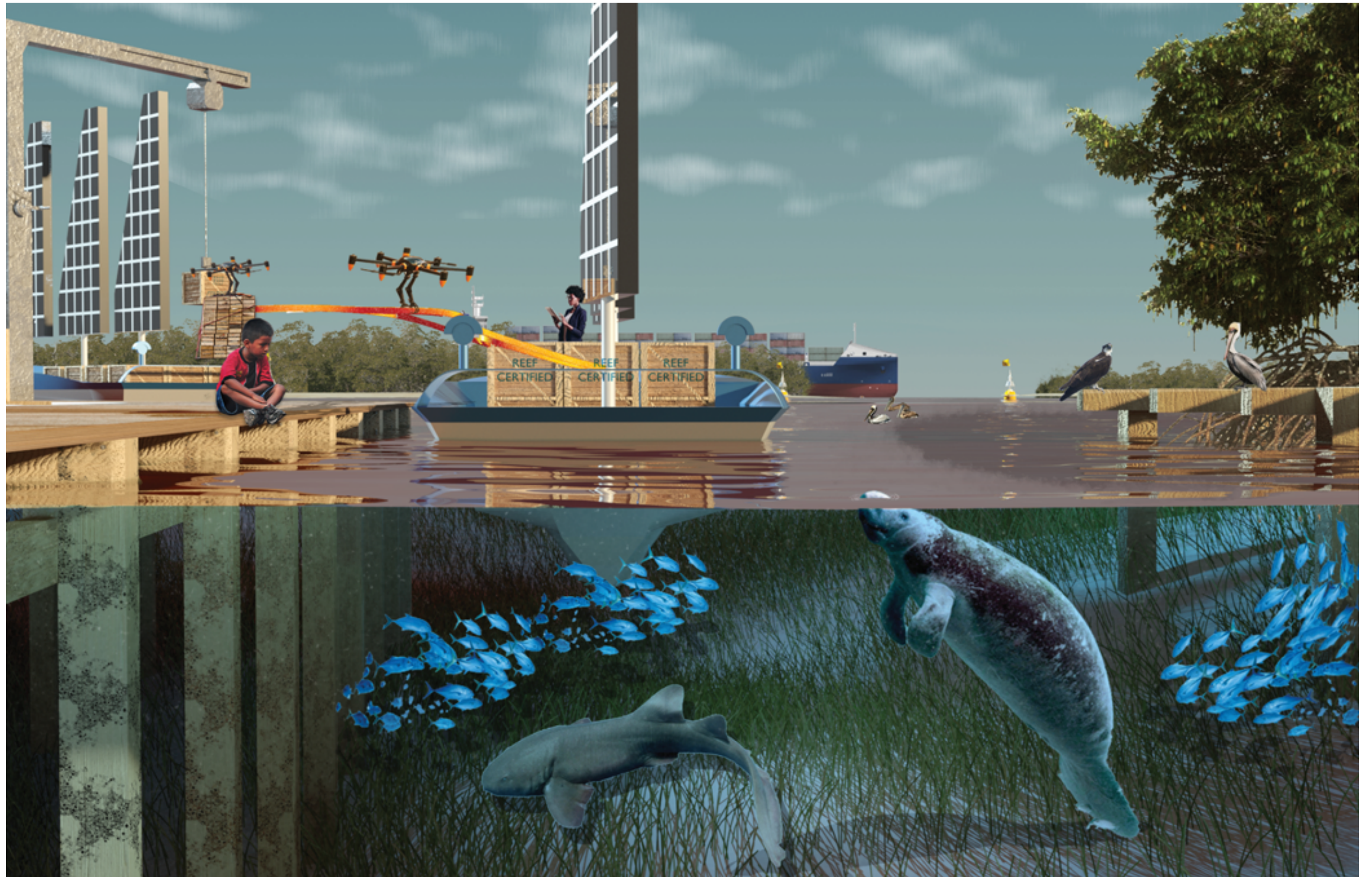


2050 The exportation practice is shifted to accommodate modular transportation of goods in small scaled boats, reducing need for dredging within the creeks.

2080 Downscaled shipping infrastructure is controlled by the alliance, keeping wealth local. Products are marked "Reef Certified" and sold to companies willing to pay the premium for an environmentally friendly, product.



2050



2080

Acting in tandem, all of these interventions help to build local wealth through redefining agriculture as part of the River Continuum. With these projections we see that it is a viable economic model for the communities to adapt and for it to be a replicable model in Belize



ARCHA6832 - Resilient Coastlines, GSAPP Seminar, Spring 2022.

Lead by

Kate Orff

'What is urban design for climate changed landscapes? How do we reconsider design expertise to be co-creators with people on the ground and truly understand stories and places in need? We will explore the potential of ecological and social systems to build resilience and to find meaningful pathways forward for tidal communities in an international context facing these existential challenges. We will learn about ecological infrastructure, productive landscape forms, and emerging approaches and strategies for climate adaptation practice in the built environment with a special focus on equity, justice and international perspectives in coastal adaptation. We will aim, through mapping and case study development, to uncover ways of integrating social justice and ecological imperatives into design and policy frameworks that can anticipate future harm and displacement and point toward more equitable future pathways.

A central learning objective will be to familiarize students with a broad suite of adaptation practices, landscape typologies and ecological infrastructure concepts as essential tools for urban design and planning. These concepts will be paired with readings from the fields of the social sciences and urbanism, and place-based case studies. We will discuss sea level rise as a global human rights issue.'

-Seminar brief

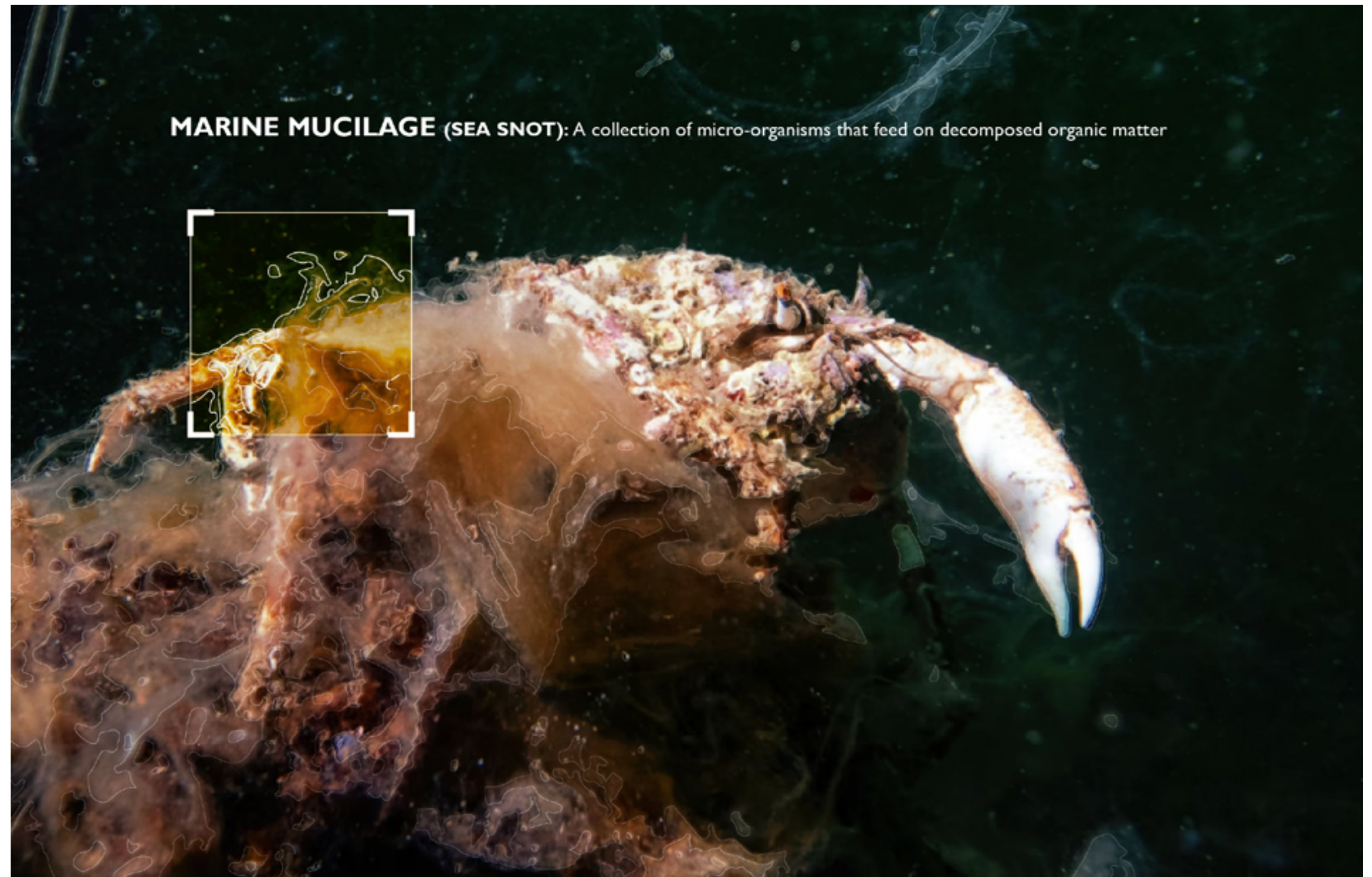
Team Members:

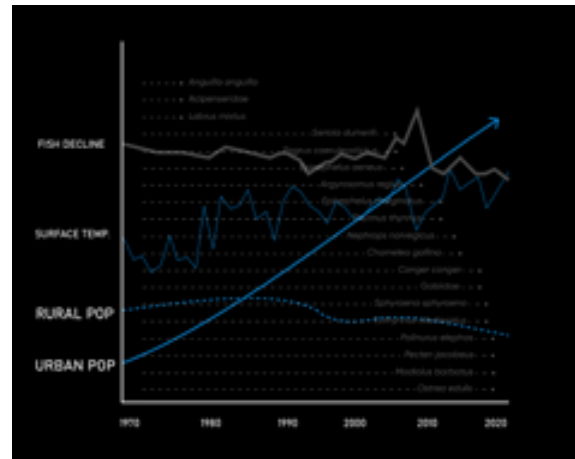
Surabhi Dahivalkar,

Galina Novikova, Carmen Yu

Investigating sea snots, Sea of Marmara, Turkey

In 2021, “sea snot” had already inundated the sea at a widespread scale, a direct result of pollution and a warming climate. Multiple stressors are causing a loss of habitat, killing corals and seagrass, while weakening the entire ecosystem of which many livelihoods are tied to. Although actions have been taken by the state to address marine mucilage, there is a lack of coordination across national boundaries and communities. This lack of transnational cooperation has prevented the rollout of a successful implementation plan to reverse the impact of marine mucilage on the region.





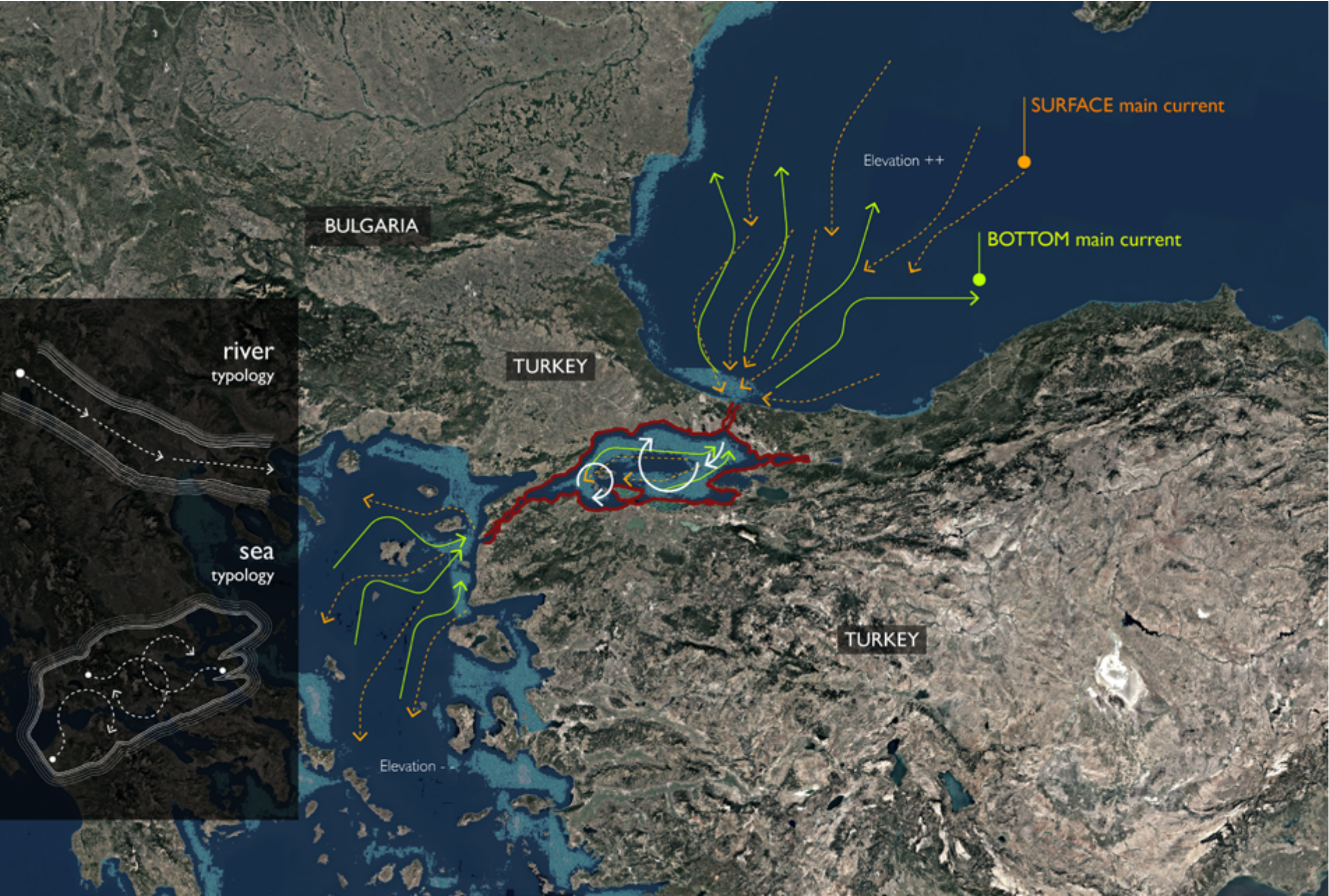
Coastal Ecology

Due to the increase in temperature as a result of climate change, sea snot has become a major risk threatening marine habitat loss, and a decline in the tourism industry, as well as the fishing industry. Due to the excess pollution coming from inland (agriculture runoff, industrial waste runoff, urban expansion, and other threats) there has been increased concentrations of phosphorus and nitrogen leading to an increase in phytoplankton - a microorganism that thrives on excess nutrients. As the phytoplankton decomposes, it secretes a sticky substance that eventually forms a thick layer of sea snot at the water's surface. As the sea snot continues to grow, it traps all waste at the surface, including plastic, bacteria, and fish larvae. This collection of debris prevents the sun from penetrating the water through to the sea floor, decreasing oxygen levels and in turn kills the existing marine ecology.



Geomorphology

The geomorphology of the Sea of Marmara reveals the central factor affecting the accumulation of the Sea Snot within the territory of the sea. The shape and structure of the water body is similar to a closed lake, which causes a lack of unidirectional flow of water from one end to the other, unlike a lake. The way the water circulates within this territory is caused by an elevation level difference between the Black sea and the Aegean sea, with the Black sea at a higher elevation. This phenomenon combined with meteorological parameters such as rain, speed and direction of winds, regulate the upper and lower water currents to circulate in opposite directions, anticyclonic and cyclonic directions respectively. In addition, the salinity classifications of the Black sea differ from the Mediterranean sea, resulting in stratification layers at their intersection and within the territory of the sea of Marmara with immiscible water. All these factors contribute to the sea snot's accumulation within the Marmara sea as opposed to flowing outwards in a healthy manner.



Action Plan

Eventually, the board aims to designate the Sea of Marmara as a protected region. The main problem this plan attempts to address is the waste coming from inland - specifically from domestic, industrial and ship facilities. Previously, waste was not filtered before entering the sea, causing it to act as open sewage dumping grounds. With this plan, discharge standards of wastewater treatment plants will be implemented within three months, as well as the discharge regulation of wastewater from ships. Existing wastewater treatment plants ultimately will be transitioned to becoming biological treatment plants. The Sea of Marmara Action Plans proposes some ambitious goals such as 24/7 remote sensing and aerial monitoring of the mucilage, heavy dependence on scientific and technological advancements and major shifts within agricultural and fishing practices to more sustainable actions. The ministry and board called for 3 years to clean up the sea of marmara, but there have been conflicting opinions on time frames for recovery. Scientists and experts are anticipating 5-6 years with a 40% decrease of inland pollution. However, more modest projections anticipate at least eight years of action to reduce land-based pollutants in order to recover oxygen levels prior to sea snot levels of hypoxia.

COORDINATION BOARD established by collaboration of multi-stakeholder institutions and organizations

COMPLETELY CLEAN MUCILAGE

WASTE WATER MANAGEMENT addressed through various ways

- ACTION 1:** In order to reduce pollution and monitor the Marmara Region a Coordination Board will be established consisting of the Ministry of Environment and Urbanization, relevant institutions and organizations, universities, chambers of industry, and NGOs. A Scientific and Technical Council will be established under the Marmara Municipalities Union.
- ACTION 2:** The Sea of Marmara Integrated Strategic Plan will be prepared within three months as a framework for efforts to be conducted.
- ACTION 3:** Efforts to designate the entire Sea of Marmara as a protected area will be initiated and completed by the end of 2021.
- ACTION 4:** As part of the emergency response, efforts will be initiated to completely clean the mucilage in the Sea of Marmara with scientific-based methods on a 24/7 basis as of June 8th, 2021.
- ACTION 5:** All of the existing wastewater treatment plants in the region will be converted into advanced biological treatment plants. Efforts will be carried out in line with the objectives of preventing the discharge of wastewater into the Sea of Marmara without first undergoing advanced biological treatment.
- ACTION 6:** The discharge standards of wastewater treatment plants discharging into the Sea of Marmara will be updated and implemented within 3 months.
- ACTION 7:** The reuse of treated wastewater will be expanded and supported wherever possible. Clean production techniques will be applied.
- ACTION 8:** The transition into advanced treatment technologies will be accelerated by rehabilitation and improvement efforts of OZs that do not operate their wastewater treatment plants properly.
- ACTION 9:** Public-private partnership models will be implemented to make the construction and operation of wastewater treatment plants much easier.
- ACTION 10:** Arrangements will be made within three months to prevent the discharge of wastewater from ships into the Sea of Marmara.
- ACTION 11:** Cleaner production techniques will be made more widespread in shipyards.

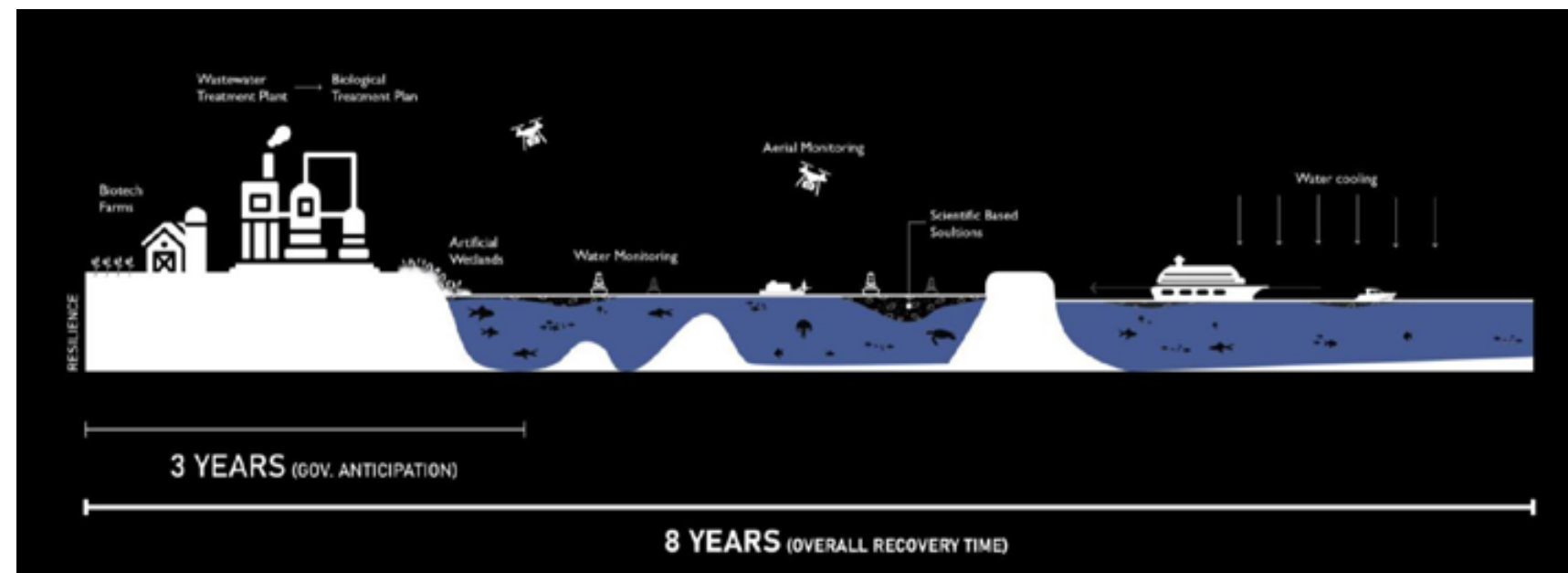
- ACTION 12:** All wastewater treatment plants that discharge into the receiving environment will be monitored online 24/7 within the framework of the efforts of the Ministry of Environment and Urbanization. The current number of 98 monitoring points in the Sea of Marmara will be increased to 150. Supervision of all basins associated with the Sea of Marmara will be expanded using remote sensing, satellite and early warning systems, unmanned aerial vehicles and radar systems with the help of the Turkish Environment Agency.
- ACTION 13:** The Regional Waste Management Action Plan and Sea Waste Action Plan will be prepared and put into practice within three months by covering the coasts of the Sea of Marmara.
- ACTION 14:** Good agricultural and organic farming practices and pressured and drip irrigation systems will be expanded.
- ACTION 15:** Artificial wetlands and buffer zones will be created on the stream beds in the basins associated with the Sea of Marmara thereby preventing the pollution from reaching the sea.
- ACTION 16:** Technological transformations will be provided to reduce waste water in order to prevent pollution originating from oliva blackwater and whoy.
- ACTION 17:** The use of cleaning materials containing phosphorus and surfactants will be gradually reduced. Organic cleaning products will be encouraged.
- ACTION 18:** All ghost nets in the Sea of Marmara will be cleaned within a year.
- ACTION 19:** It will be ensured that fishing activities are conducted in an ecosystem-based fashion and protected areas are developed.
- ACTION 20:** Financial support will be provided to fishermen who are negatively impacted by mucilage.
- ACTION 21:** A platform will be created to inform the public to prevent marine pollution and raise awareness of our citizens.
- ACTION 22:** Measures will be taken to reduce the effects of hot water consisting of cooling waters and thermal facilities on the Sea of Marmara.

CONSISTENT MONITORING OF THE SEA increased monitoring points

ECOLOGICAL SOLUTIONS

SHIFT TO ORGANIC PRODUCTS

PREVENTION + AWARENESS



Establish Collaboration

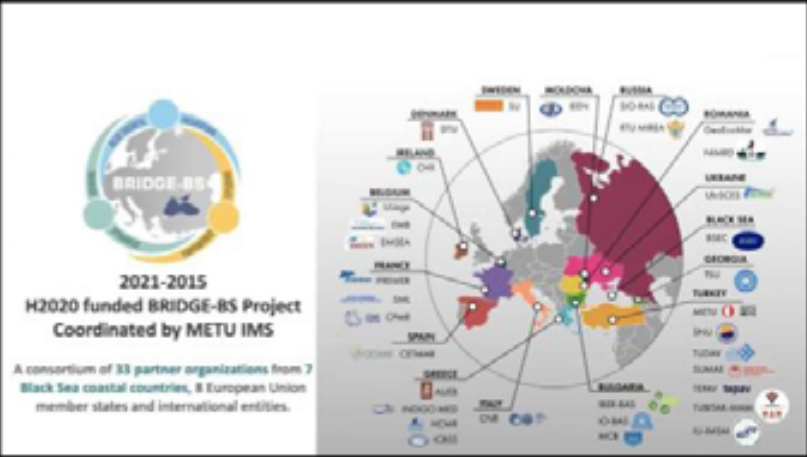
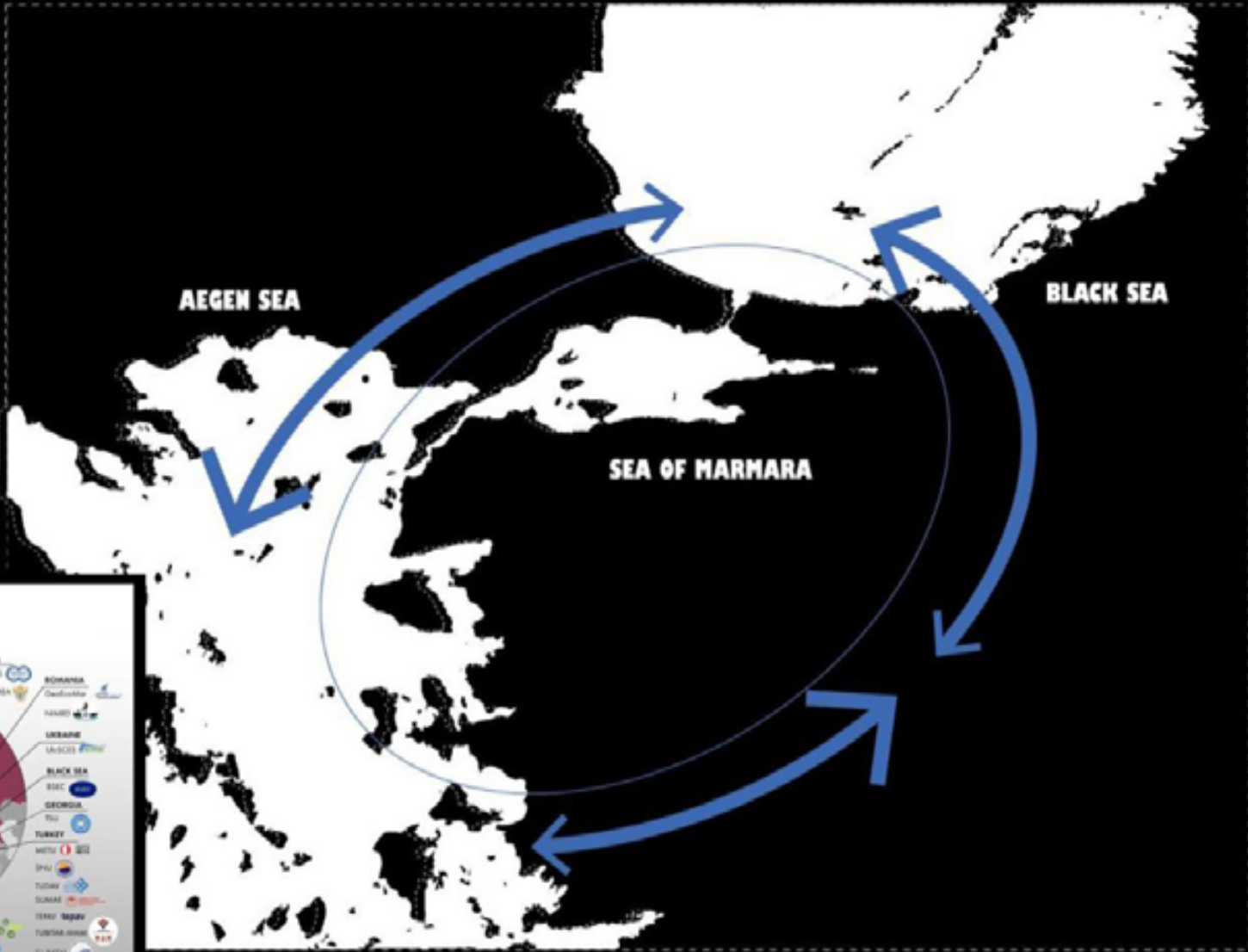
Moving towards paths of resilience, it is important to see the Marmara sea without borders, as one continuous land and water region that spans across the Aegean, Mediterranean and Black seas. The Sea Snot phenomena has become a “viral” issue in media and governance, receiving attention from both local and international communities. There is now momentum for central and local governments to act, as well as growing community awareness and support to reduce land-based loads and devise an overall strategic plan of action. This plan is inclusive of cultural ties to the sea, and includes a blue economy platform, providing climate change buffering across different cities and borders adjacent to the Marmara coast. By leveraging partnership between coastal countries along the Marmara waterways, it is possible to enact a more equitable resilient plan for transcontinental land and sea for the long term. For this plan to save the Sea to succeed, it is essential to think across timescales to anticipate change and conserve a healthy marine ecosystem to allow the people of Turkey and the surrounding regions to once again survive and thrive.

PATHS TO FUTURE RESILIENCE

+ It's important to see the Marmara Sea without borders, as one of continuous land and water that spans across three seas. Three seas that must work as one.

+ Continue working with 33 partner organizations across EU and Black Sea coastal countries.

8 EU STATES +
7 BLACK SEA COASTAL COUNTRIES



The infographic features a central map of the Aegean Sea, Black Sea, and Sea of Marmara. Three blue arrows form a circular path around the Sea of Marmara, pointing from the Black Sea to the Sea of Marmara, from the Sea of Marmara to the Aegean Sea, and from the Aegean Sea back to the Black Sea. To the left, a box contains the text '8 EU STATES +' and '7 BLACK SEA COASTAL COUNTRIES'. Below this, a smaller map shows the project's reach across Europe and the Black Sea region, with various partner organizations and their logos listed around the map. The BRIDGE-BS logo is at the top left of this section, and the project title and coordinator information are at the bottom.

ARCH A490: Conflict Urbanism Spring 2022.

Lead by

Laura Kurgan, Professor of Architecture;

Adam Voburgh, Graduate, TA

'Conflict Urbanism as a term designates not simply that conflict that take place in cities, but also that conflict is a structuring principle of cities, as a way of inhabiting and creating urban space. The theme is topical in light of the increasing urbanization of warfare and the policing and surveillance of everyday life, however, conflict is not limited to war and violence. Cities are not only destroyed but also built through conflict. Our seminar will look at the ways in which cities have long been arenas of friction, difference, and dissidence, as well as the ways in which their irreducibly conflictual character manifests itself in everything from neighborhood borders, to differences of opinion and status, to ordinary encounters on the street. Conflicts can (and should) be investigated with maps and data, but they often turn out to be propelled or propagated by them as well. Bringing humanistic inquiry together with spatial data and basic mapping techniques will allow us to produce powerful representations as well as challenge conventional narratives of cities and conflict today. Cities will be "seen" through a number of lenses including: mass incarceration, infrapolitics, urbanization of war, language ecology, migration (political, economic and climate), debt, algorithms and surveillance.'

- Elective brief

Team Members:

Surabhi Dahivalkar,

Eryn Havley, Praditi Singh

Power Politics: Dharavi, a Counter Map

INVESTIGATION:

Development in Dharavi is more of a political struggle than spatial transformation

Dharavi, at the heart of Mumbai, India, is at the frontline of oppositional practices confronting neoliberal, futuristic Dubai-style mega-projects focused on capital accumulation, elite consumption, slum clearance, and deregulated real-estate speculation.

With accelerating urbanization around the world, cities are witnessing unprecedented demographic and geographical growth. An outcome of unprecedented pressure and advancement is a vision of a global city, thrust upon the urban development, architectural character, and identity of cities. Urban centers thus remain no more a static entity but a ground for power struggle for coexistence and legitimization of collective identity by multiple stakeholders. Common property is acknowledged as a commodity of multiple claims and contestation by its residents against hegemonic power.

Dharavi's development, or rather un-development, reflects a larger play of governmental authority and convergence of rules and policies, which frequently mask the existence of any informal quarters. Do the law and the city work in tandem to protect the city's most vulnerable residents?

An in-depth inquiry is conducted along with an analysis of the informal-urban, projecting spatio-political defenses, offenses, and alliances that define the future of these contested slum-landscapes throughout Mumbai.

A contestation of over-debates, worn out bidding, compromised on-ground representation, and

overworked proposals. Using a counter map, we identify potential datasets, and map the scales and scalability of various neo-liberal redevelopment processes initiated by political will and their outcomes.

RESEARCH METHODOLOGY:

Inspired by Vyjayanthi V. Rao's work on *Beneath the Tent of a Horizonless Sky*, in Spring'22 we conducted an independent investigation on the infra-politics of Mumbai and how hegemonic power systems have shaped Dharavi until now. Using elements of Counter Mapping we indulged in:

Referenced + Public Sourced Fieldwork, Video Analysis, Building an Image-based data Complex, and Investigative Journalism as a tool for open source investigation to identify the irregularities in the power, economic and spatial structure that shapes Dharavi as an urban fabric today, as well as voids in the process. Investigating and tracing politics and policies restricting housing supply in Mumbai.

Tracing the decisions of slum demolition, rehabilitation, and redevelopment programs parallel to policy change devised by the state and SRA (Slum Rehabilitation Authority) and the compounding effects on Dharavi.



HOW DO WE CURATE DATASETS FOR PERMEABLE LANDSCAPES + FLUID ECONOMIES?

IN POLITICALLY CONTESTED TERRITORIES
& COUNTER HEGEMONIC POWERSCAPES

-Conflict Urbanism., Spring 22
dharavi infrapolitics



1 BEDROOM APT
SELLS: \$ 32,711.42
RENTS: \$ 130.85/mo



3 BEDROOM APT
SELLS: \$ 2.28 million
RENTS: \$ 4578/mo



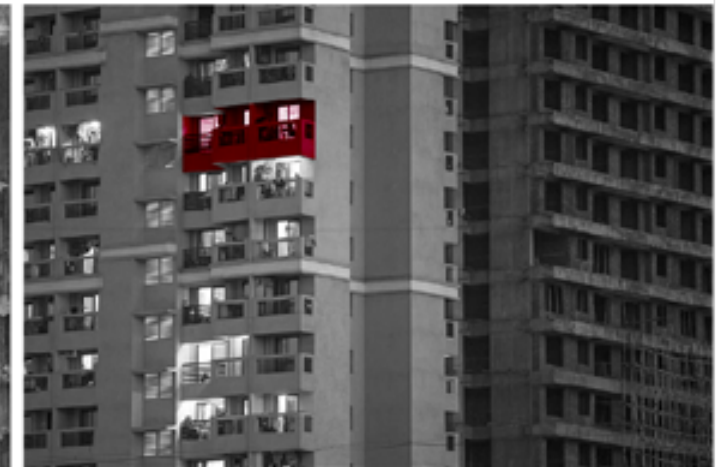
STUDIO APT
SELLS: \$ 32,711.42
RENTS: \$ 130.85



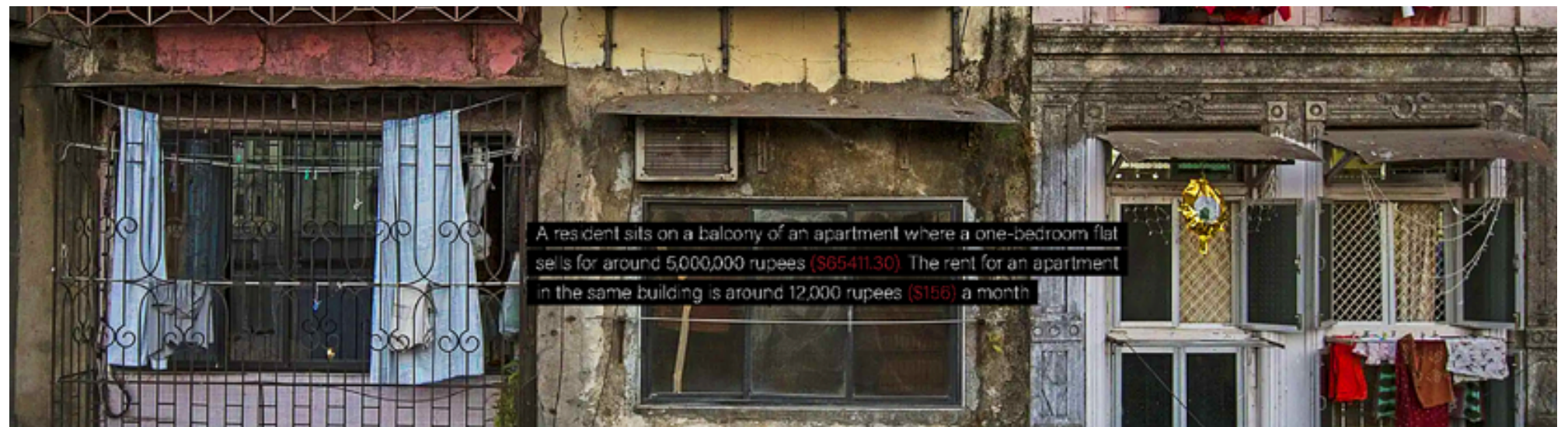
1 BEDROOM APT
SELLS: \$ 14554.69
RENTS: \$ 654.11/mo



1 BEDROOM APT
SELLS: \$ 4186.23
RENTS: \$ 156/mo



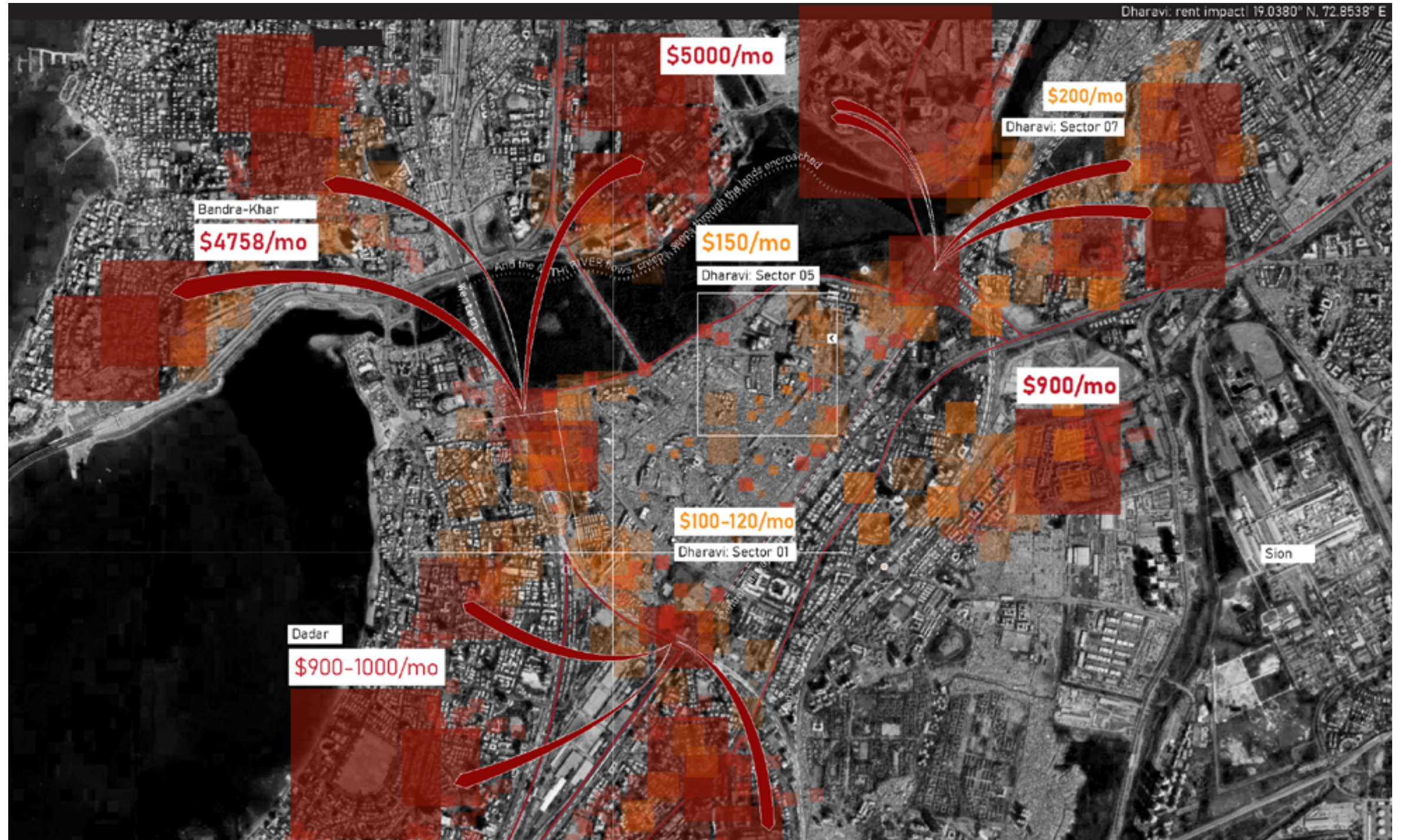
1 BEDROOM APT
SELLS: \$ 115,856.49
RENTS: \$ 130.85



A resident sits on a balcony of an apartment where a one-bedroom flat sells for around 5,000,000 rupees (\$65411.30). The rent for an apartment in the same building is around 12,000 rupees (\$156) a month.

Disparity Mapped

Google sourced imagery illustrated. This work is a derivative of Sanctioned Proposed Land use Plan of Dharavi by Government of Maharashtra SRA-DRP and MMPC.



Disparity Mapped

From sankey to swanky; Mapping stresses of adjacent neighborhoods with richer land value higher rents on Dharavi



- Dader → Rich Residential Suburb
- Bandra → Rich Residential Suburb
- BKC → City Business Center 1
- SION → Historic Residential Suburb

LAND VALUE & ECONOMIC STRESSORS OF DHARAVI



Money Influx + Infrastructure Development

the past 50 years have seen a noticeable influx of money for the redevelopment or upgradation of Dharavi. We cross referenced the infrastructural developments and investments during this time period along-with the journalistic reports. It was discovered that the foundation funds/ investments were not synonymous with the outcomes on ground. It is conjectured that channels of black economy/ hidden economy underlines the development projects.

Public Schemes/ Policies

[How to map benefitted residents in an unreliably mapped area with non-existing geographically allocated data which is impossible to pin-point in a complex, dynamic area like Dharavi]

Using the process of investigative journalism and fieldwork, we extensively studied the mechanism and structure of each scheme converging with political decisions and acts.

Each quantitative figure is extracted from press journals and published articles that do not have a basis of geographical location within the context of Dharavi or a method of verifying it with ground reality. Relying on comparatively trustable sources, we observed that within the workability of these schemes, the framework is plagued by the play of partnership between the stakeholders and the policy dictators.

The matrix highlights the contributions of each scheme and the real beneficiaries of the un-interrupted cycle of parent policy developers and recipient private builders that inherit the outcome. A composite score of social factors and vulnerability is being neglected here. The Slum Improvement Programme by the State government promised to protect the residents from eviction and published a figure of 2.2 million slum dwellers to be benefitted from the scheme. There is a lack of ground figures about who these residents are and where they were located. In parallel, an observation has been made that the scheme was more focused on the improvement of infrastructure. While introducing SRA (Slum Rehabilitation Authority implemented for the execution of the improvement scheme) only a few selected residents of Dharavi are eligible for permanent residency.

Dharavi Redevelopment Schemes Matrix

schemes/ policies	eviction	residential status	redevelop- ment	public private partnership	residential fees	FSI	TDR
SIP Slum Improvement Programme - 1971		ONLY 1671 settlements received citizenship ID cards	2.2 million slum dweller benefitted [how?? & no traces]	State Government appointed Slum Rehabilitation Authority			
SUP Slum Upgrading Programme - 1985		all slum dwellers eligible to participate on a condition	22,204 units constructed	International Development Agency of World Bank + State Govt.	payment of Rs. 251 i.e. ~ \$5 [if require improvements]	1.33 to 2.5 FSI for housing cooperatives	
PMGP Prime Minister Grant Project - 1985		LESS THAN 20% OF RESIDENTS ELIGIBLE	3,800 units constructed	NGOs as catalytic agents	residents should contribute 15% of construction cost	165 - 430 sq. ft carpet area- 4 to 5 storey buildings	
SRD Slum Redevelopment Scheme - 1991		FOR PERMANENCE OR OWNERSHIP OF THEIR PLACE	2,241 units constructed	partnership with private developers / builders	residents should contribute Rs.15,000 \$280 of construction cost	180 sq. ft 150% maximum allowed FSI	
SRS Slum Rehabilitation Scheme - 1995		under SRA (slum rehabilitation authority)	approximately 50,000 units constructed	partnership with private developers / builders		180 sq. ft 2.5 FSI	introduced Transferable Development Rights
DRP project bids		 RELOAD	partnership with private developers / builders		225- 405 sq. ft ~ 4 FSI	Transferable Development Rights

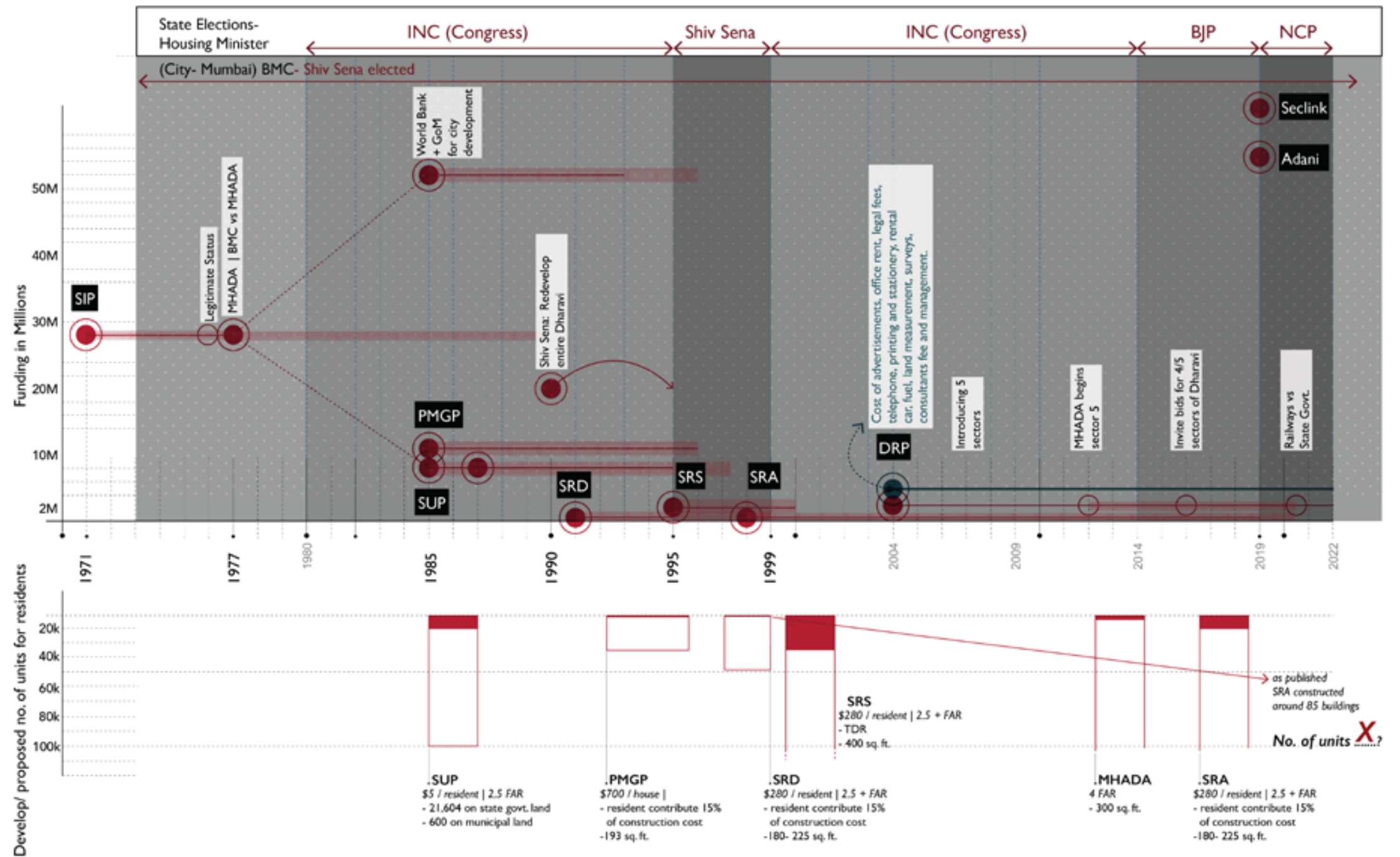
[How to map politically influenced decisions that do not disclose the failure of schemes and policies officially]

Through the process of locating Dharavi related specific promises that were vocally made in order to win the political elections and analytically examining election inspired incidents within the elaborate timeline of the schemes, we identified changes made in the framework of the redevelopment process.

City of Mumbai is located in the state of Maharashtra. The two main electoral bodies that look over the redevelopment process of Dharavi slums are 1) The State government and 2) the local body (city council) Brihanmumbai Municipal Corporation (BMC), the governing civic body of Mumbai. Shiv Sena (a right-wing Marathi regionalist and Hindu ultra nationalist political party) has been a constant BMC (locally) elected body. Whereas, the State elected housing ministers have been from different political parties from the year 1980 till today. The matrix highlights the contributions of each scheme and the real beneficiaries of the uninterrupted cycle of parent policy developers and recipient private builders that inherit the outcome. A composite score of social factors and vulnerability is being neglected here.

For the execution of Slum Improvement Scheme (SIP), the state government appointed SRA (Slum Rehabilitation Authority) in 1971 and established MHADA (Maharashtra Housing and Areas Development Authority) in 1977. A conflict of land ownership between private, municipal and state owned land, limited the provision of facilities of the schemes. Dharavi, a gold mine, became a political battleground as both the elected bodies disavored losing authority over future development of the area. This political war between the local body and state body continued in the next upcoming scheme of SUP (Slum Upgrading Programme) as well.

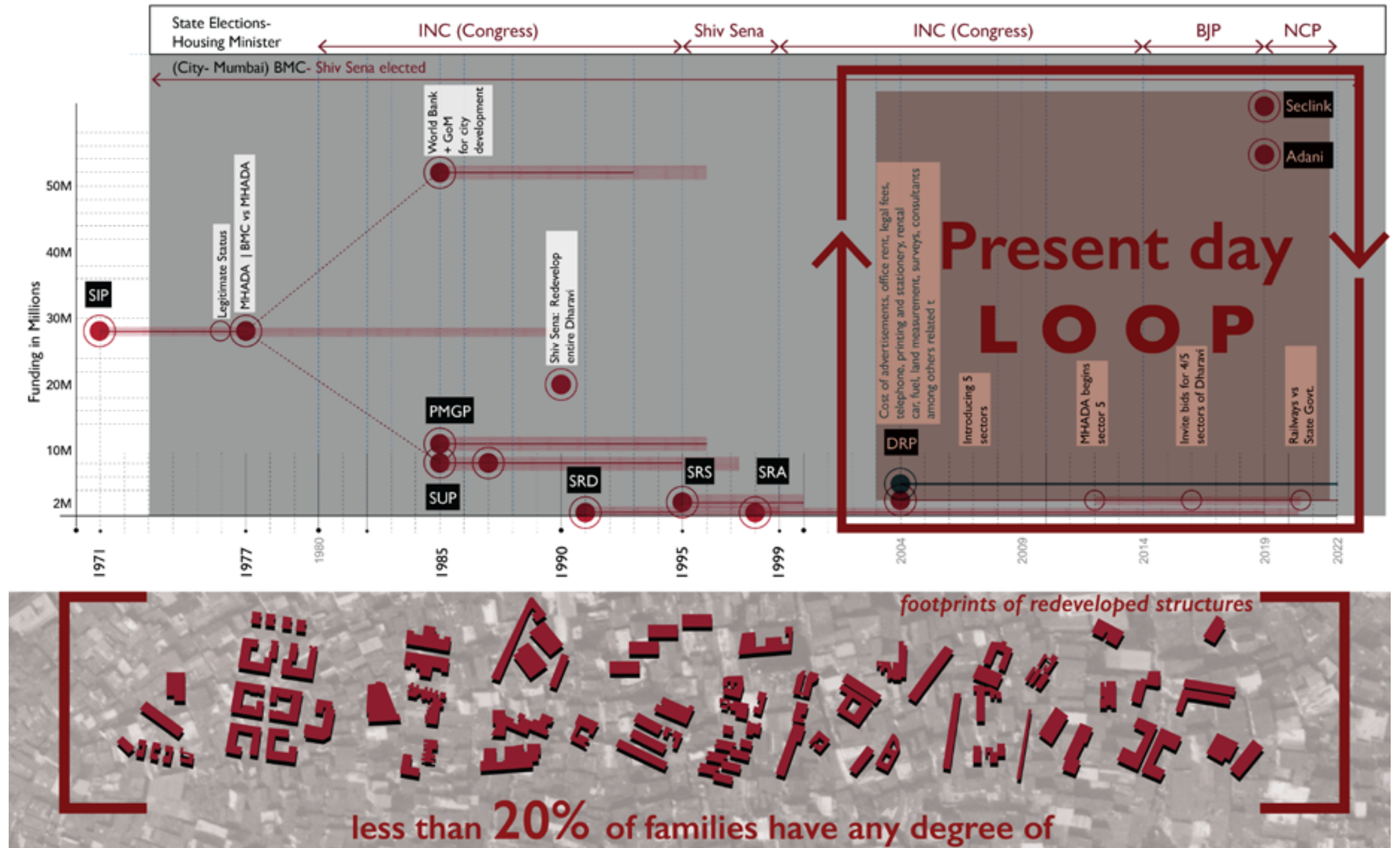
..... continued



With the lack of legal tenure to housing of residents, the dispute of reclaiming private land either by BMC or MHADA resisted the upgradation process of slums. The Prime Minister Grant Project (PMGP) was established to flip this political battle. To overcome this, BMC elected body Shiv Sena declared that if they won the state elections they would redevelop the entire city's slums for free (free of construction cost charged to the residents of the slums). As Shiv Sena won the state elections, they cautiously replaced Slum Redevelopment Scheme (SRD) to Slum Rehabilitation Scheme (SRS) just to symbolize their dominance over the earlier political party. In the act of adhering to the promise they vocally made, out of 4 million residential units, only 50,000 were constructed.

SRA continued the process of redevelopment while the Dharavi Redevelopment Plan (DRP) took off with division of the area into 5 sectors. Almost double of the project estimated cost was spent in the mechanism and management of the process and not on the construction of the residential units. MHADA gained the authority to develop sector 5 along the historical political dispute, while the other sectors invited bids. Even today, the conflict over the ownership, transfer of power and economic beneficial structure demand is seen between the Central Railways and the State Government.

Since the redevelopment of Dharavi is affected by the political war and entangled ownership structure, the top bidders, UAE based Seclink Technologies Corporation and Adani Infra that were shortlisted earlier would go through the entire tendering process again. Even though few published articles mention the call for new tenders, others mention dissolution of existing GR (Government Resolution) of DRP.



Illustrated conflict between responsible project partners

It is impossible to ignore the continuous conflicts between dominant power structures and on-the-ground actions after more than 50 years of slum reforms and policies have molded the Indian urban rural fabric. Today, the nature of Public-Private Partnership (PPP) generates profile-based credits in TDR (Transferable Development Rights) which ensures a standard living versus developer profits. What is now needed is not just more than participatory planning systems, but a pivotal shift in designing PPP models.

WHAT IF THE PPP MODELS ARE REDEFINED WITH EQUITY INCENTIVIZED WITH SOCIAL DEVELOPMENT/ ADVANCEMENT CREDITS?

All in pursuit of ushering a future rooted in realization of human rights, social equity and resilience.

Given these considerations, we intend to push the boundaries of creating datasets. And ask:

How can we curate datasets for a permeable landscape and fluid economics?

How might these datasets aid in shaping the future of these spaces as they exist, evolve, and transition from one to the next?

Play of Partnerships internal conflict



the outcome



Urban Design Studio II, GSAPP Fall 2021.

Lead by

*Emanuel Admassu, Nina Cooke, Chat
Travieso, Lexi Tseien and
Nupur Chaudhury*

“The practice of refusal is also a space-making intervention—one that reclaims and embraces the space of the quotidian to create new possibilities in the face of negation.”

– Tina M. Campt I.’

‘How can we disentangle urban design and architecture from property? How can we use this moment of environmental and institutional reckoning to disassemble the exploitative regimes of speculation and displacement that anchor the built environment? In other words, where do we go from here? here? This studio aims to identify temporal slippages and spatial practices that carve out moments of liberation from the limits of property. The aim is to design a region (with hopes of building a world) that is not tethered to individual ownership, but instead, predicated on collective stewardship and care. This work will be done by recognizing, drawing, and modeling ordinary spatial practices that operate against the hegemony of real estate—systems that value people over property—in order to develop a dynamic catalog of spatio-temporal constructs. Through radical reinterpretations of historical and contemporary interventions where the everyday struggle begins to approach the surreal—or even, the sublime—we aim to liberate urban design from its historical commitment to borderization.’

- studio brief

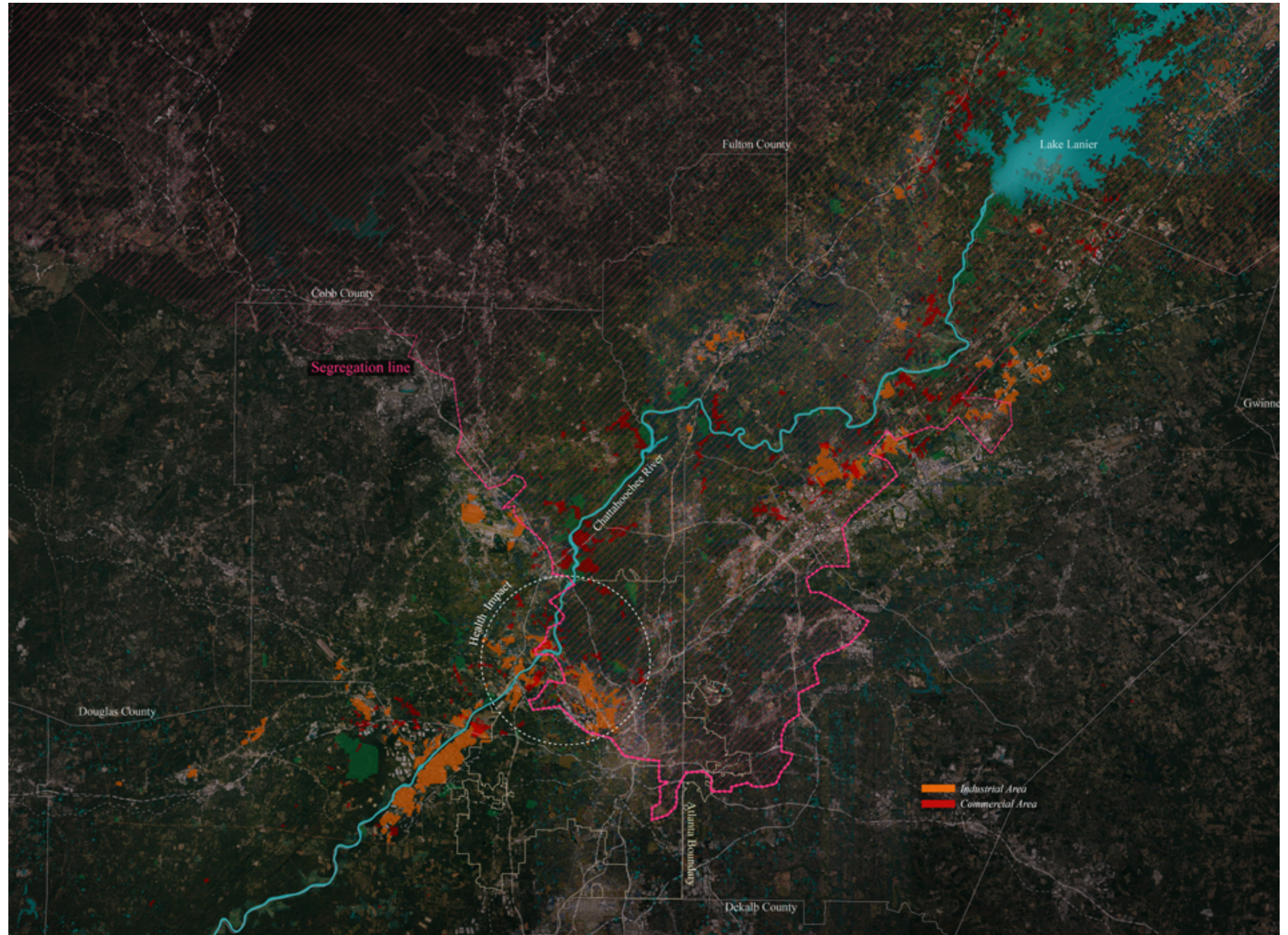
Team Members:

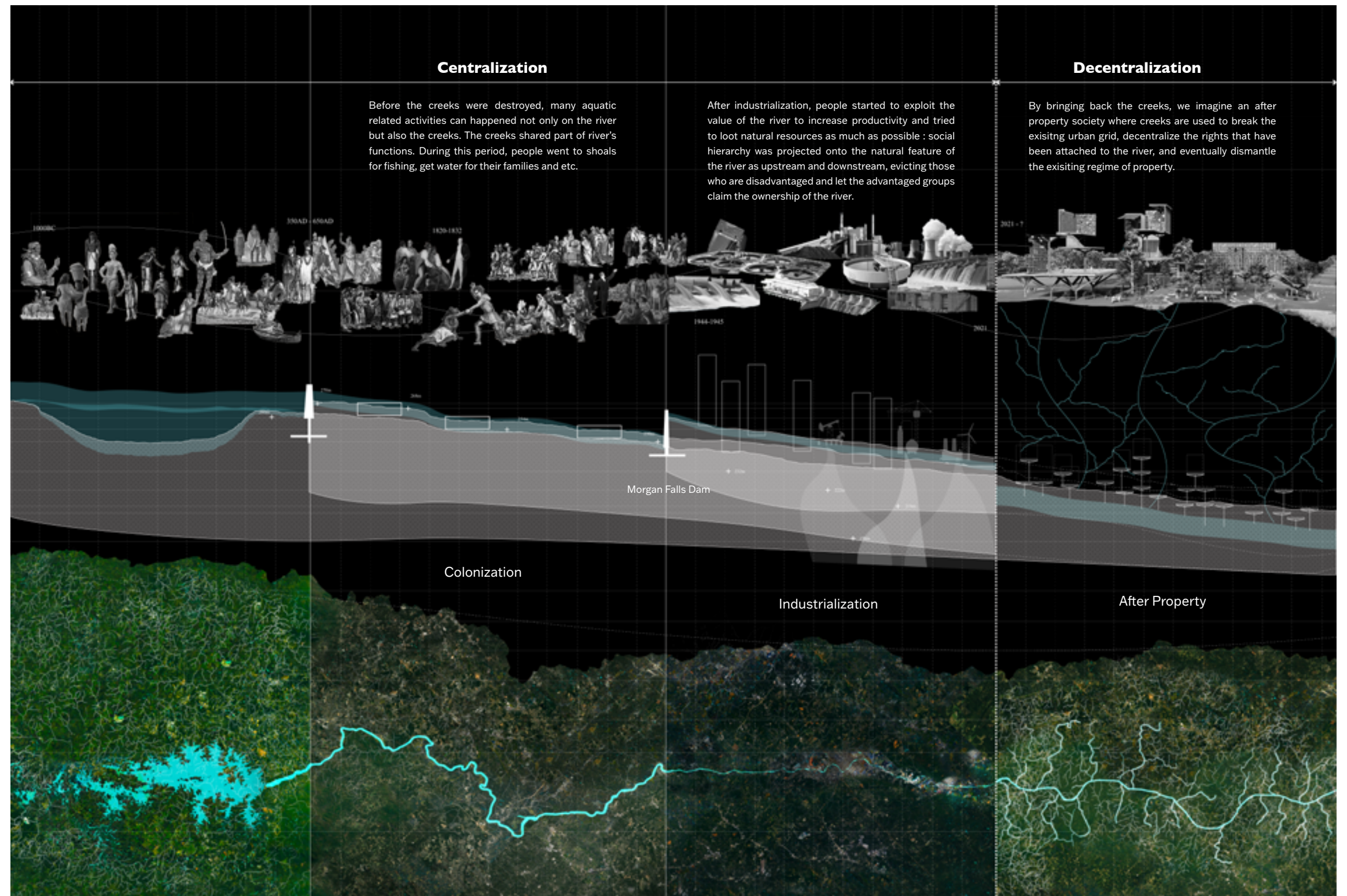
*Surabhi Dahivalkar, Siyu Rae, Zhifan Li,
Aishwarya Mathukumilli*

De- Centralize the river, Atlanta

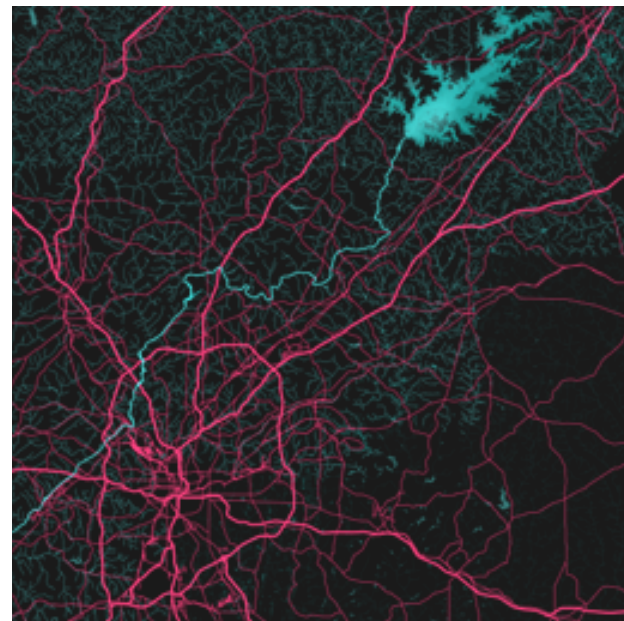
In the regime of property, the river and its edges are commodified, privatized, and claimed by individuals and entities. Environmental and Social injustice is evident with the high health risk from cancer in this area at this point of divide.

As an approach to equitable design, this is an experiment to initiate the process of establishing a new relationship between human and ecosystems, where people take ownership and provide stewardship to build structures on the basis of coexisting with the ecological community, without invading their rights.



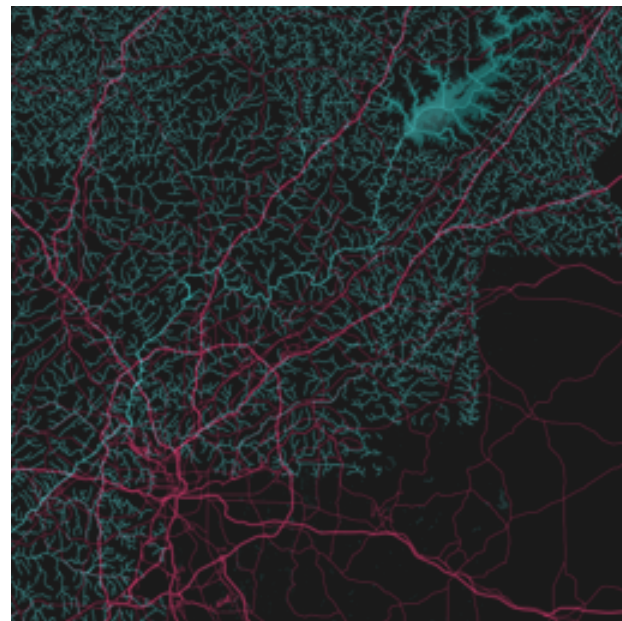


Throughout history, from the ancient civilization, colonization and industrialization, the fabric created had affected and damaged the flow and changed the width of the river and creeks.

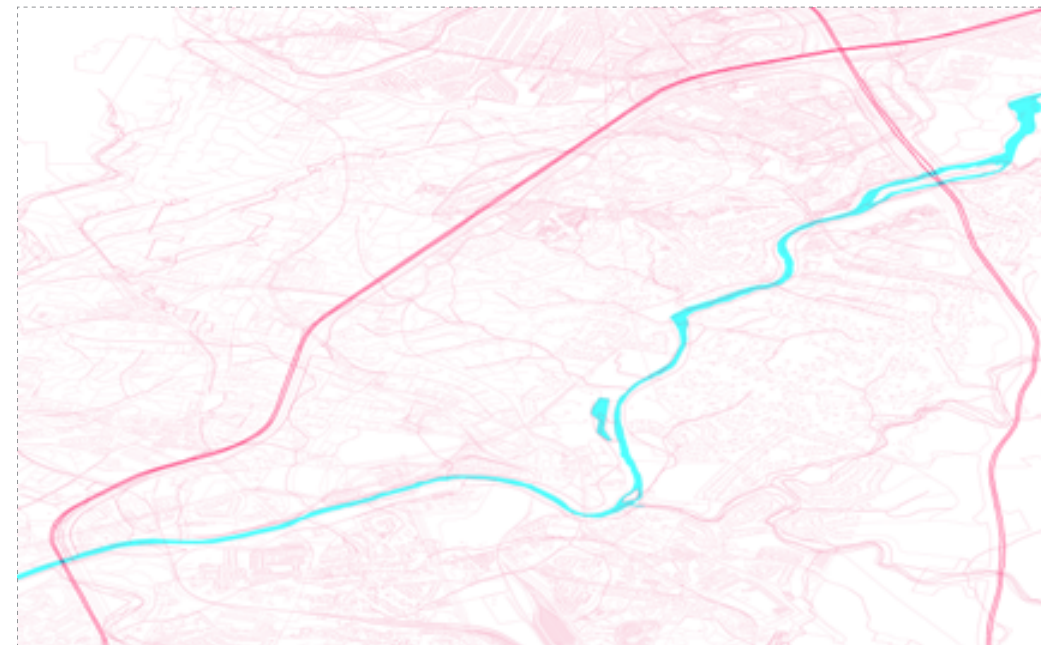


Today

In After-Property, the world is imagined as a strategic possibility where ecology is the primary stakeholder, where the rights of ecosystems are thoroughly accomplished, and humans coexist & adapt to the new living environment. The goal is to re-establish the sense of belonging people hold to land, to be a sense of belonging based on contributions to these new systems that cater to the ecological community.

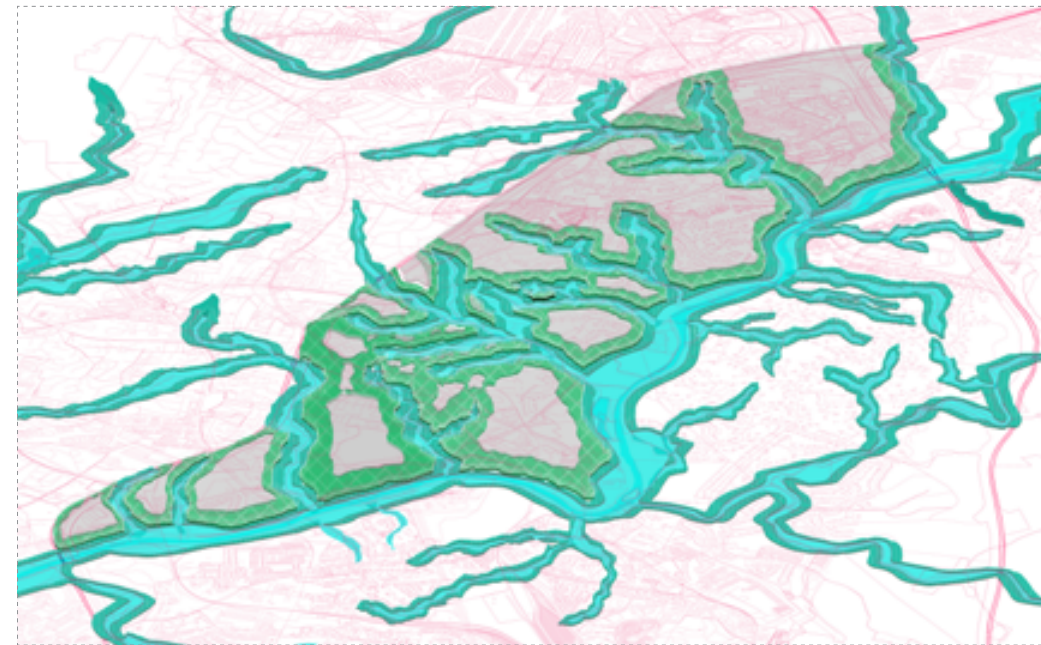


After Property



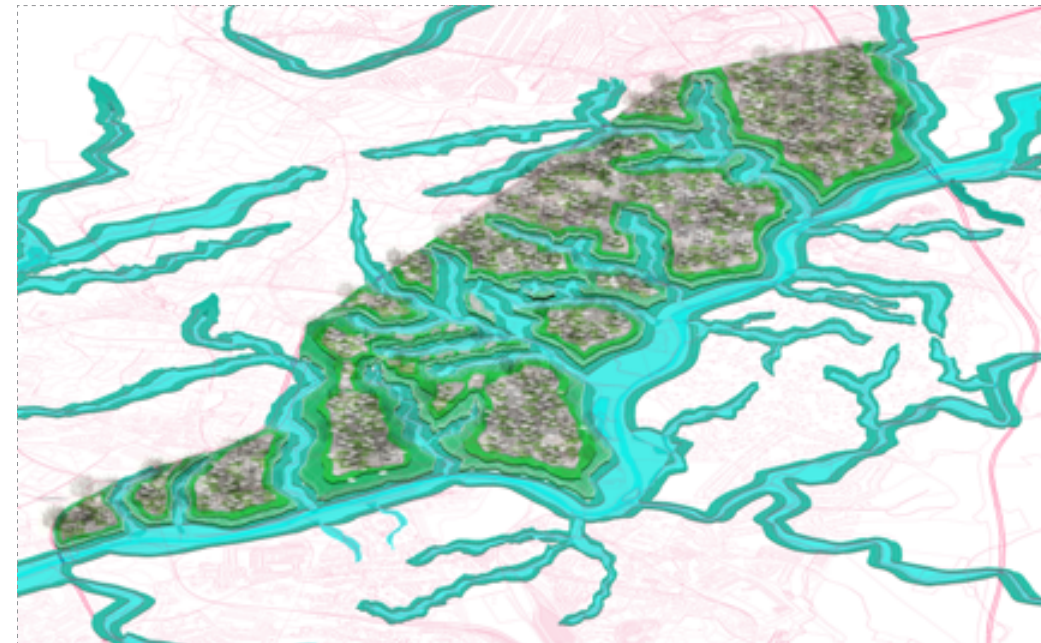
Throughout history, from colonization and industrialization, the fabric created had affected and damaged the flow and changed the width of the river and creeks. As a response to this, a new fabric is designed with the process of daylighting the creeks and re-using existing structures.

Phase I



Buffer zones: These zones will have communal activities through a flexible landscape which facilitates the expansion and contraction of the water system through climate change. Series of buffer systems are solemnly responsible for remediating the ecology.

Phase II

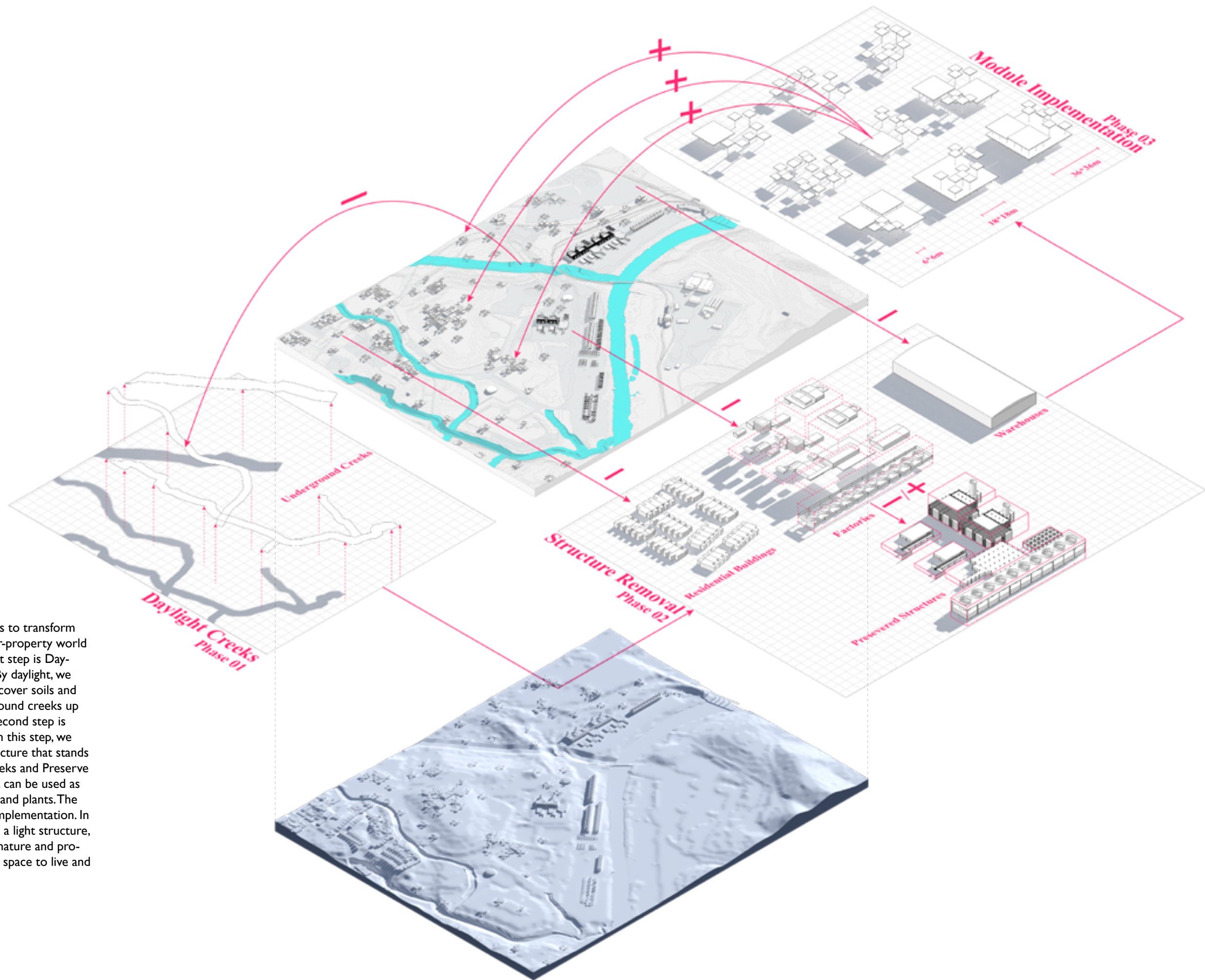


Pertaining to the land that people build their structures on: There is no permanent ownership here, only temporary leasing of the structure built of common land; where the relationship of humans to property is questioned.

Phase III



Mapping the hierarchical system
of creeks and rivers.
Analysis of catchment areas.



There are three steps to transform the site into the after-property world we imagined. The first step is Daylighting the Creeks. By daylight, we mean Removing the cover soils and bringing the underground creeks up to the surface. The second step is Structure Removal. In this step, we will Remove any structure that stands in the way of the creeks and Preserve some structures that can be used as a shelter for animals and plants. The last step is Module Implementation. In this step, we will Add a light structure, which emerges into nature and provide human a certain space to live and coexist with nature.

The territory of the water systems (primary buffer) isn't for human occupation but rather a neutral zone where people interact with water and floodable landscape. Apart from conserving and preserving natural resources, it is believed that we have to create a way where we can cultivate and care for these non-human factors so that even they are increasing in health.





**A6947 Planning,
Urbanization in Global South, GSAPP
Elective, Fall 2021.**

Lead by

Teresa Caldeira

'In the last two decades, the notion of the third world has been slowly put aside and the global south has emerged as its replacement, although not without questioning.

Simultaneously, a strong critique in the broad field of urban studies has claimed that urban theory needs to be reframed to address the specificities of processes of urbanization in the global south. This reframing is not only a matter of focus or better comparisons, but rather of producing and using other archives and crafting new epistemologies. This course starts by re-tracing these shifts and debates. Moreover, it analyzes processes of urbanization in cities of the global south from the middle of the twentieth century to the present on the basis of new archives and a certain understanding of the specificities of processes of urbanization in the global south.

Thus, it does not make sense to talk in terms of a general "southern urbanism." Rather, heterogeneous processes of urbanization in the global south have to be analyzed through the study of cases. Therefore, the course is structured according to main themes that reveal the transversal logics and the modes of politics in cities of the global south and through the analysis of cases. new imaginaries, neocolonialism, and refugees.'

- Elective brief

Stigma of Global South

To move away from the stigma of Global south remains more of a political project than just a geographical location. The Global South term is more related to how underdeveloped the cities of a country are. I see the country India, struggling and falling into the same captivity of play of these words, however inappropriately used as a system to celebrate the gestures that align the world in a hierarchy. And to reach this top bar of hierarchy, what the struggles of a country are and its effect on its very own people segregated by borders, and their collective image they represent is judged and changed several times to be accepted to just fall into the closed bubble of international countries, remains the only sole purpose. Analyzing the situation, I see the country divided in two- The Two Indias - the country which has the largest working population under 30 but prefers to be politically centralized under the pressure of deviating towards western inspired practices to shed away from the name tag of 'developing country'. And the second India which wants to be rooted with the ancient traditional practices using it as a technique of ethnic cleansing in the country itself, in the want of it to be declared as 'A party'- which is politically inclined to serve only one religion, a certain population. This attempt is to create a new identity, a new image far from the times of colonialism and history of the place, but somehow tying it to the beliefs of what the ancient country represented as even before the history was overwritten changing the identity of 'Bharat' and re-establishing the new identity which will be described by 'a' political party representing 'a' population only.

The World Class City: Image of the City

The seven islands that constituted Mumbai City were originally home for Kolis. The name Mumbai derived from 'Mumba' or 'Maha-Amba' is the name of the patron goddess Mumbadevi of the native Koli community. The Koli community has a rich history as the aboriginal fishing community. The term 'Koli' represents the people of the states of Rajasthan, Gujarat and Maharashtra aligned at the west coast of the country. Other than this, in the elaborate system of casteism in India, Koli community is grouped under the ST (Schedule Tribe) or SC (Schedule Caste) categories in all states, these are categorised as Backward Classes in the society. Except for the Brahmins and Kshatriyas, no one was eligible for education and change of occupational practices. Similarly to the Backward Classes and Other Backward Classes (OBCs), Kolis practiced their occupation for generations further categorizing them under low income groups. The occupation which is entirely dependent on the West Coast of the City, specifically for the Koli residents of Mumbai, who are threatened by the

peer pressure of modernism and the forces of the development of the city to certify it as an international city.

The image of Mumbai city is always associated with its west coastline, looking towards the Arabian Sea. As the success of the British campaign stitched the agglomerated Bombay City, it bloomed in economy building largest seaports at the Arabian Sea further developing the city transportation in the north-south direction and explicitly Marine Drive Promenade, famously known as 'Queen's Necklace' which became the new identity of the city. A 'C' shaped six lane concrete road marked by the reclamation history of the city served the elite residents living in the art-deco structures erected at the southern part. The newspaper of those times illustrated the advertisements seeking high-class tenants and some made it clear to be preference for Europeans only to be the residents in these areas. As a result, the Kolis remained a marginalised community being exploited at the living and occupational site along the coast of South Bombay. Furthermore, the development of the city was more associated with the major population moving towards the south of Bombay and real estate development along the stretch of the Marine Drive, the infrastructure development proceeded towards construction of Bandra-Worli Sea link, completely dedicated to vehicles in an attempt of connecting the Southern Bombay with Sub-Urban area. It became the ubiquitous symbol of 21st century Mumbai. The 5.6 kilometer cable-stayed bridge became the first over open sea connectivity in India, painting the picture of a developing country. Whereas, on the other hand, this limited the access of Kolis to the sea, limiting their entire dependency on the tide to harvest catch from the shallow seas. The activity of the Kolis drastically reduced to 50% affecting their resources, livelihood and means of sustainability.

Today, in the name of development- The Coastal Road Project, another concrete stretch is being built along the entire west coast of the city. This stretch is believed to be connecting the north to south, a proposed road consisting of roads based on reclamation stretching at least 100 meters into the sea. Adhering to the concept of building highways and vehicular means of transportation as a statement of development in the country, this project is beneficial to no more than 0.54% of daily commuters of the city, residing at the west part only, as the congested infrastructure is neither improved nor invested in west-east direction. The

biggest investment, a project of approximately Rs. 14,000 crores happens to have environmental impact as it not only destroys the mangroves, wetlands and ecosystems of the west coast but also serves the flooding problems of the city. This project has adverse effects on the 20 Koli villages (Koliwad) residing on the west coast. Corrupting the population by constantly defaming the city by the use of the word 'slum-dwellers' for informal settlements, transforming the city into a global city was projected as a positive reinforcement to upgrade the lifestyle of Mumbaikers and to draw in political power. The project gained popularity as it was strategically marketed to develop 'The World-Class Mumbai'. The development of the city has been against 50,000 and above fishermen whose livelihood depends on the coast.

The question remains: for who and what the development is for?

Re-establishing Identity: The names of the City

While re-establishing the new image of the city, Mumbai received a long list of variations of names in the 16th century and onwards. Starting from Mombayn (1525), Bombay (1538), Bombain (1552), Bombay (1552), Monbaym (1554), Mombaim (1563), Mombaym (1644), Bampaye (1666), Bombeye (1676), Boon Bay (1690) and Bon Bahia. Later on, to move away from the corrupted English name of 'Bombay', the city was renamed as Mumbai by the Government of India. This took place when the Marathi nationalist Shiv Sena Party won the Maharashtra State elections in the 20th century, this became an era of changing similar names across India.

Mumbai City has become a magnet for encouragement of all types of labor. The city has the history of organic growth and has much more potential in decentralization of a system and transfer of power to locals and street vendors which are recognized as unskilled labor as per the global terms. The city is rich in attaining the values of informality as it allows people to participate in exchange of goods and services at a very economical rate. As the major population of the city is under the bracket of low income groups, these practices of informality are in favour of the people residing in the city. Every commoner in the search of a secure future migrated to this city not only from the adjacent states and regions, but all across the country. Against all this, to push the name to be 'Mumbai', which represents the Marathi tone version, was part of a larger movement to strengthen the Marathi identity in the Maharashtra region. Even though this city, India's commercial, financial and entertainment capital and densely populated metropolis constantly represented migrating and floating population from every State possible of the country, the

chauvinist slogan 'Aamchi Mumbai' (meaning our Mumbai in Marathi language) of the right wing political parties were loudly preached with the agenda of excluding non-Maharashtrians and class-migrants but while also attaining to the Hindu-nationalist position. Also, this slogan is used by city dwellers who want to claim the right to the city- claim reflecting cultural, social, and symbolic practices. Simultaneously, the process of capturing a new global identity of the country as 'Naya Bharat' (meaning new India- also 'Bharat' is the name derived from ancient Hindu Puranas.) is an act of Hindu chauvinism of right-wing political parties. The justification for the activity is to make the country globally known for its roots, ancient India, and traditional practices. 'The purifying act' denotes a process of ethnic cleansing to make this country more Hindu and excluding the rest, strategically imposed to promote traditional practices of India like International Yoga day, which was broadcasted globally as an ancient physical, mental, and spiritual practice that originated in India. Recapturing the medical industry by producing medicines inspired by Vedas (most ancient Hindu scriptures written in Sanskrit). Moreover, recently, to steer the population towards Hinduism, 'cow dung therapy' was marketed as a cure for Covid and cancer.

Amongst all this, the renaming of local transport train stations within cities concreted the practice of excluding a community specifically from 'Naya Bharat.' In the Mumbai districts, Oshiwara Station got renamed to Ram Mandir Station as geographically it is located next to Jogeshwari Station, one of the areas concentrated with Muslim population. Following the process of renaming cities and public transport stations in Hindu names, this era marks India's Secular Democracy at risk and remaking India according to the Hindu faith, the rise, & sprawl of Hindu Nationalism.

Although ethnic identity levels are lower in the more globalized countries than the less globalized countries, globalization drives tension between patriotism, the crisis of a nation, & the desire to project unique racial belonging to the world against what the nation-state stands for.

Urban Design Studio I, GSAPP Summer 2021.

Lead by

*Nans Varon, Sagi Golan, Jae Shin, Galen Pardee,
Austin Sakong, Sean Gallagher, Tami Banh,
Candelaria Mas Pohmajevic, Nupur RoyChaudhury*

This first semester consists of a selection of mandatory courses that operate intellectually and methodologically as an integrated curriculum. This approach is based on the sharing and coordinated learning of concepts, working methods, historical precedents, research protocols, and representational strategies. The core of the curriculum is the neighborhood. While the term is not without controversy, for cities like New York and its metropolitan region, the neighborhood as a social and physical territory is central to popular, journalistic, professional, political, and design discourses. It is also a place of experience and emotion. In the current context, the neighborhood will be both a laboratory for experiment and a site of sympathetic learning. In both cases, it is important to emphasize that we are participating in an ongoing process of change to which you are inventing new ways to rethink, reshape, and regenerate an urbanism of the twenty-first century. Working in postindustrial, socially inequitable, and climate-stressed conditions requires the critical interrogation and redefinition of many layers of existing and historic urban fabrics and infrastructures (in and beyond the neighborhood) in order to address the social life of current and future inhabitants.

- Studio brief

Team Members:

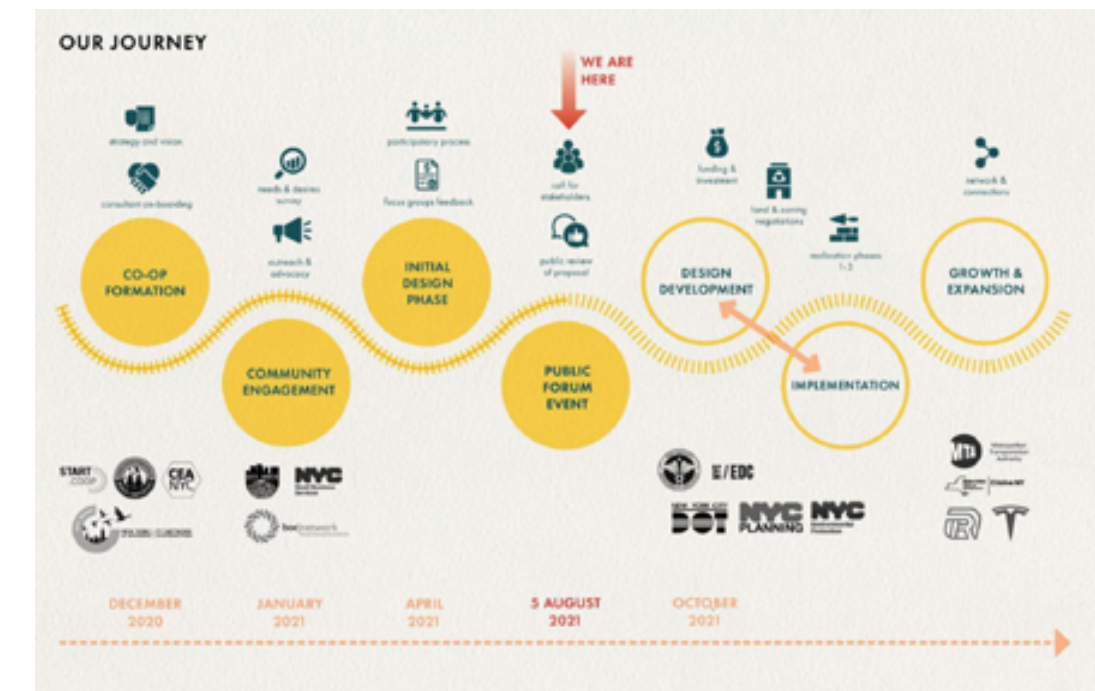
*Avani Agarwal, Surabhi Dahivalkar,
Hao Mao*

Industrial Coop Zone: Made in Willets Point

Data about Willets Point is missing as is the community. In a matter of time it'll all be gone - and new development will come. The vibrant close knit haven of immigrants at WP is not considered in the conversation about its redevelopment. Industrial Coop Zone designed for the people of WP looks at an alternative development of the area to prepare and secure the vulnerable population for the future.

What if there was a way to plan WP to have climate resiliency while keeping the livelihood of its inhabitants in place? Revitalize the automobile industry and activate Willets Point so that people and the city can co-evolve.





Developing Willets Point Cooperative through community engagement and global peers.



Proposed:
+ live-work environment,
+ coop headquarters, a place
for social cultural cohesion,
+ Experimental hub for acom-
dating future requirements of
the industry (s).



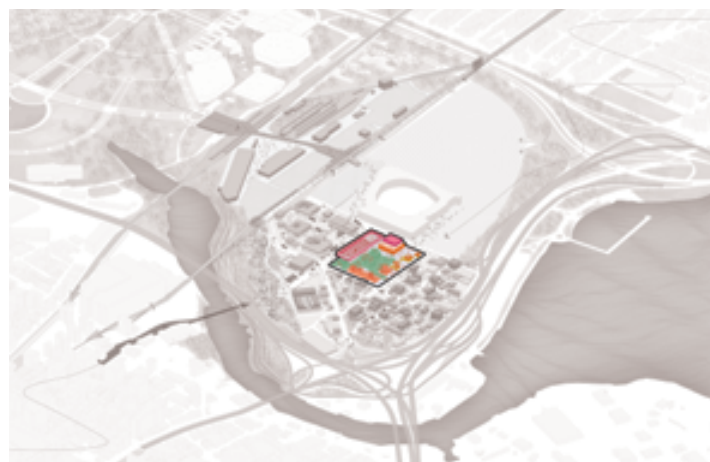
Remediate Existing:live work environment

Before



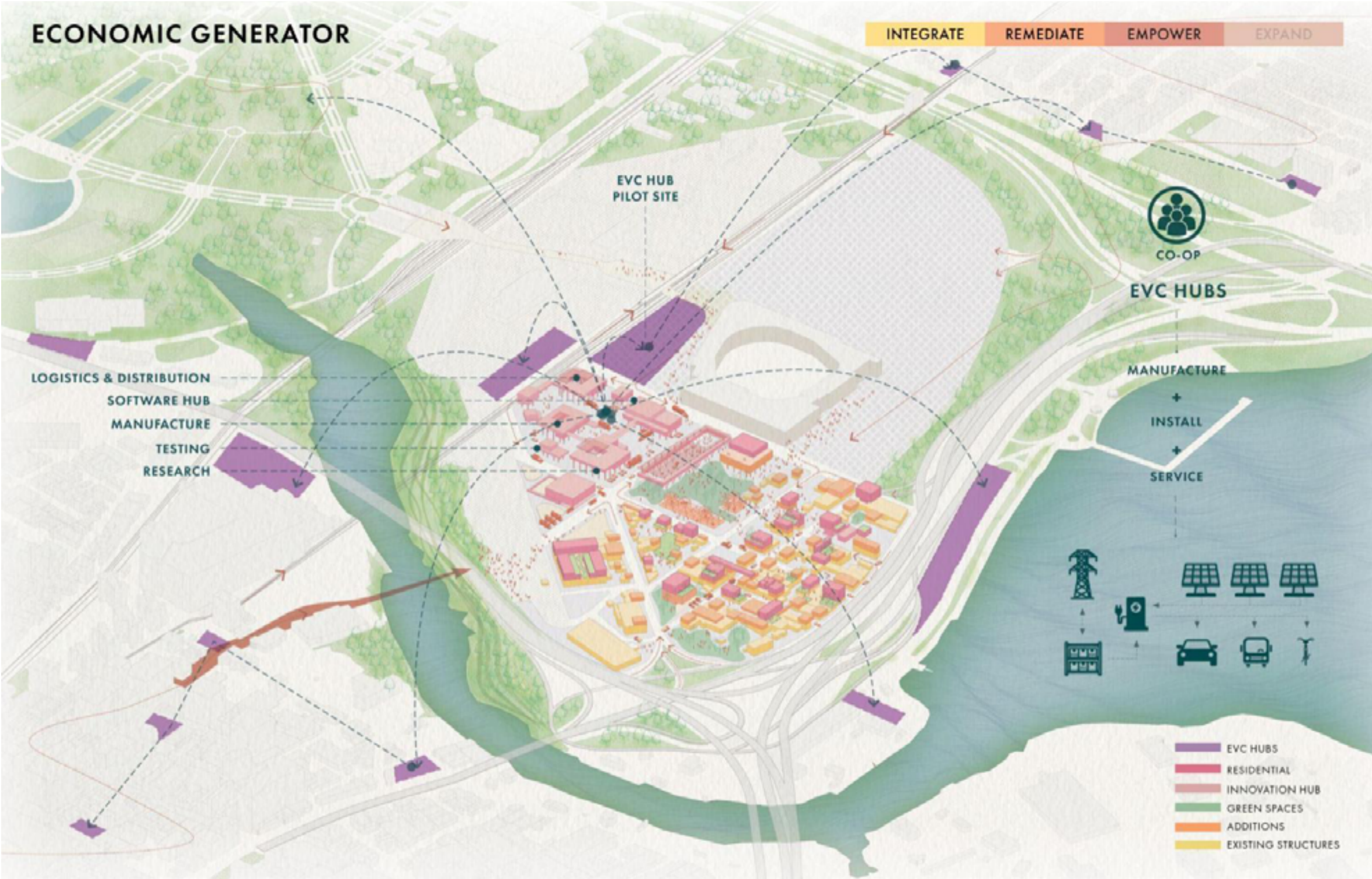
After





Empower: Coop building at the heart of WP, social cultural cohesion





A self- sustaining community

Thank You

srd2167@columbia.edu,

designstudio1994@gmail.com

+1 551 6979792.