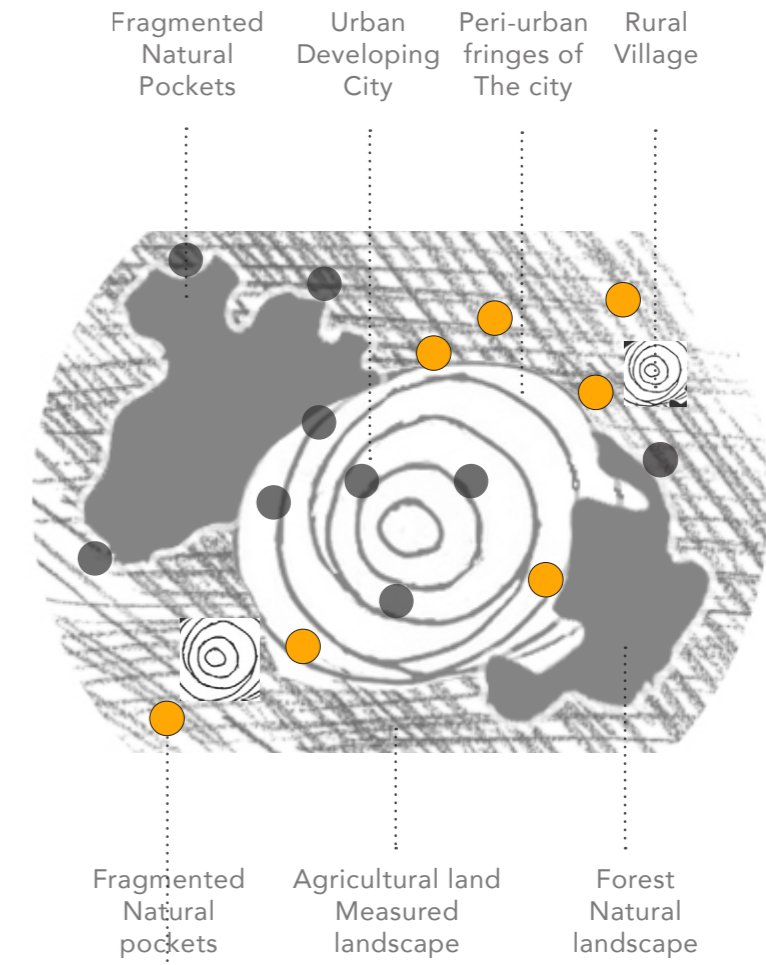


SHIFT IN LANDSCAPE

Re - Interpreting Wasteland as an Oasis

Natural pockets | Fragmentation | Voids | Oasis | Perception | Wasteland | Fringes | Village commons | Common lands | Interlink | Wholistic approach

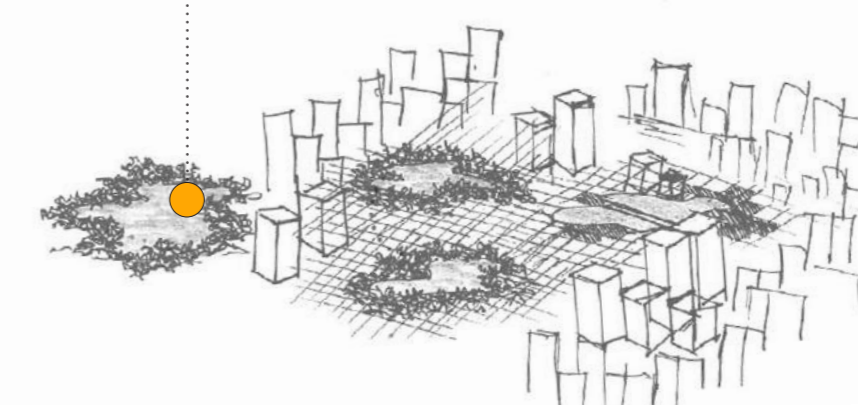


● Study area
Peri - Urban / Suburban
Threatened / Critical / Fragile

OPEN SPACES _ WASTELANDS _ COMMON LANDS _ SHARED NATURAL RESOURCES



Natural Landscape / Wilderness



Engulfing natural landscape



Lost the touch of natural landscape

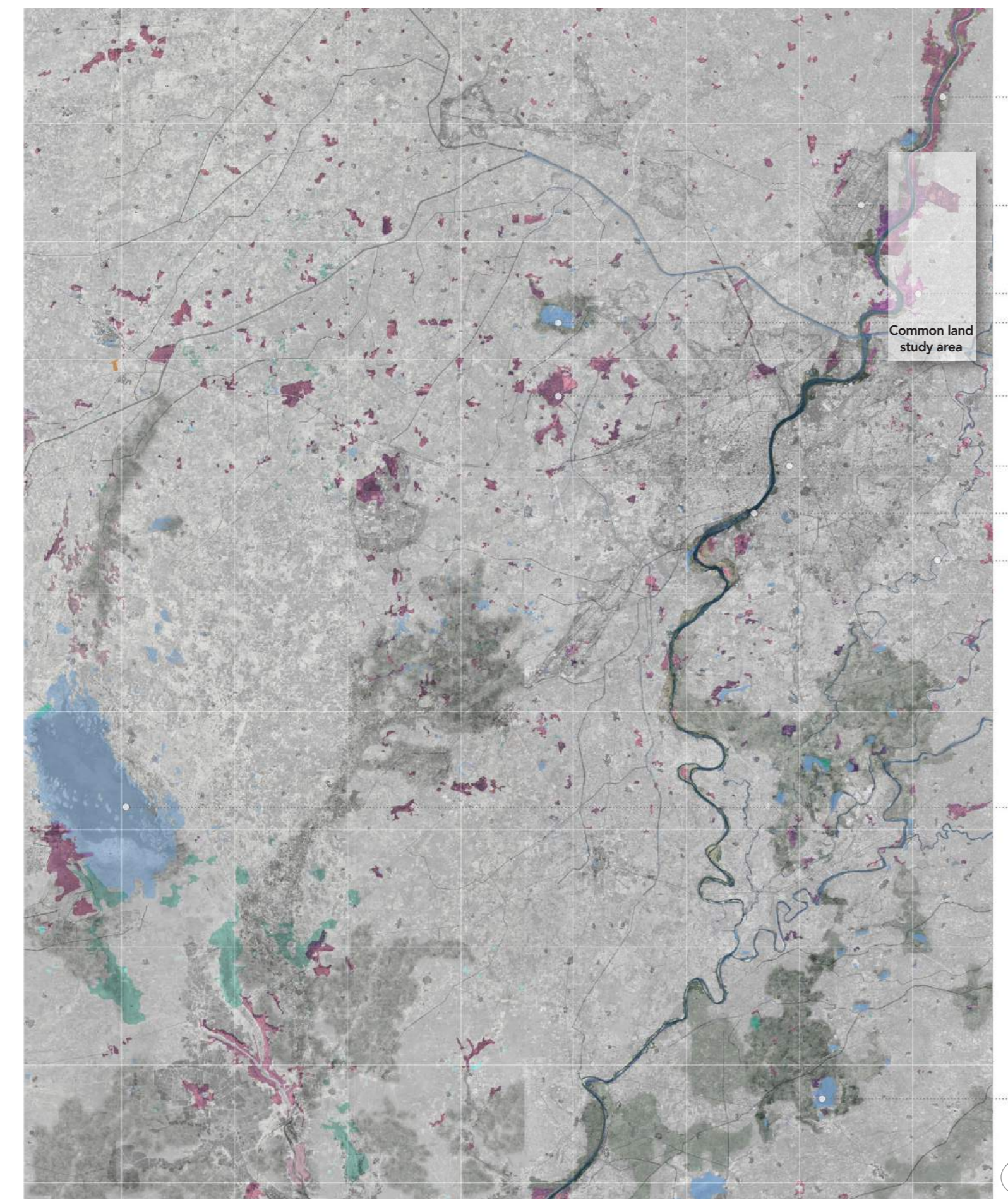
PERCEPTION TOWARDS OPEN SPACES AS A WASTELANDS OVER THE PERIOD OF TIME

1858 - 1947	1954	1961	1986	1987	1991
British rule	Later taken over by Revenue generators	Dudley Stamp	Wasteland Survey and Reclamation Committee, Ministry of food and Agriculture, govt, of India	The National Wastelands Development Board's (NWDB) Technical Task Group's Report.	Bhumla and Khare
<ul style="list-style-type: none"> Non - productive lands Non profitable land defined as Wasteland 	To generate profits out of openland, bureaucrats have defined these lands in bureaucratic datas (maps and papers) as Barren / Unculturable / Wastelands	<ul style="list-style-type: none"> Previously used But which has been abandoned 	<ul style="list-style-type: none"> Unculturable barren lands Waterlogged or saline 	<ul style="list-style-type: none"> Degraded Presently lying unused Not being used to its optimum potential due to some constraints 	<ul style="list-style-type: none"> Ecologically unstable Lost top soil of land Developed toxicity in the root zones
					The National Remote Sensing Agency (NRSA)
					<ul style="list-style-type: none"> Degraded land which can be re claimed with reasonable effort Deteriorating fo lack of appropriate water and soil management or on account of natural causes

EXISTING CONDITIONS OF OPEN SPACES AROUND THE CITY

Rural	Peri - Urban / Suburban	Urban
Organic form with measured landscape	Fringe of urban and rural	Measured built fabric
Awareness with traditional Knowledge of nature and culture. Living by acknowledging existing conditions	Urban pressure Threats to open spaces / natural systems from new infrastructure and residential buildings	Hybrid systems Diversity in culture and spaces. Accordingly multiple uses of open spaces

- **Geographical location :** North Gujarat Plain
- **Climatic zone :** Hot dry - Arid - Semi arid
- **Temperature :** Hot dry - Arid - Semi arid
- **Rainfall :** 800 - 900 mm
- **Soil :** Sandy, deep loamy, grey brown, saline soil (medium to strong) and alluvium



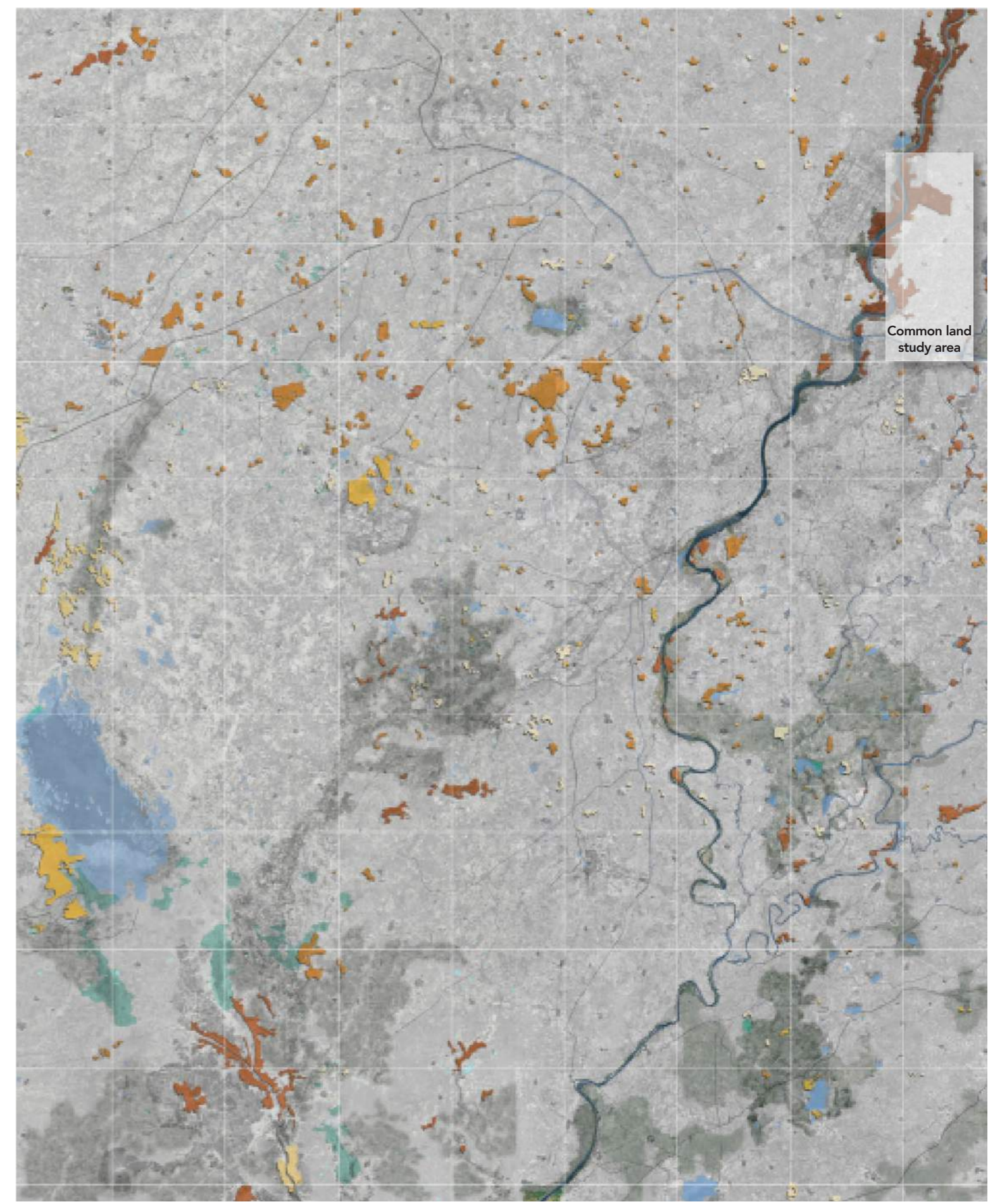
- Ravines (Open spaces)
- Gandhinagar city
- Gift city
- Thol
- Common land study area
- Scrublands (Open spaces)
- Ahmedabad city
- Sabarmati river
- Khari river
- Nalsarovar
- Pariaj lake

1. Gullied and /or ravenous land
2. Land with open and dense scrub
3. Waterlogged and marshy lands (permanent and seasonal)
4. Land affected by salinity / alkalinity (Medium and Strong)
5. Degraded pastures/ grazing land

All above wastelands types found in study context

WASTELANDS CATEGORIES IN INDIA (Bureaucratic data)
 Scrublands • Ravenous lands • Pasture lands • Fallow lands • Grasslands • Coastal areas • Marshy lands (Permanent and seasonal) • Barrenlands • Desert areas • Saline lands • Waterlogged lands (Permanent and seasonal) • Snow and Glacial

Are these natural resources and diverse spaces really wastelands ?



■ Ravines - Along the streams
 ■ Scrublands - Along the streams
 ■ Waterlogged and Marshy lands
 ■ Salt affected lands
■ Non of the above
■ Scrubland

Categorization of the wastelands as part of the different natural systems in the extent. These are the barren scrublands as per land use map considering wastelands for the revenue purpose.

Types of shift and change in open spaces - Converting into Agricultural lands, Industrial use, Resorts, Residential schemes, Private ownership, Dumping yard, Encroachment, Sewage water outlet etc. At some areas later converts into abandoned lands dues some factors. Bureaucratic data perceived open lands - Natural resources as - wastelands.

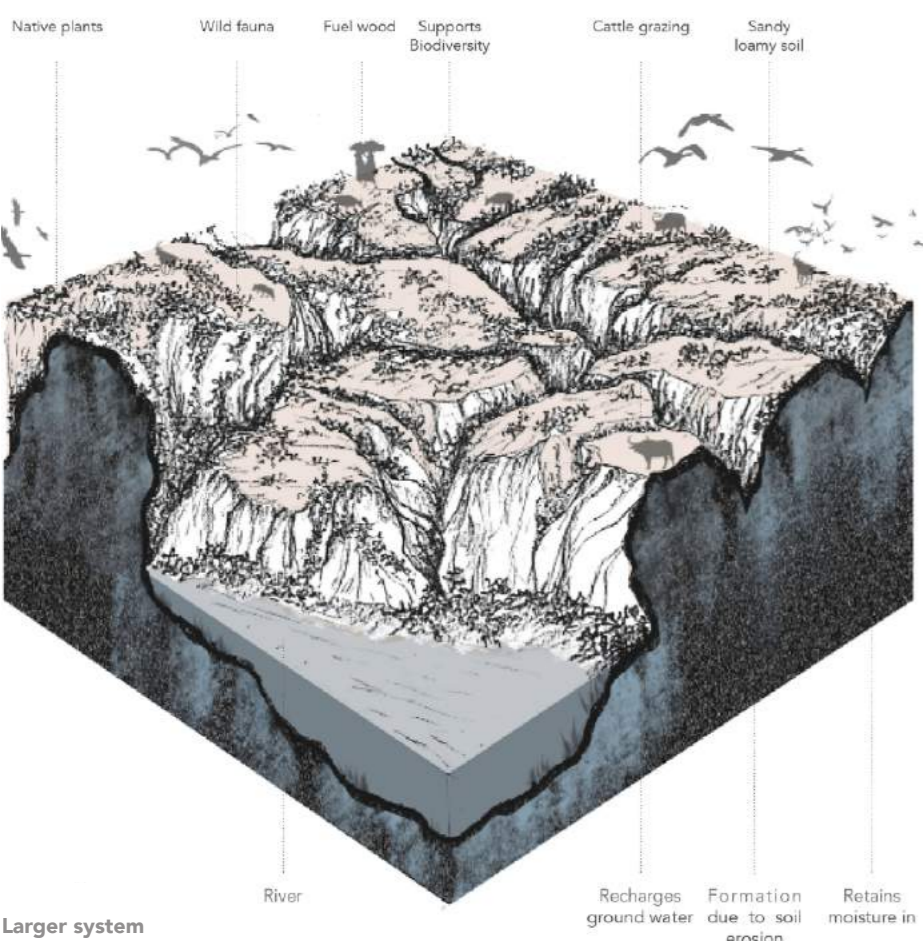
ECOLOGICAL VALUES	ECONOMICAL VALUES	SOCIO - CULTURAL VALUES
Micro climate	Forest produce	Cattle grazing
Ecological niche	Honey	Fuel wood
Recharges ground water	Barrie	
High moisture condition	Oils	
Humidity due to shade condition in the valley	Medicine	
Habitat for the fauna to hide, stay, food, shade	For livelihood	
Support biodiversity		

ECOLOGICAL VALUES	ECONOMICAL VALUES	SOCIO - CULTURAL VALUES
Carbon storage	Forest produce	Cattle grazing
Micro climate	Honey	Fuel wood
Wildlife corridors	Barriers	Social gathering space and village commons
Recharges ground water	Oils	
Retains moisture	Medicine	
Prevention from soil erosion	For livelihood	
Habitat for the fauna to hide, stay, food, shade		
Somme scrub forests are Regenerative process for the climax forest		

ECOLOGICAL VALUES	ECONOMICAL VALUES	SOCIO - CULTURAL VALUES
Micro climate	Fisheries habitat	Food security
Recharges aquifers	Flood control	Job security
Conserve moisture	Fertile farm lands	Tourism
Act as hydrological entities - lakes, marshes, swamps, estuaries, tidal flats, flood plains, mangroves.	Pollution filter	Recreational
	Storm and wind buffer	Identity and spiritual value
	Disaster risk reduction	Livelihood
Most productive ecosystem		
Supports biodiversity including terrestrial and aquatic life		
Filters the water		

ECOLOGICAL VALUES	ECONOMICAL VALUES	SOCIO - CULTURAL VALUES
Source of livestock feed	Reduce labor requirement	Dependency for the pastoral community for their livestock who travels miles in search for pasture lands.
Build soil tilth and fertility		Provides habitat for ave-fauna, terrestrial and aquatic life
Reduce erosion		Pasture land becomes temporary / semi permanent habitat for pastoral community
Reduce invasion of weed		
Recharge ground water		
Provide habitat for seed germination		
Absorbs and store rain water		

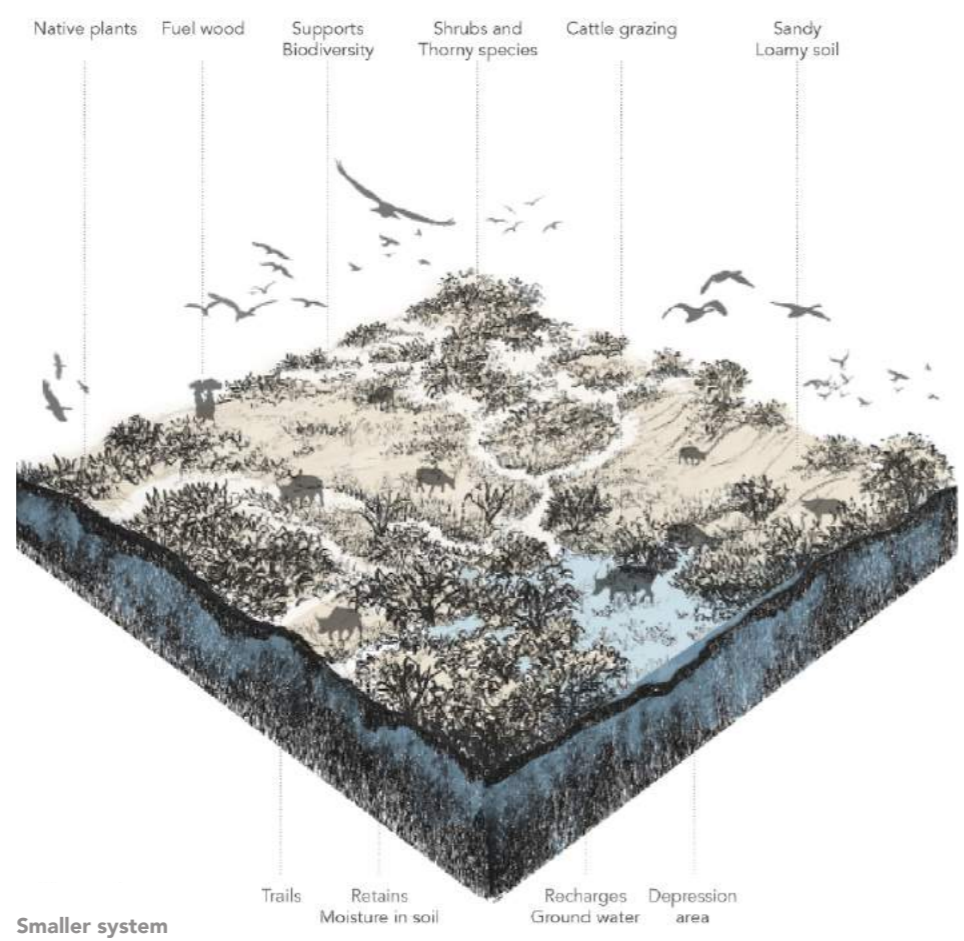
ECOLOGICAL VALUES	ECONOMICAL VALUES	SOCIO - CULTURAL VALUES
Supports native plant species which are salt tolerant	Fisheries habitat	Food security
Provides habitat for ave-fauna, terrestrial and aquatic life	Peci-culture	Job security
		Tourism
		Recreational
		Identity and spiritual value
		Livelihood



THREATS
Storm water outlets causes rapid erosion | Invasive species | Proximity to private property

The ravines are landforms with valleys which is resultant of soil erosion. It is been perceived completely as underutilized land. It gets refilled to utilize the land. Because of it ecological niches reduces and are in danger which plays one of the important role in the ecosystem. This ravines are linked with streams and river systems

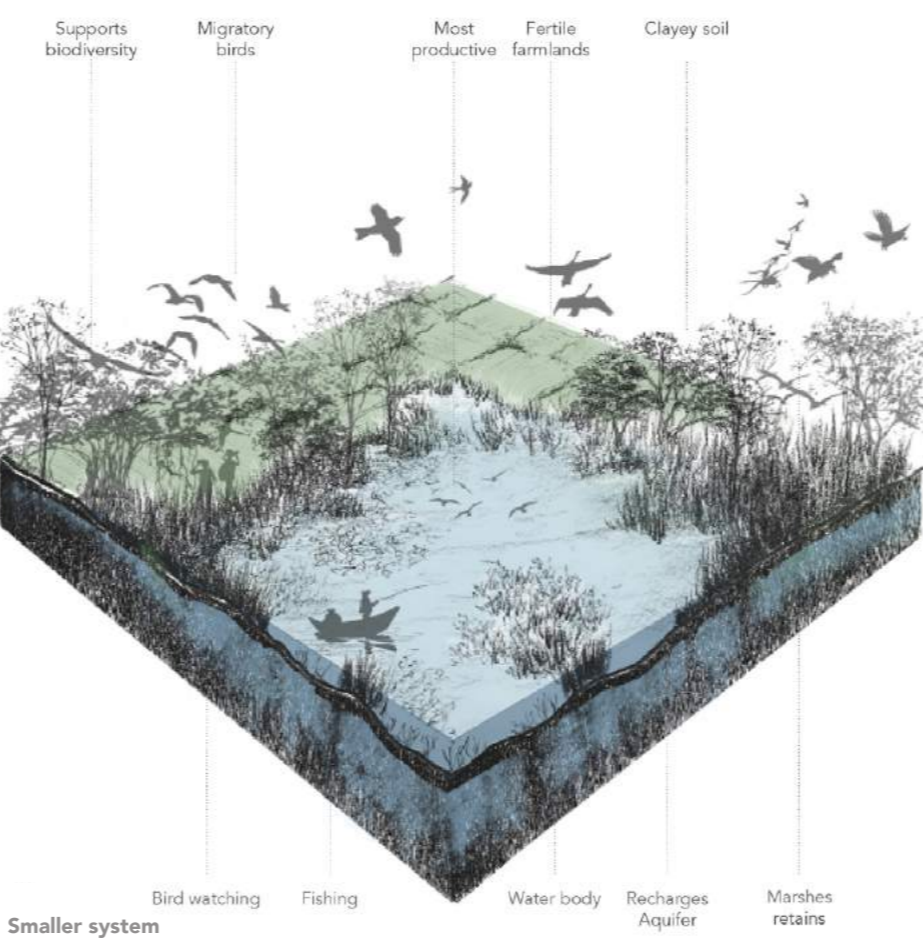
1. RAVINES & RIVER



THREATS
Lack of awareness|Encroachment for stay and agriculture| Urban development|Exploitation of wood

The scrublands are characterized by shrub type of vegetation. It is perceived as a dusty wild open space. These are fragmented habitats. It can be stepping stones or wildlife corridors which are linked with larger ecosystem. It has different values attached to it. Which needs to re-look at to reinterpret scrublands.

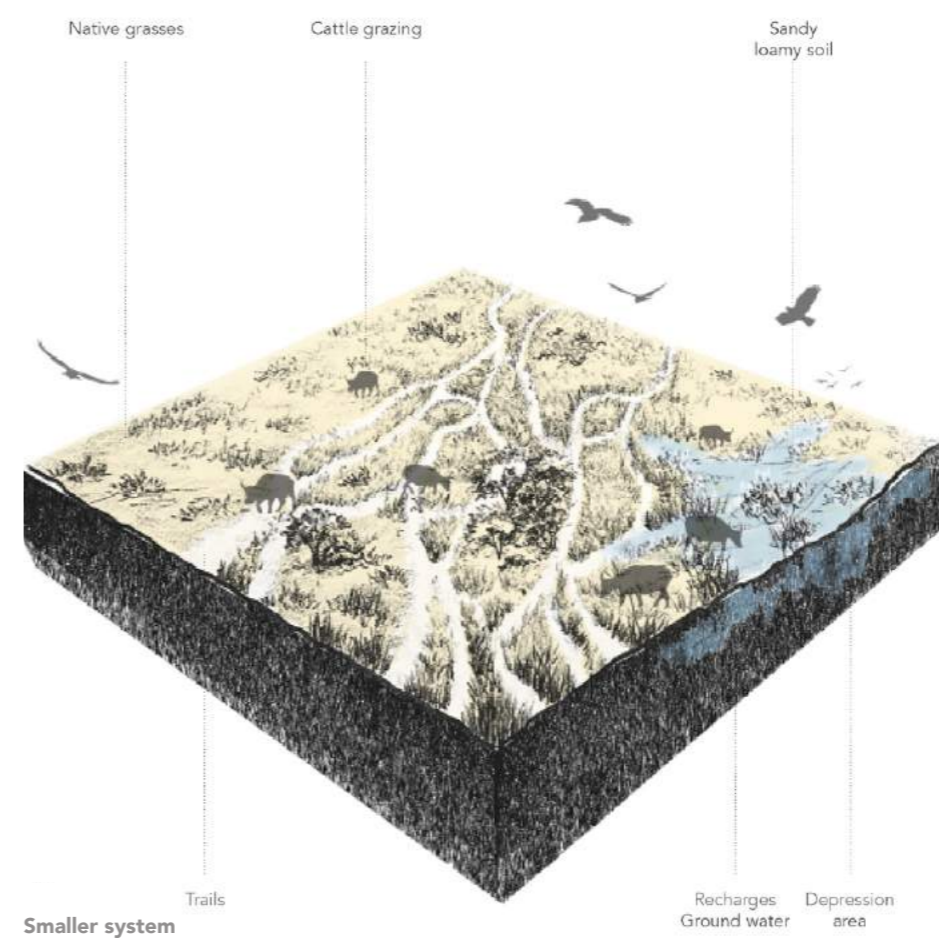
2. SCRUBLANDS



THREATS
Urban infrastructure | Converting into upland | Pollution | Groundwater withdrawals | Livestock grazing | Encroachment | Waste water discharge | Siltation | Weeds

Wetlands act as hydrological entities like lakes, marshes, swamps, estuaries, tidal flats, flood plains, mangroves. It provides most of the services. Hence, over exploitation decreasing its value. Human life will sustain if it will be used in sustainable manner. It is a habitat for the migratory birds. Wetlands systems which drives many other larger systems. Over the time due to many different factors, these systems are fading away.

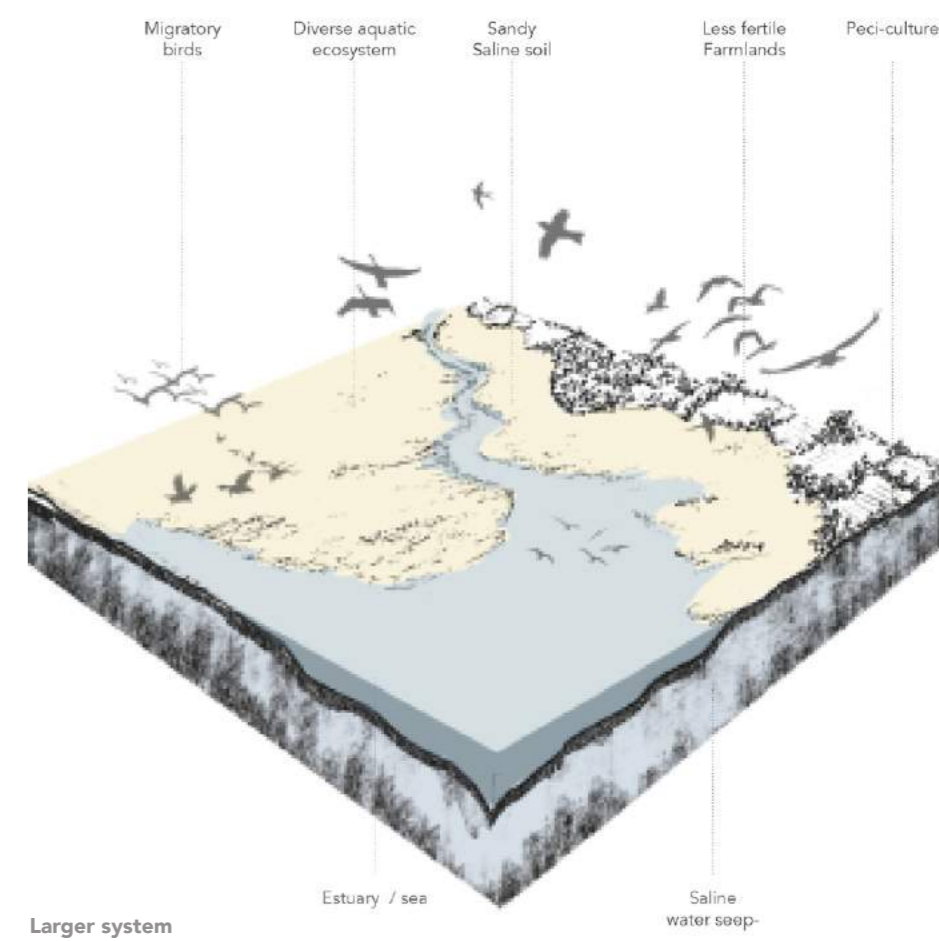
3. WETLANDS



THREATS
Over grazing | Degradation | Fragmentation of habitat | Human wildlife conflicts | Decreasing Rainfall | Poor irrigation | Soil erosion | Loss of valuable species | Climate change | Land filling

Pasture land plays important role for the pastoral community and the livestock. It is their temporary / semi temporary habitat in search of pasture. It exists in semi-arid climates.

4. PASTURELANDS



THREATS
Urban infrastructure | Grey water discharge | Converting into upland | Groundwater withdrawals | Loss of native species

Naturally saline lands provide different habitats. But some saline lands are the resultant of many factors like withdrawal of ground water in excess amount, no ground water and aquifer recharge, climate change, sea level rise, decreasing freshwater sponge areas, decreasing native forests and species etc. It further affects other smaller and larger systems.

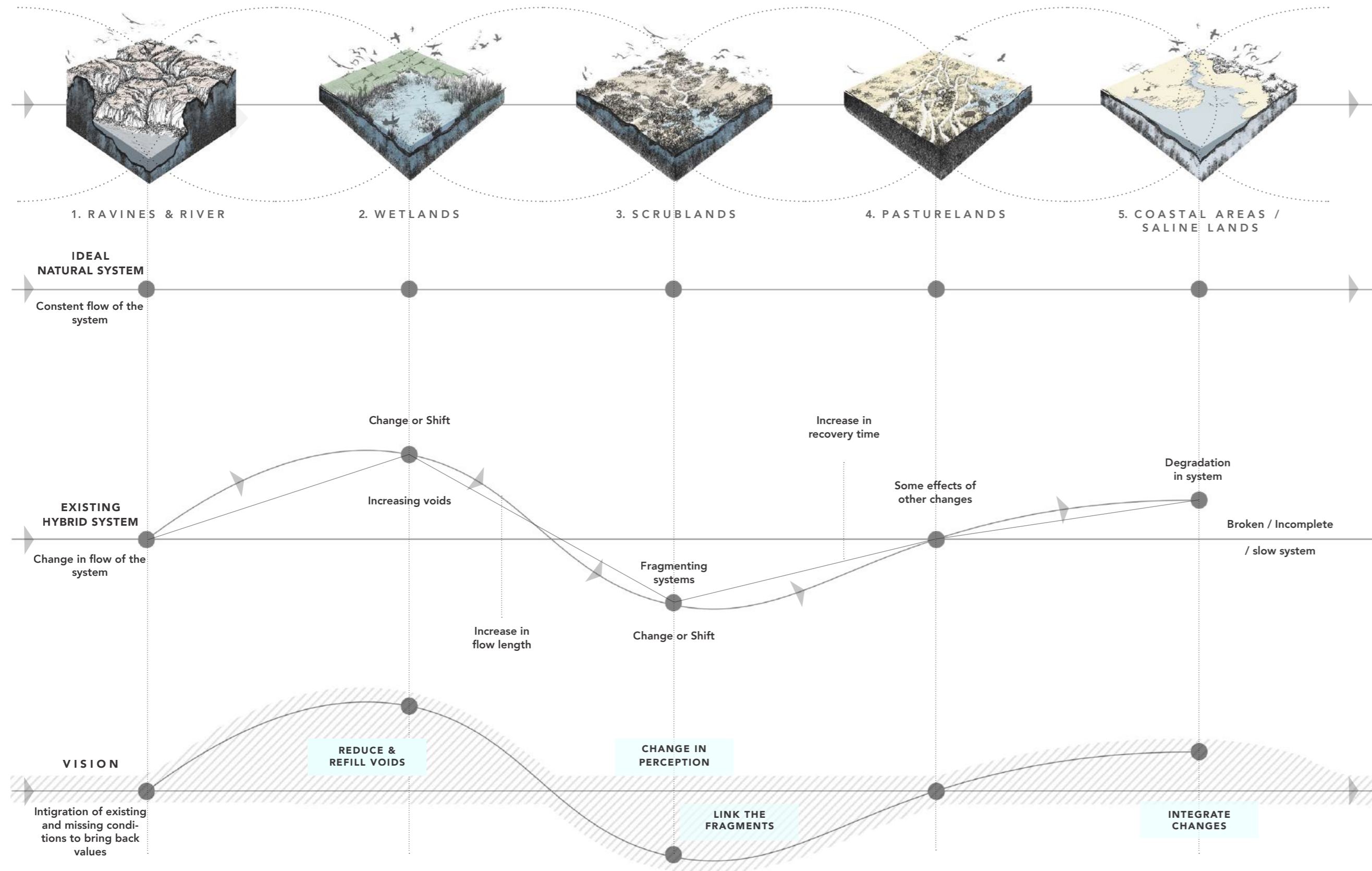
5. COASTAL AREAS / SALINE LANDS

An interlinked values drives a larger system. If any of these smaller systems get affected, Impacts can be seen at larger systems like coastal areas, decrease in diversity in ocean ecosystem, increase in salinity etc. Open spaces / wastelands enables the ecosystem services like urban biodiversity, natural drains for storm water and flood attenuation and many more.

VALUES OF WASTELANDS _ Defining wastelands as landscape resources

NATURAL SYSTEM

Constant flow of interlinked / interdependent / systemic succession of systems

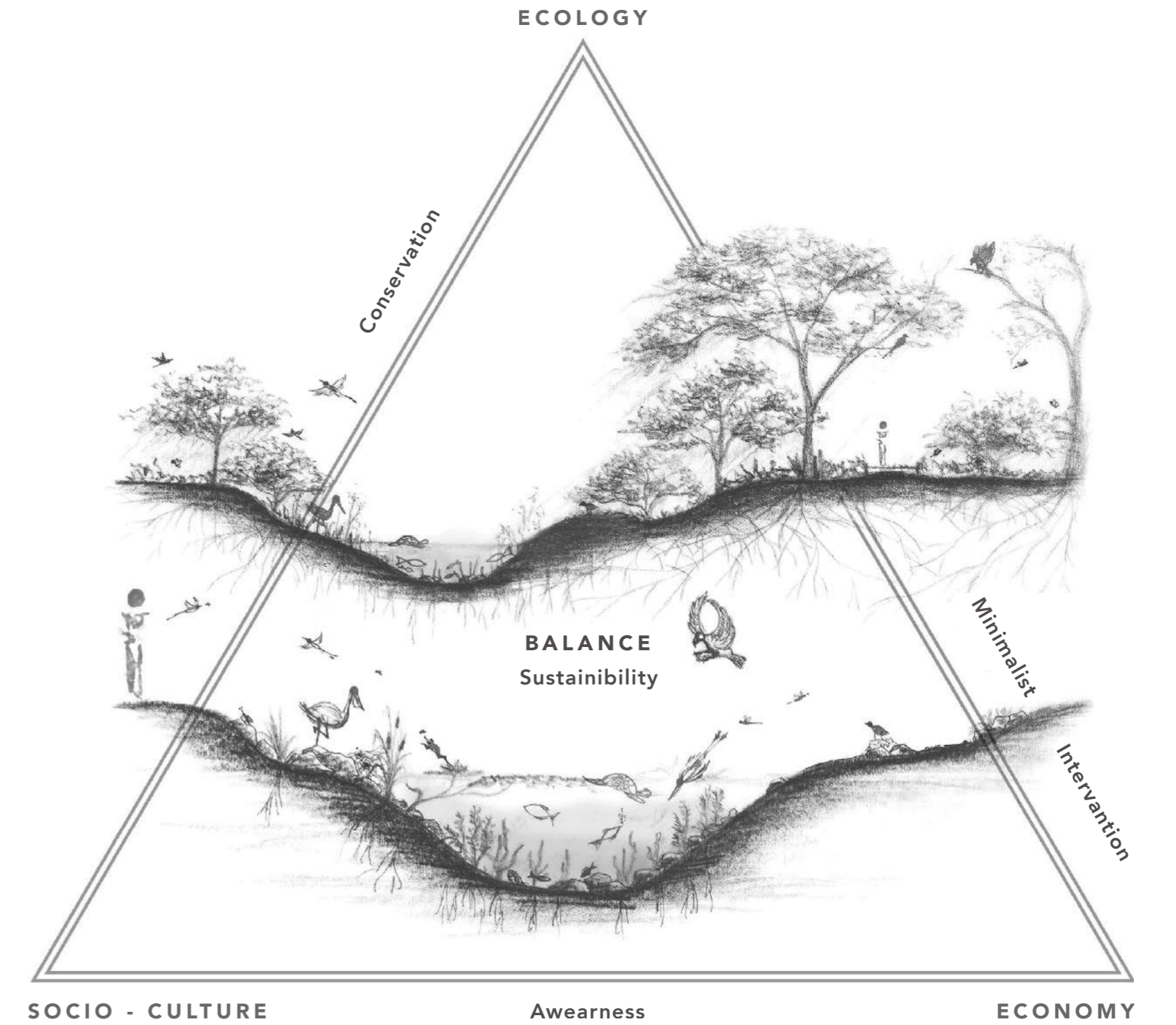


HYBRID SYSTEM

Natural intact system + Flux in continuous system + Adaptation

Change in flow | Impacts to other systems | Increase in void | Increase in hybrid system

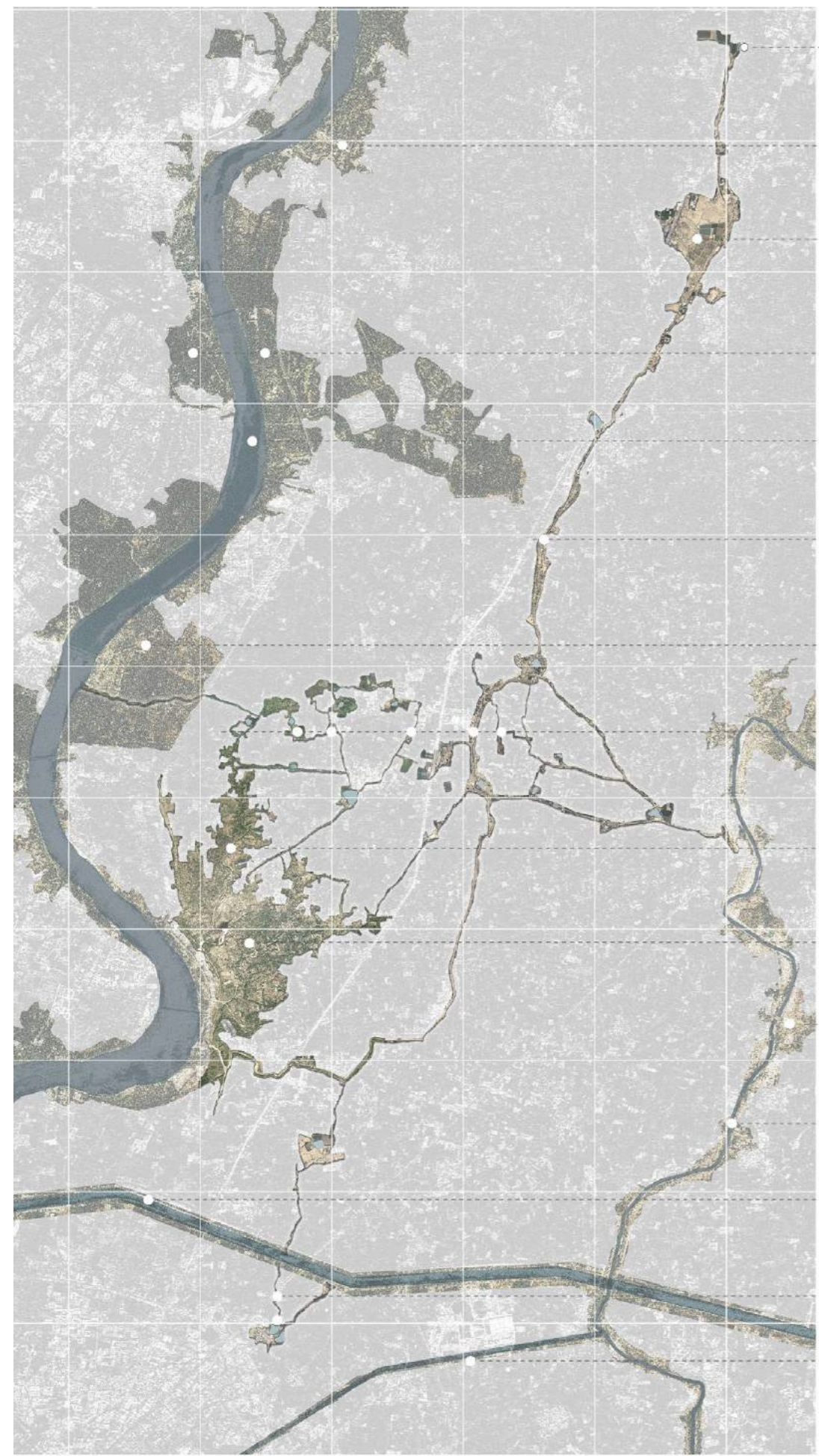
Sustainable intervention to retain what is exist | Reduce the gap | Acknowledge existing | Nature - culture - interface | Accelerate natural process | Initiate to balance the systems



WHOLISTIC DESIGN APPROACH

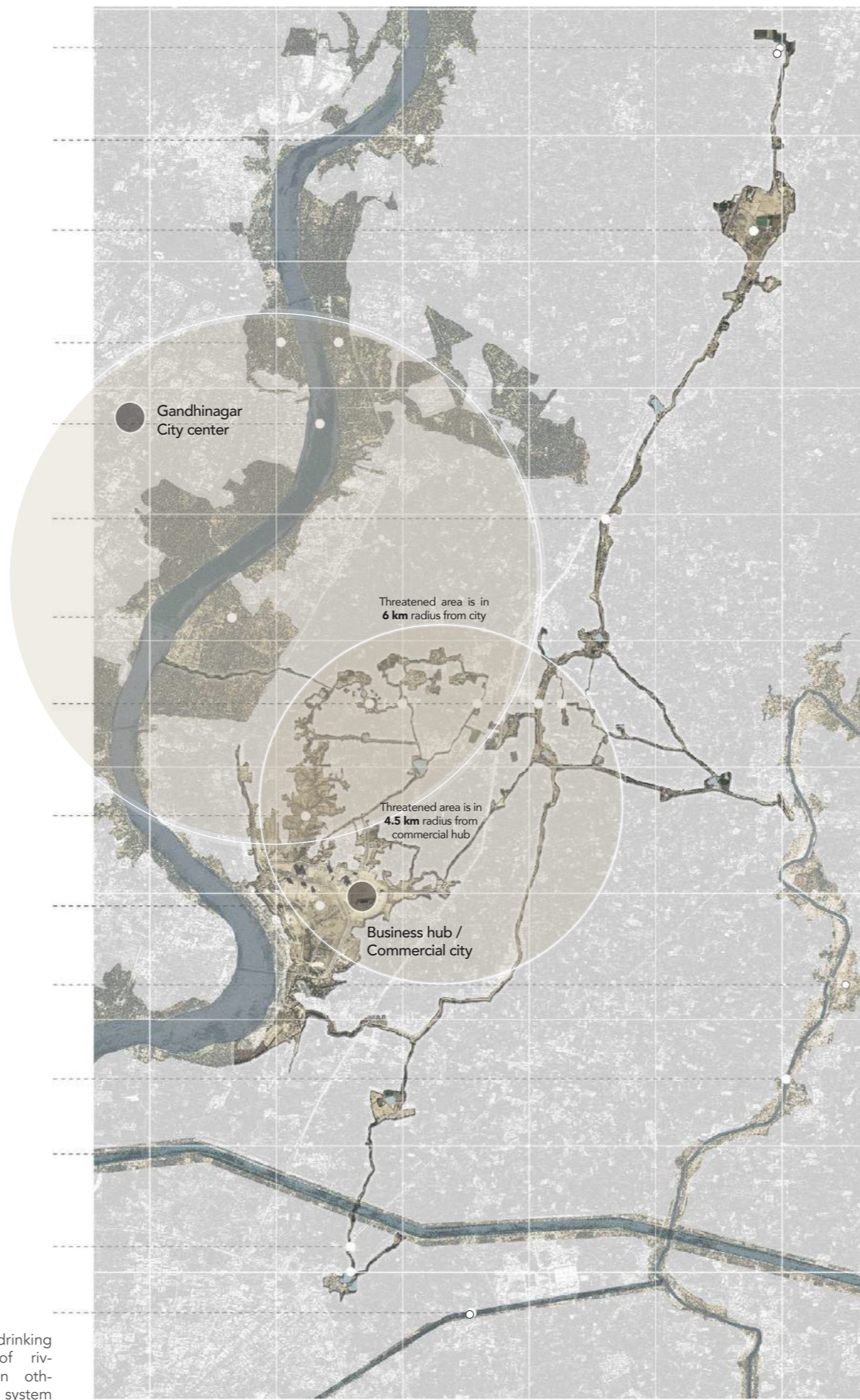
Shift / Change impacts all the other systems

Three major factors of balance get affected which are Ecology + Culture + Economy. Hence, wholistic approach is important



- Origin of a stream**
Seasonal stream feeding lakes and scrublands
- Ravines**
Gullied landforms and diverse habitat
- Scrubland along the stream**
Character of riparian zone has changes due to farming activity
- Dense scrubland**
- Sabarmati river**
Major west flowing seasonal river
- A stream**
Seasonal stream feeding lakes and scrublands. Link is broken due to roads
- Aranya Udhyan**
Open wooded forest
- Village common (lands)**
Lakes and grazing lands are linking larger systems even being important fragmented function.
- Ravines**
Gullied land form and diverse habitat
- GIFT City**
Financial Central Business District
- Scrubland along the stream**
Riparian zone has scrub type of vegetation due to less moisture and seasonal flow of the river
- Khari river**
Seasonal river
- Narmada canal**
Built in 2008 for the irrigation and drinking water purpose
- Mouth of a stream**
The stream connects to village common lakes at both the end
- Khari cut canal**
Built 110 years ago for the irrigation and drinking Water purpose. Splitting the course of river must have increased the diversity in other areas but broke the natural system

LINKAGES IN YEAR 2003



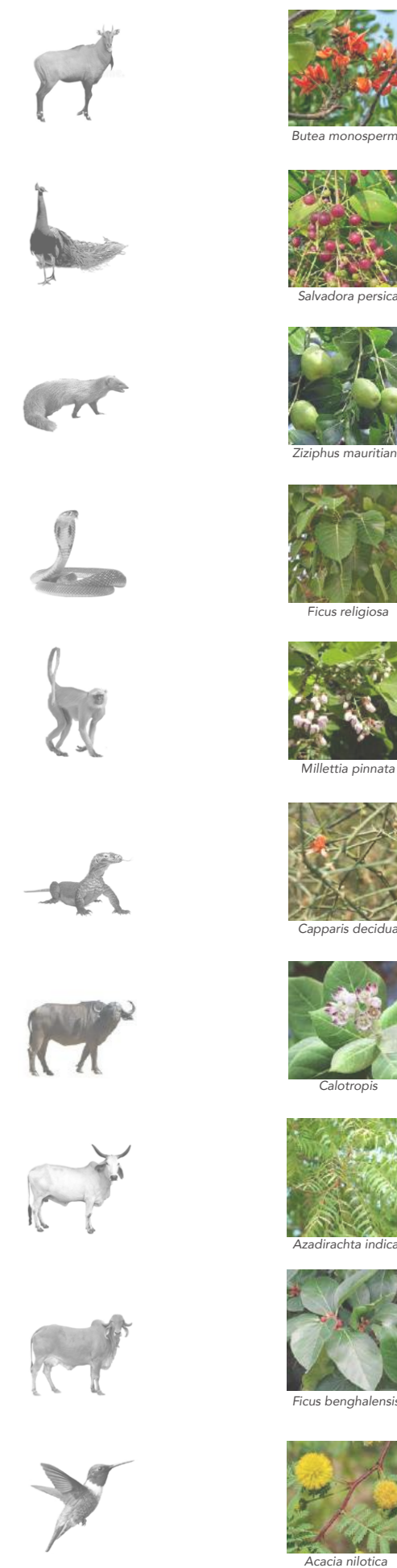
EXISTING LINKAGES IN YEAR 2020



- Lost scrubland**
Due to agricultural activity and change in river ecosystem
 - Lost lake**
Due to environmental changes and farmland
 - Lost scrubland patches**
Agricultural activity
 - New scrubland**
Due to abandoned farms
 - Lost flow**
Due to roads
 - Lost lake**
Due to environmental changes and agriculture land
 - Lost ravines**
Threats are private ownership due to land use
 - Lost scrubland**
Agricultural activity
 - Lost lake**
Due to environmental and man-made changes
- Lost linkages
 Existing linkages
 Change or shift in character / linkages
- TRANSECT 1 Detail analysis area is Comprise of multiple systems
 Passageways of fauna is lost which connects two rivers



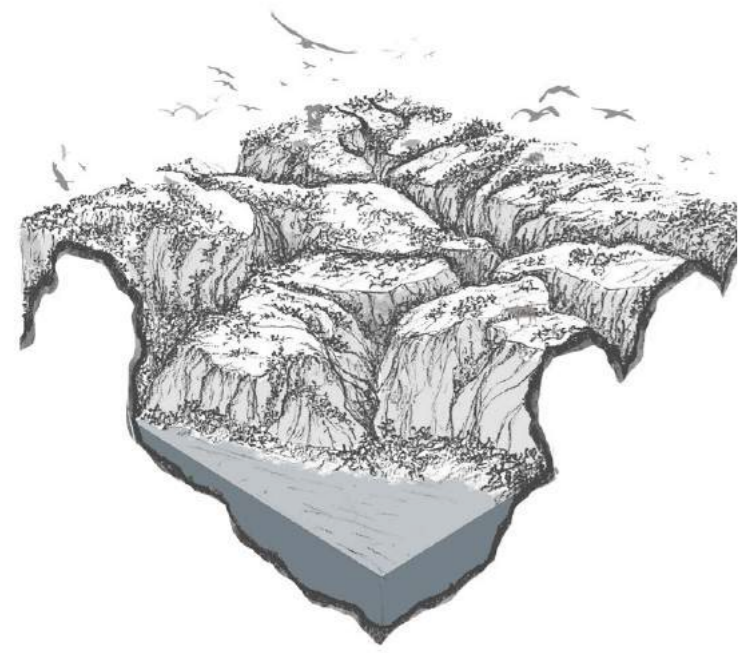
LOST LINKAGES OF THE YEAR 2020



DOMINANT FAUNA & FLORA

How common lands are part of larger systems. The study area includes common lands which are scrublands and wetlands / lakes. These are links between larger systems which connects river & ravine ecosystem. These links comprises of river, open wooded forest, ravines, streams and village commons like grazing land and lakes. The links are broken due to urbanization and humans need. This shift has fragmented the systems into parts. Approach is to understand how smaller patch plays important role to the larger ecosystem.

TRACING AND INVESTIGATING LINKAGES OF COMMON LANDS



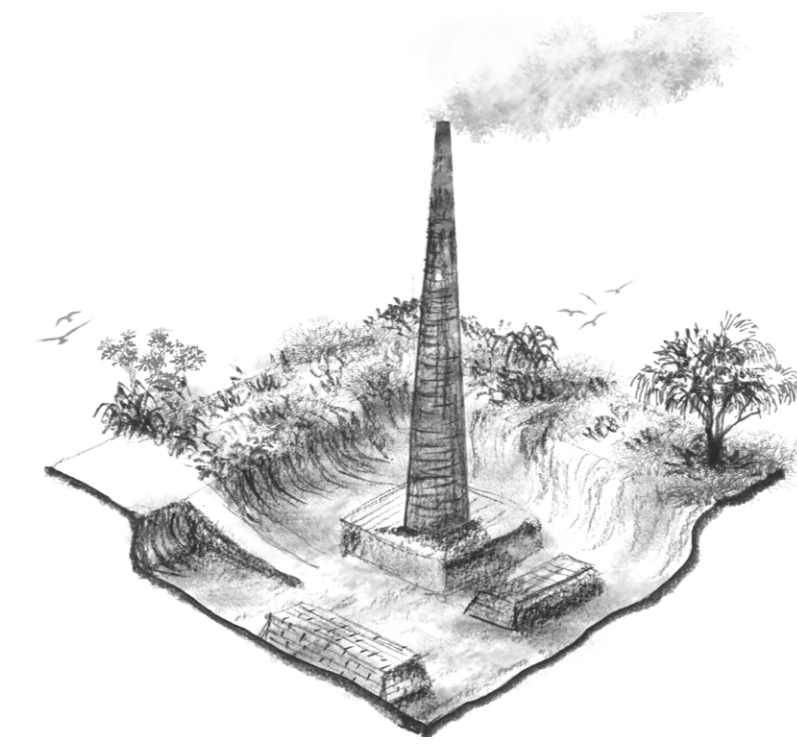
A, B - Ravines
Major supporting biodiversity in the linkage



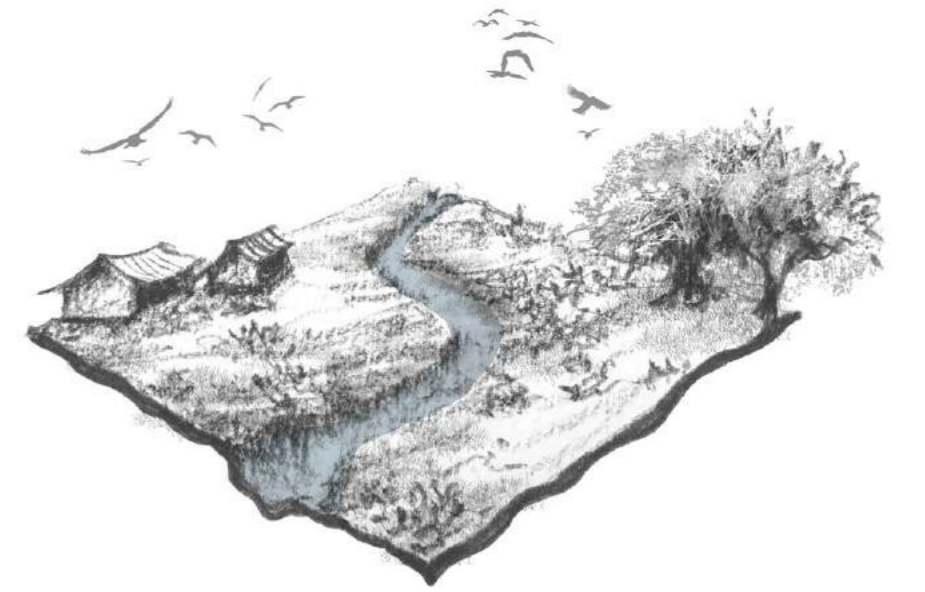
A - Woodland
Major supporting biodiversity in the linkage



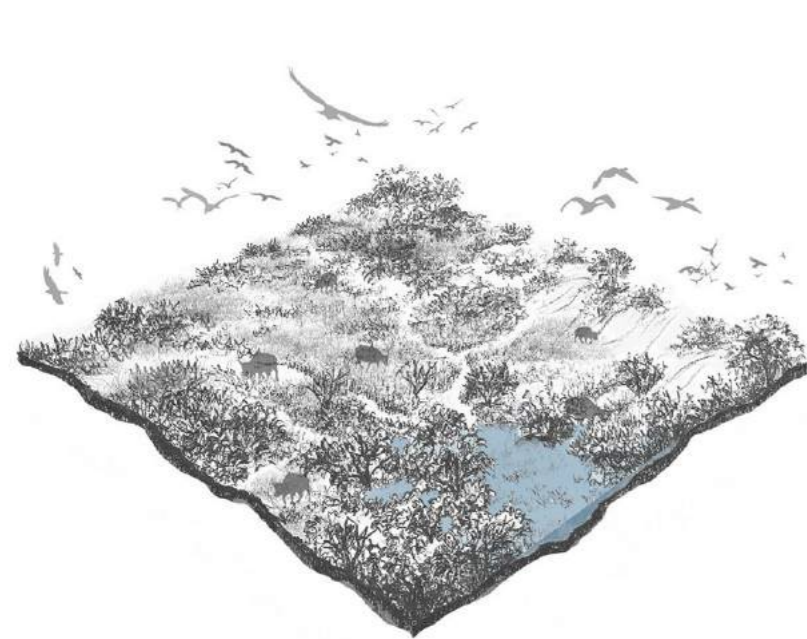
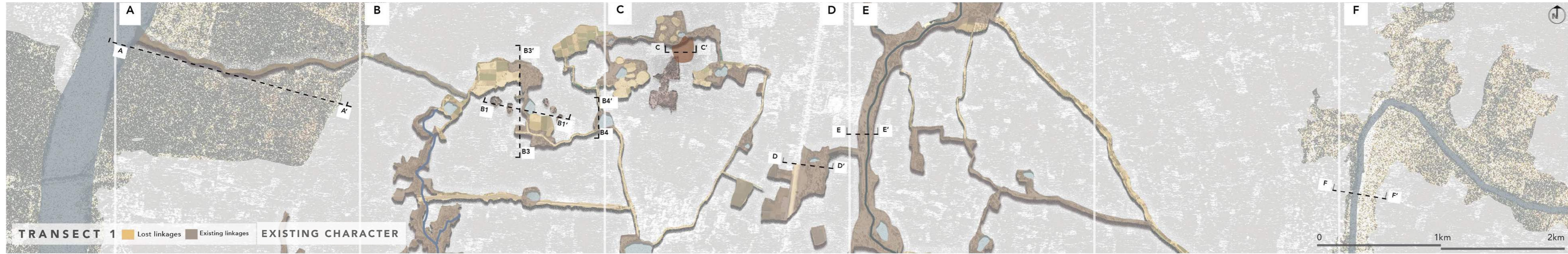
B, C - Seasonal and perennial lakes
Part of village commons



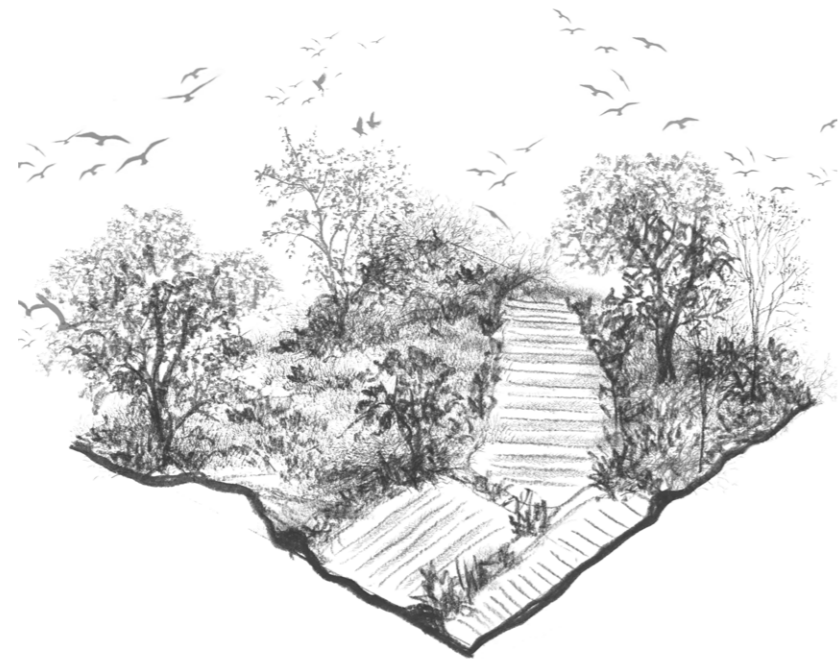
C - Brick kiln
One of the threat to the linkage



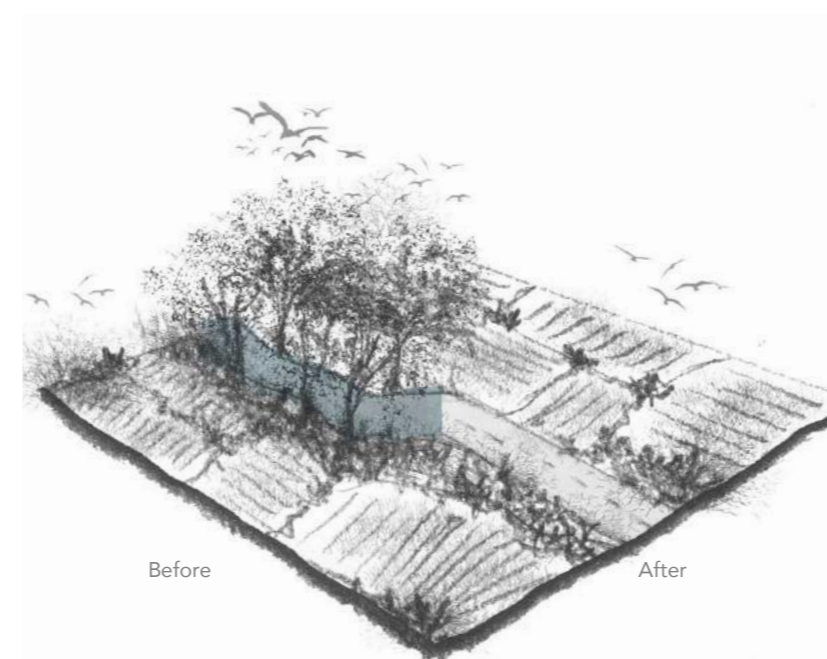
E, F - Seasonal stream and river
Degraded riparian zone



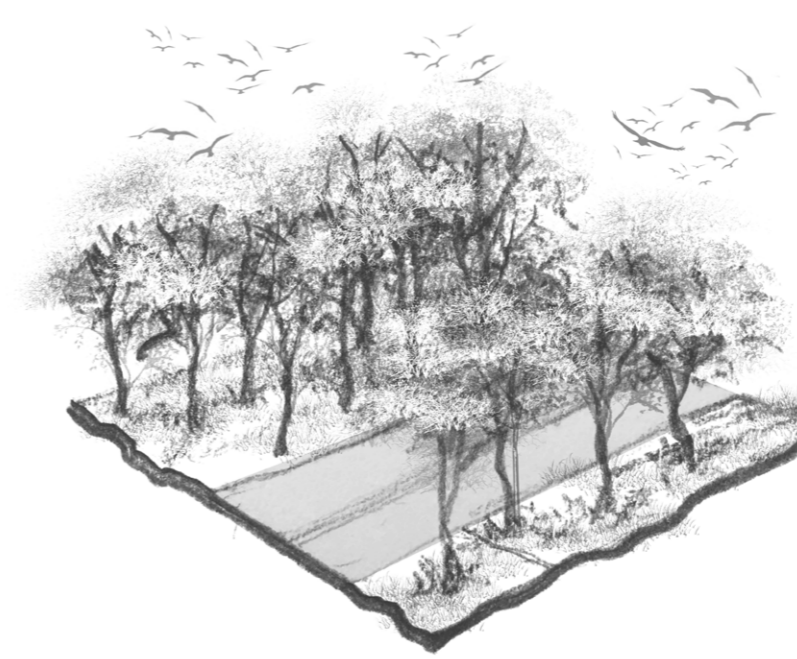
B, C, D, E, F - Scrubland
40% scrubland area is decreased in a Transect 1



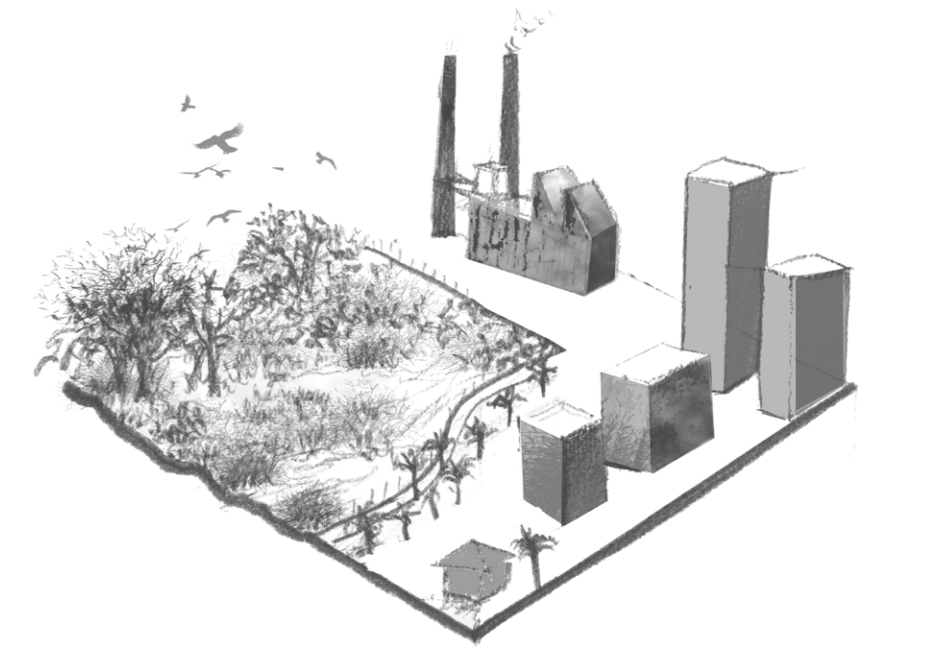
B, C - Scrubland converted in agricultural lands
One of the threat to the linkage. Loss of habitat and corridors



B, C - Streams converted into roads
Loss of habitat and corridors

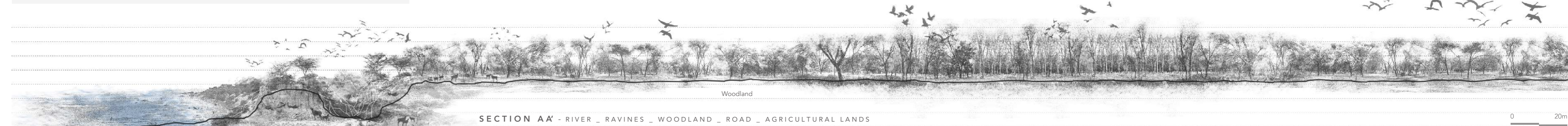


B, C, D, E, F - Highway built on natural areas
One of the threat to the linkage. Loss of habitat and corridors

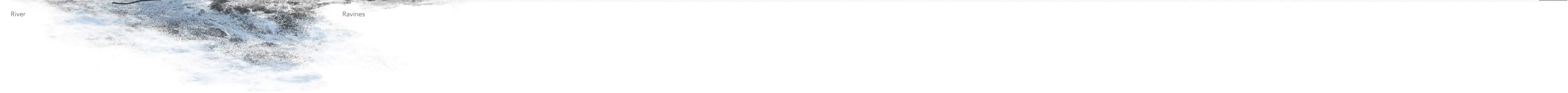


Urbanization engulfing and encroaching natural areas
Major threats to the linkages

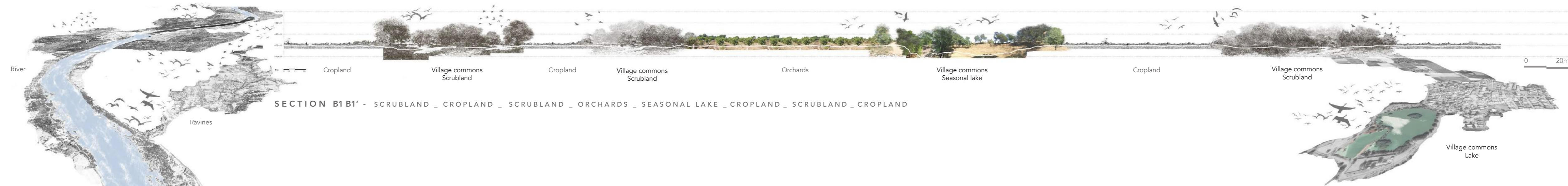
TRANSECT 1 - EXISTING CONDITIONS



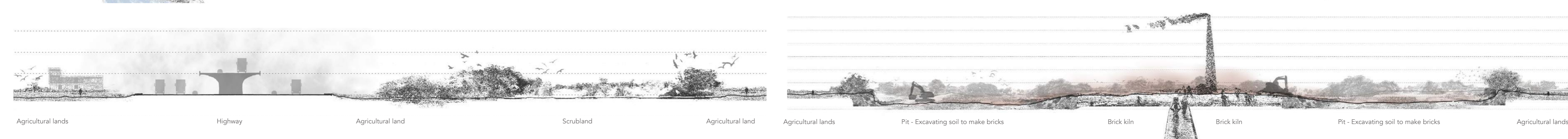
SECTION AA' - RIVER _ RAVINES _ WOODLAND _ ROAD _ AGRICULTURAL LANDS



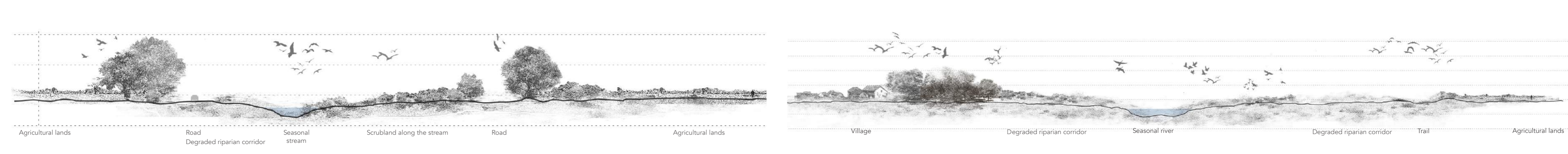
SECTION BB' - CROPLAND _ VILLAGE COMMONS SCRUBLAND _ CROPLAND _ VILLAGE COMMONS SCRUBLAND _ ORCHARDS _ VILLAGE COMMONS SEASONAL LAKE _ CROPLAND _ SCRUBLAND _ CROPLAND



SECTION DD' - AGRICULTURAL LANDS _ HIGHWAY _ AGRICULTURAL LAND _ SCRUBLAND _ AGRICULTURAL LANDS

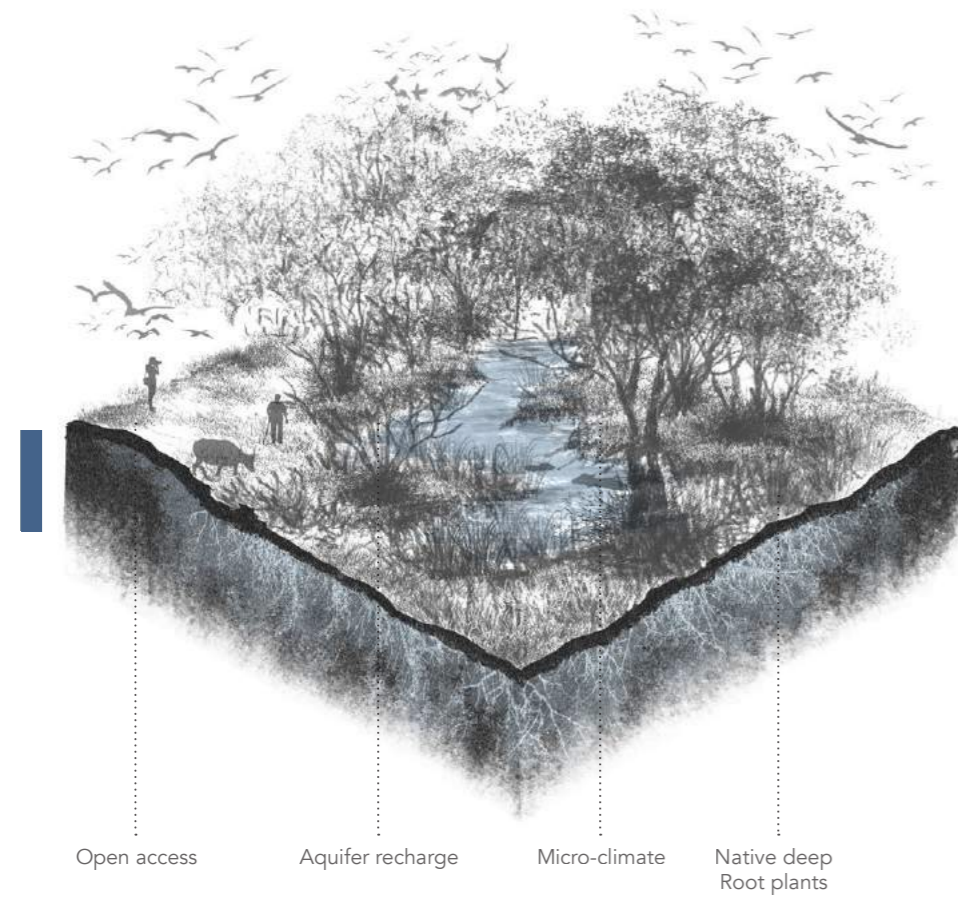


SECTION CC' - AGRICULTURAL LAND _ BRICK KILN _ AGRICULTURAL LAND

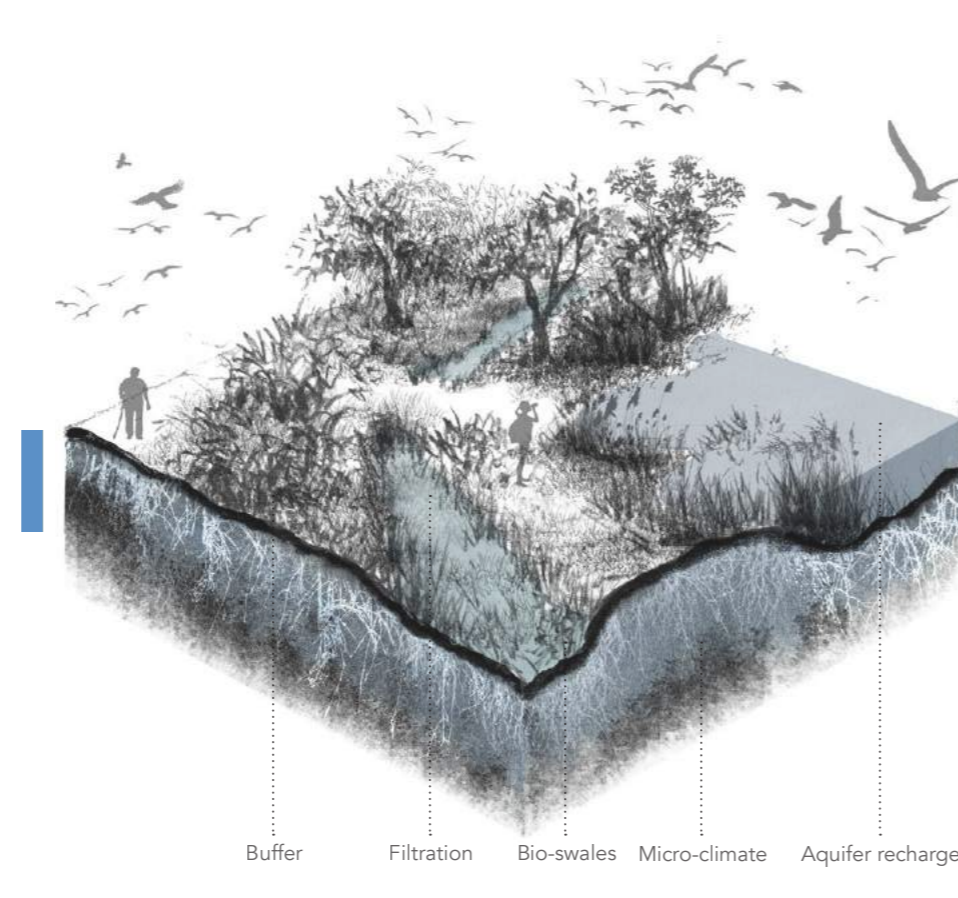


SECTION EE' - AGRICULTURAL LANDS _ ROAD _ A STREAM _ AGRICULTURAL LANDS

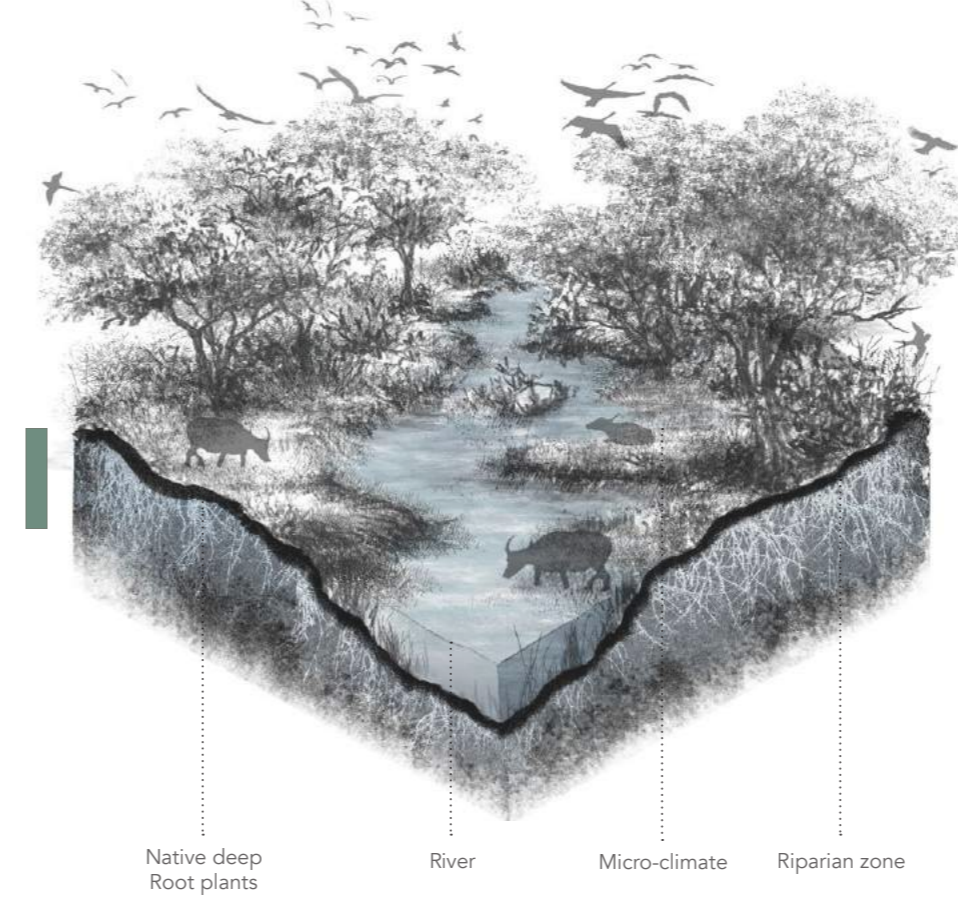
SECTION FF' - VILLAGE _ RIPARIAN ZONE _ RIVER _ RIPARIAN ZONE _ AGRICULTURAL LAND



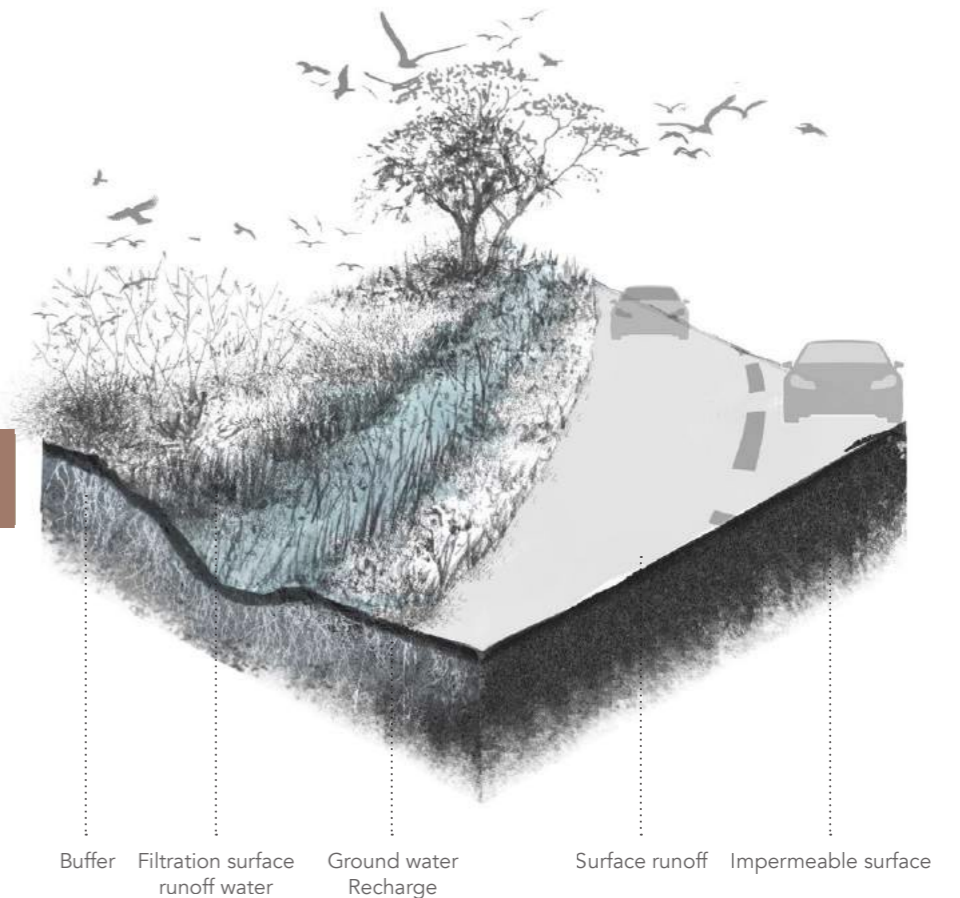
Seasonal lake
 Thick vegetative edge to hold water for longer period of the year
 Reduce evaporation + Protection from hot dry wind + Provide micro climate



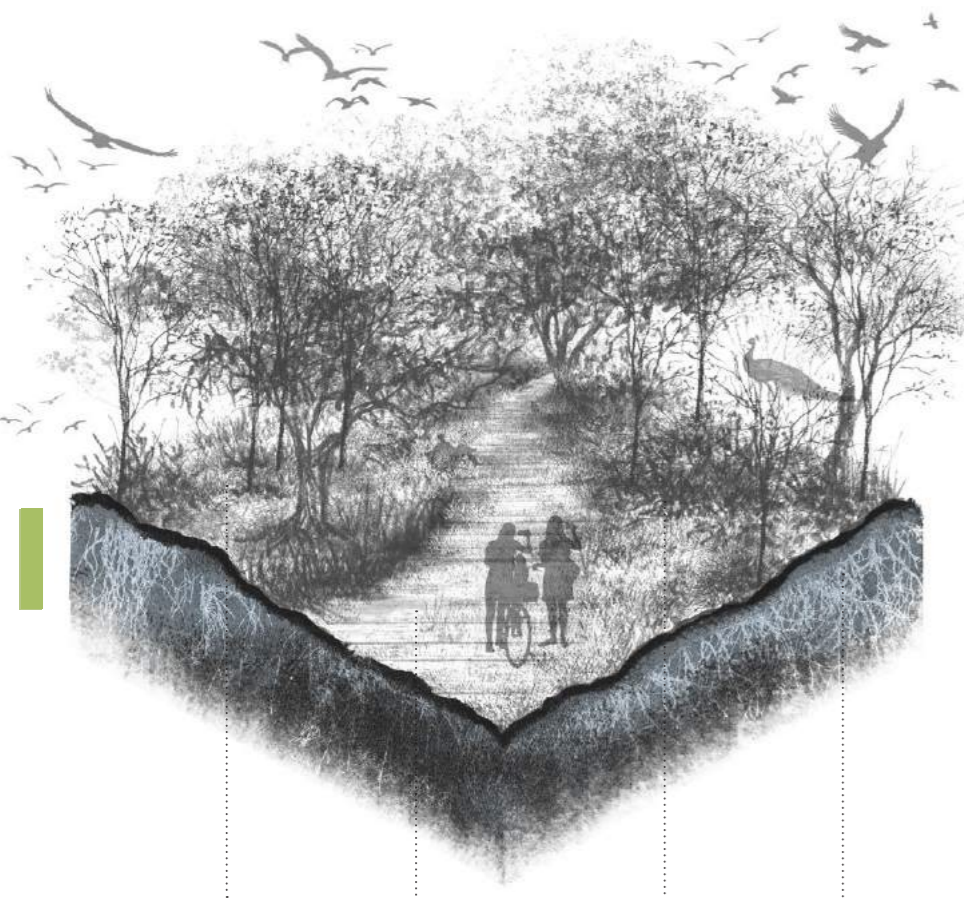
Bio - swales along the lakes
 Buffer to filter pollutant water



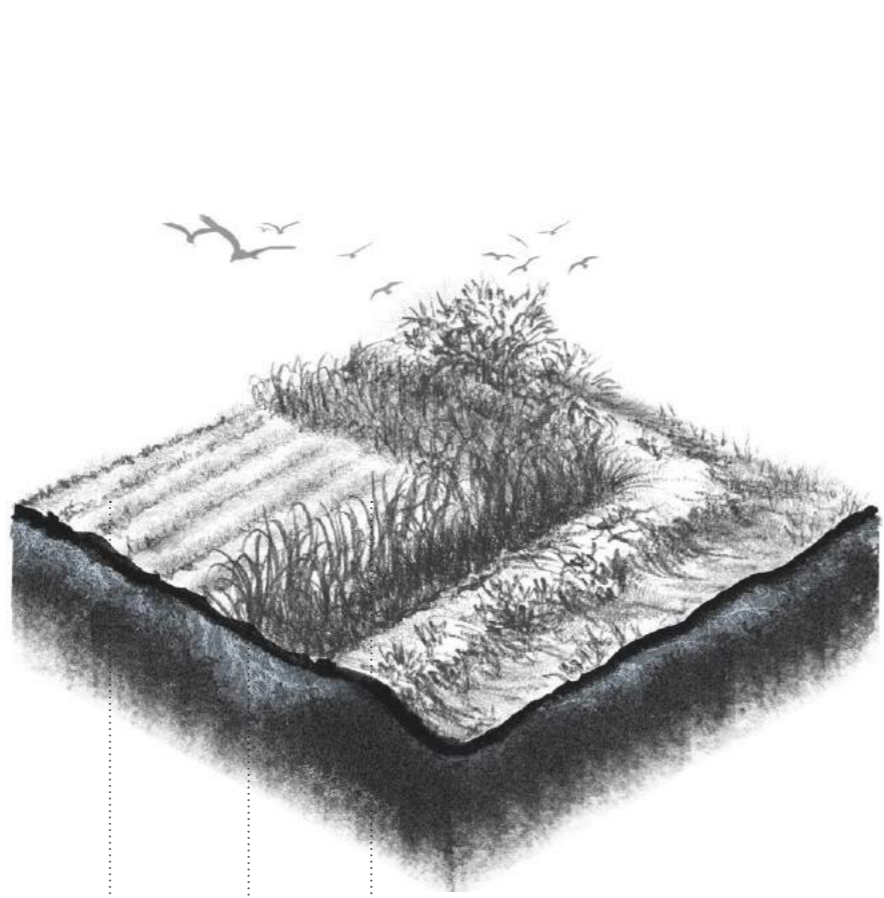
Riparian corridor
 Major supporting biodiversity in the linkage



Bio - swales along the roads
 Buffer to filter pollutant water + Using runoff water for ecological services



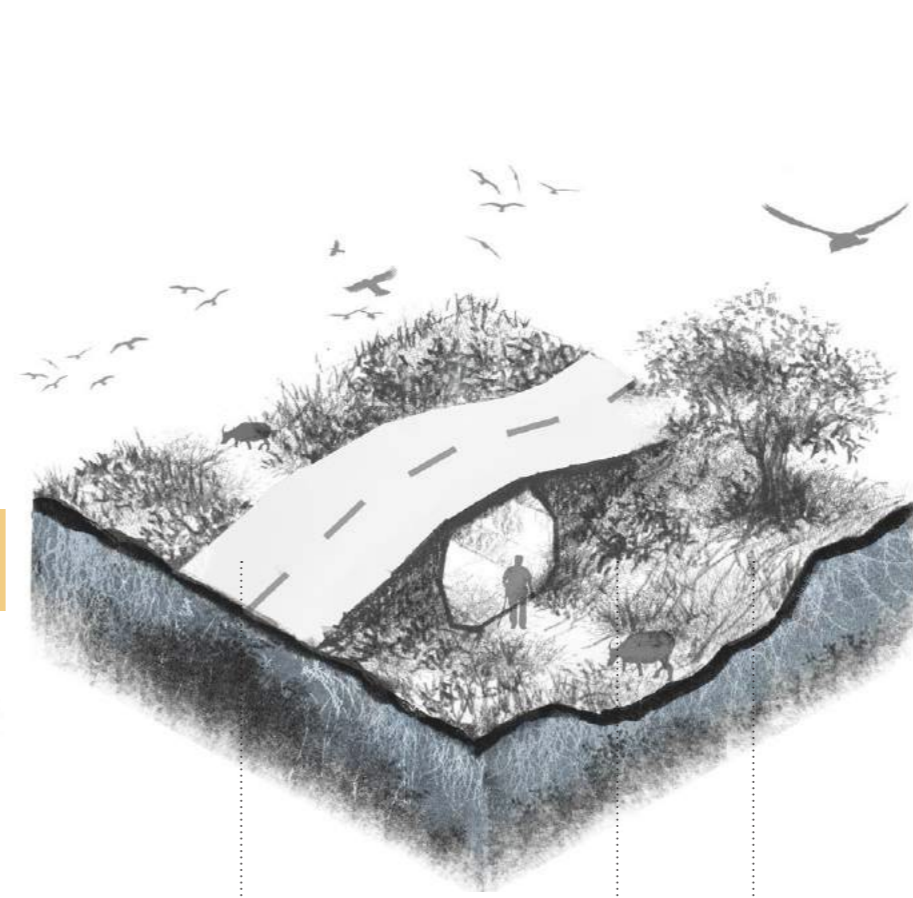
Movement corridors
 Major supporting biodiversity in the linkage + Interaction with wilderness



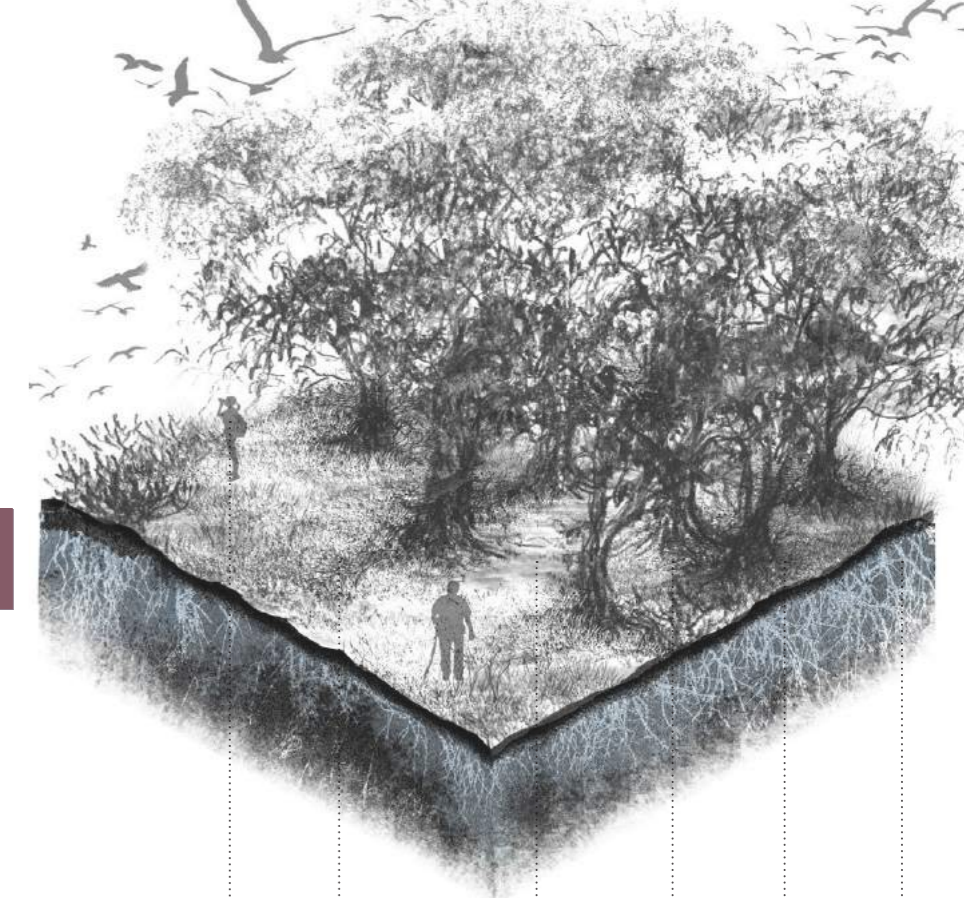
Grow and harvest cattle fodder
 To reduce overgrazing pressure on scrublands



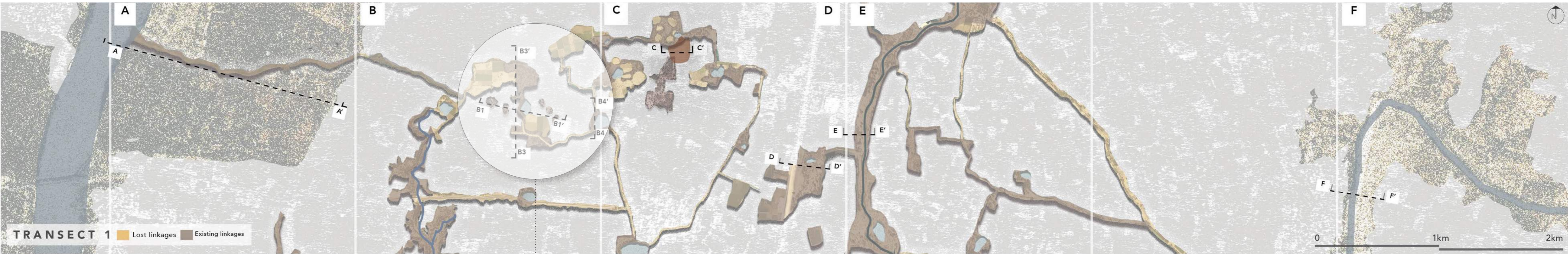
Scrublands
 To support ecological services + To secure livelihood + Urban forest



Culverts / Movement corridor / Seasonal stream
 To connect broken physical connections + To flow seasonal water



Groves / Sacred groves
 Major benefits in ecological services + Important cultural association



EXISTING AND LOST LINKAGES OF TRANSECT

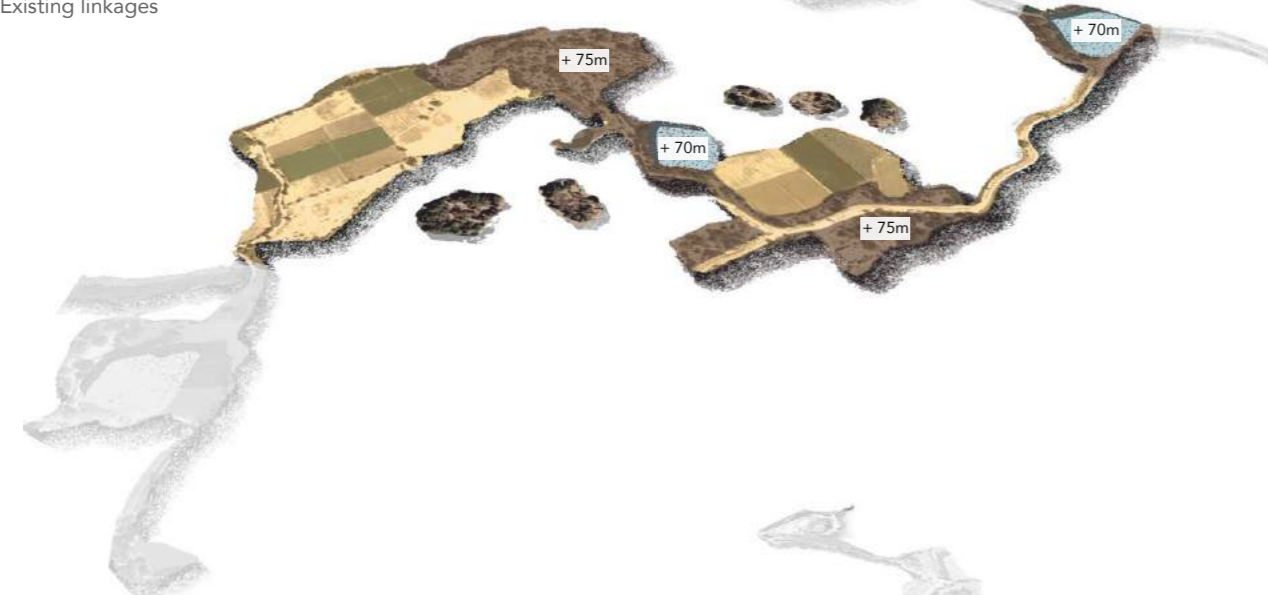


Master planning for a transect is weaved through modules. It can be seen as interlinked system / web / ecological niches. It intermingles with hybrid systems to form wholistic design intervention and living environment.

MASTER PLAN - BASED ON - PROPOSED SYSTEM MODULES TO STRENGTHEN LINKAGES - NODES, BUFFERS & MOVEMENT CORRIDORS

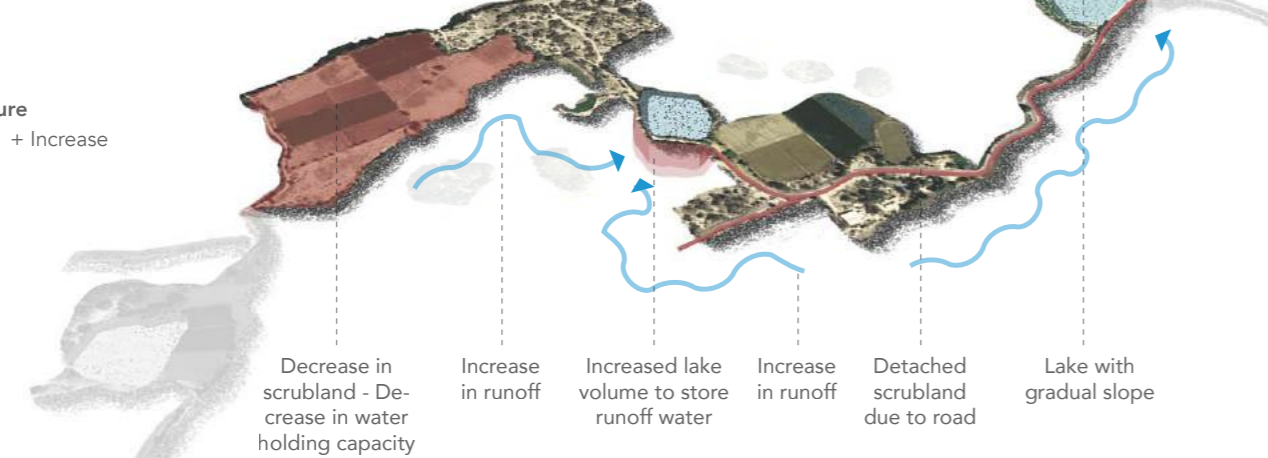
Lost linkages in year 2020

Lost linkages Existing linkages



Change in linkages between year 2012 - 2020

Increase in surface runoff Change / Shift in landscape



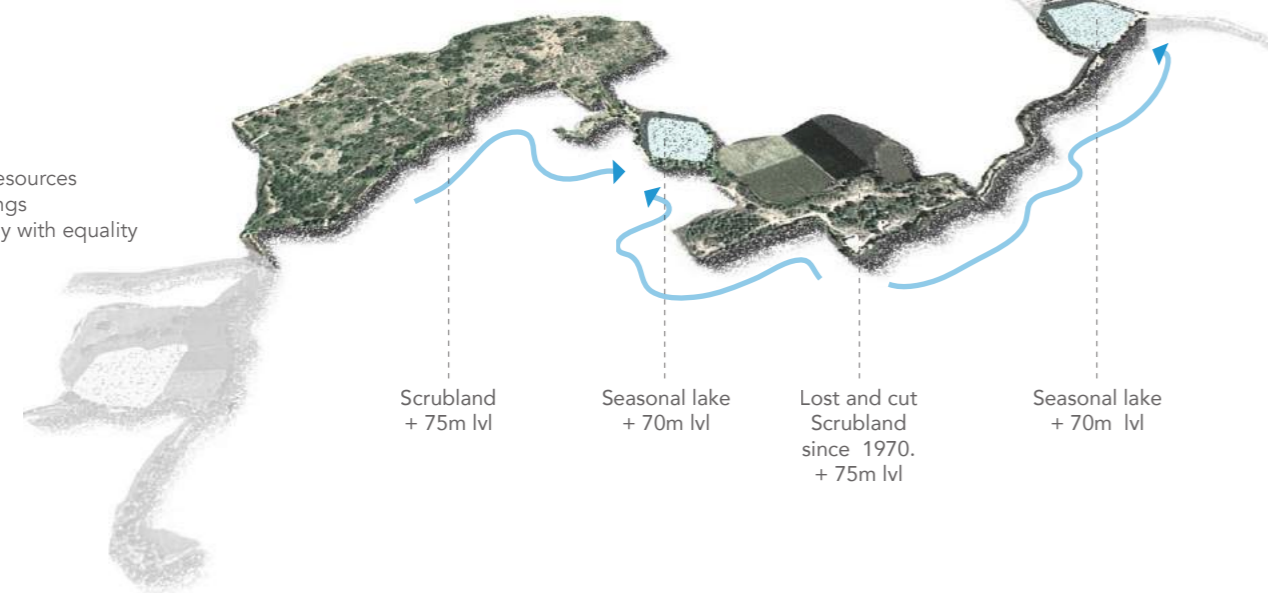
Impacts of change in rural infrastructure

In case of more runoff - Decrease + Increase

- Scrubland - D
- Water holding capacity - D
- Surface runoff + I
- Soil erosion + I
- Vegetation - D
- Siltation + Grey water + I
- Water quality - D
- Biodiversity - D
- Ecological values - D
- Economical values - D
- Socio-cultural values - D

Linkages between year 2003 - 2012

Gradual surface runoff

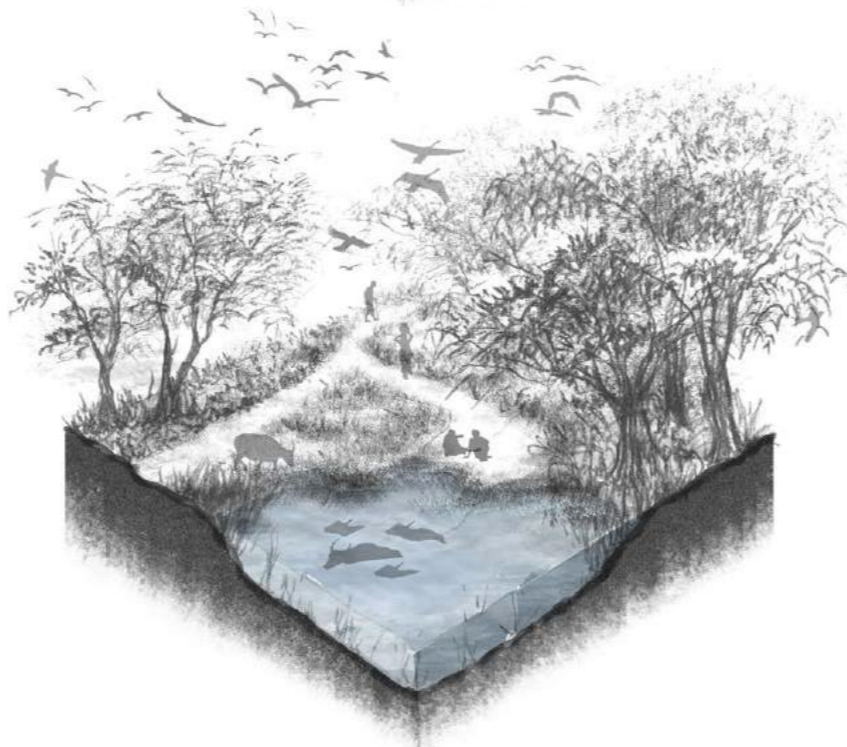
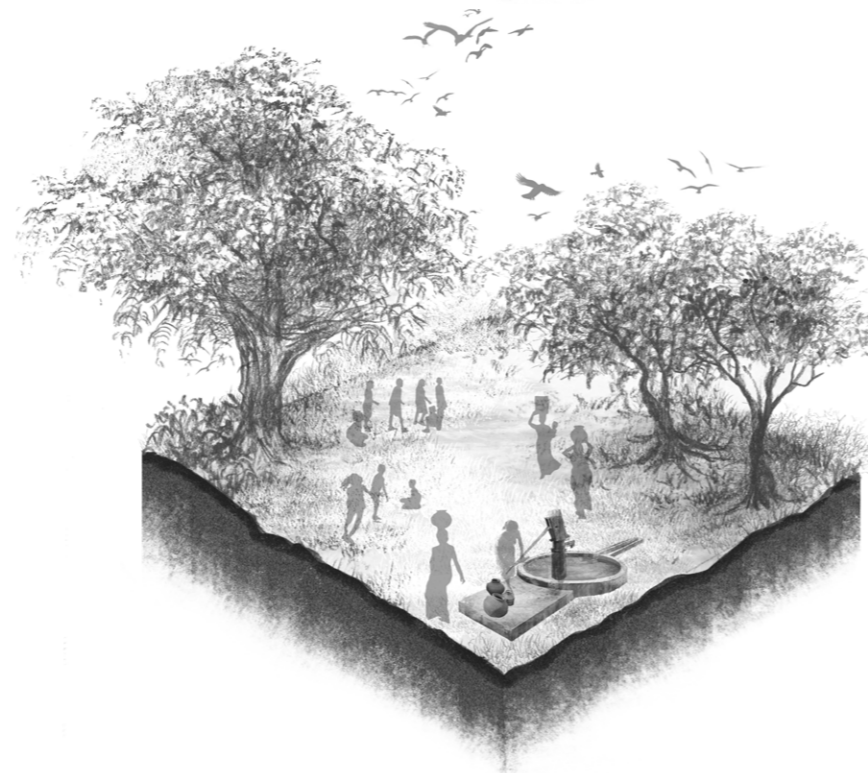
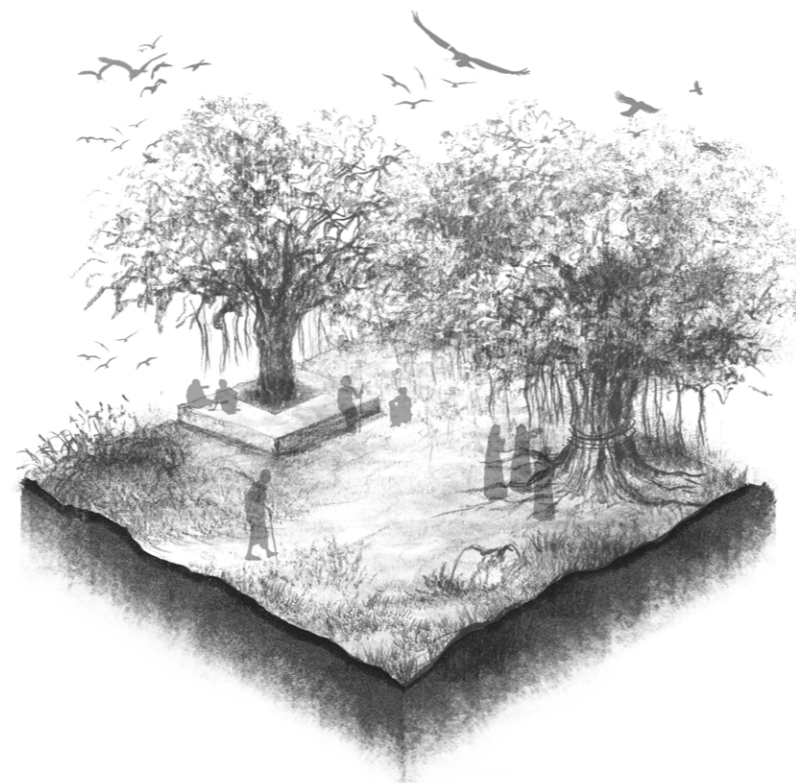


Systems earlier working with

- Traditional knowledge of natural resources
- Sense of place / Sense of belongings
- Sharing common lands boundlessly with equality
- Cultural association
- Livelihood security

Rural common lands as landscape infrastructure

SITE ANALYSIS - VILLAGE COMMON - DEMONSTRATION LINK



LOST ASSOCIATION WITH VILLAGE COMMONS

CONSERVATION

+

ACKNOWLEDGING EXISTING

+

RE - INTERPRETING COMMONS

+

RE - ESTABLISHING LINKAGES

Of natural resources will happen when collaboration will happen

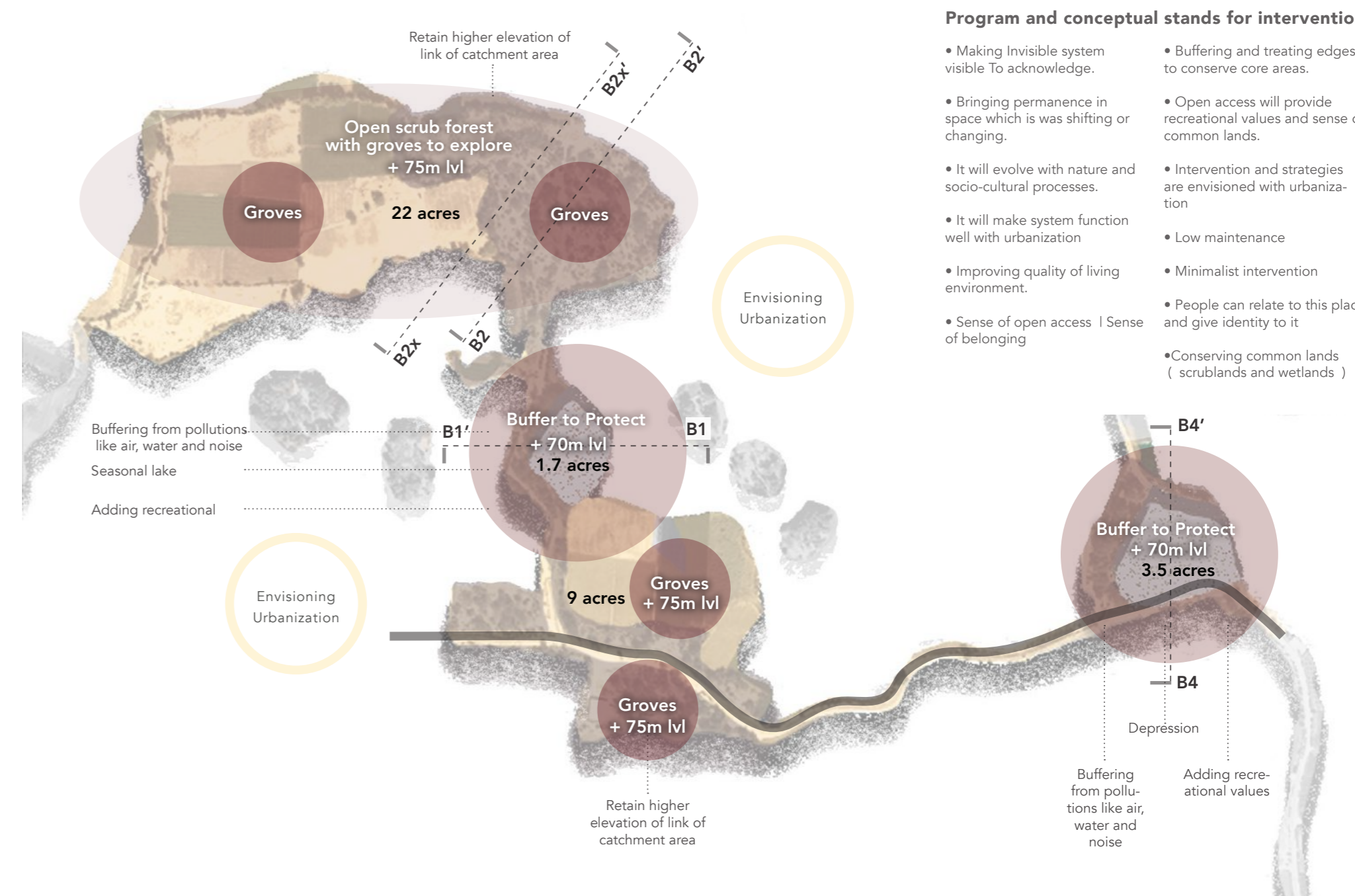
To make one appreciate and value which was not observed yet

Will allow people to give an identity to the land they share

Will make the connection to larger systems

Initiating to balance the system sustainability by integrating Ecology + Culture + Economy (WHOLISTIC APPROACH)

STRATEGIES FOR THE DEMONSTRATION LINK



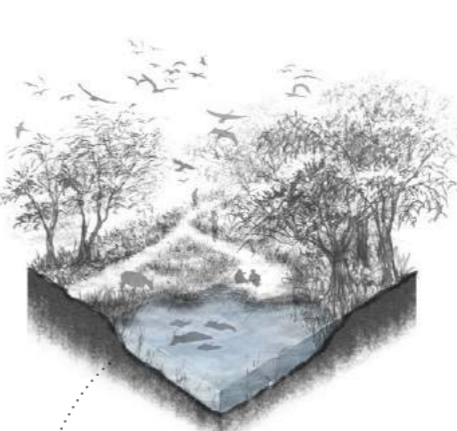
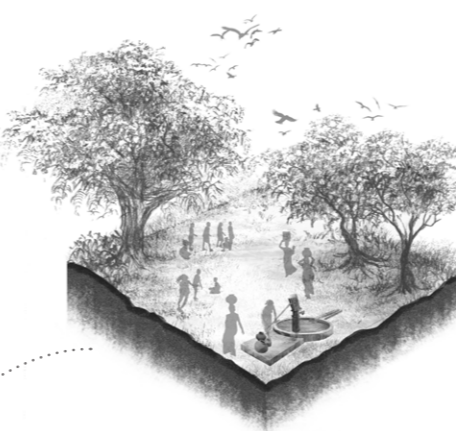
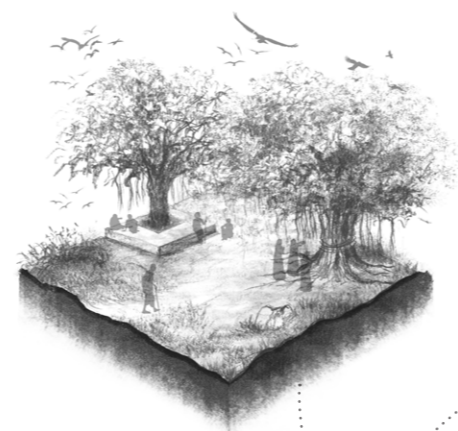
Program and conceptual stands for intervention

- Making Invisible system visible To acknowledge.
- Bringing permanence in space which is was shifting or changing.
- It will evolve with nature and socio-cultural processes.
- It will make system function well with urbanization
- Improving quality of living environment.
- Sense of open access | Sense of belonging
- Buffering and treating edges to conserve core areas.
- Open access will provide recreational values and sense of common lands.
- Intervention and strategies are envisioned with urbanization
- Low maintenance
- Minimalist intervention
- People can relate to this place and give identity to it
- Conserving common lands (scrublands and wetlands)

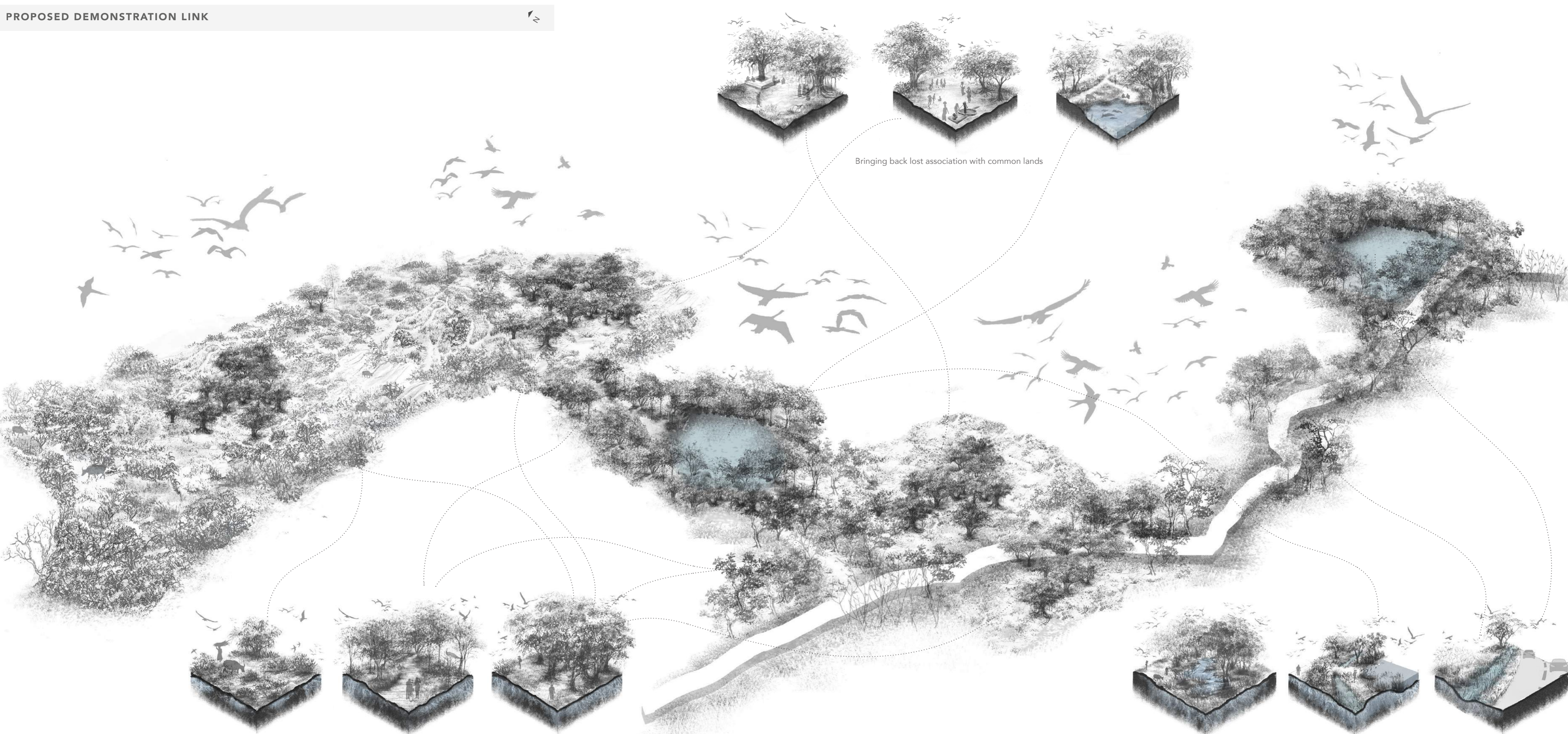
Common land - shared natural resources - boundless - equality - identity - memories - cultural association

PROPOSED KEY IDEA BASED ON STRATEGIES / PROGRAM





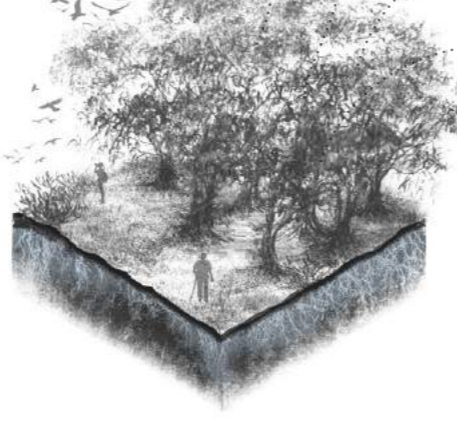
Bringing back lost association with common lands



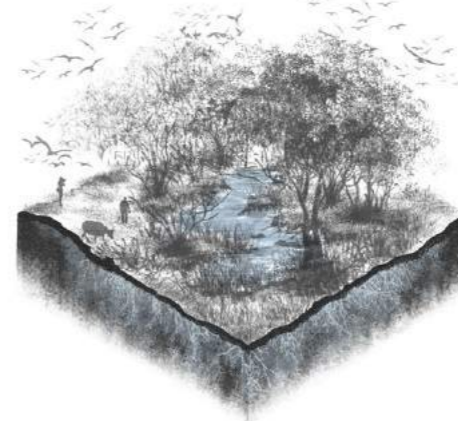
Scrubland
(Open access with buffer edges)



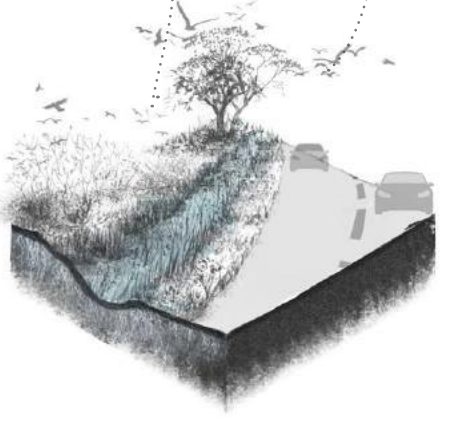
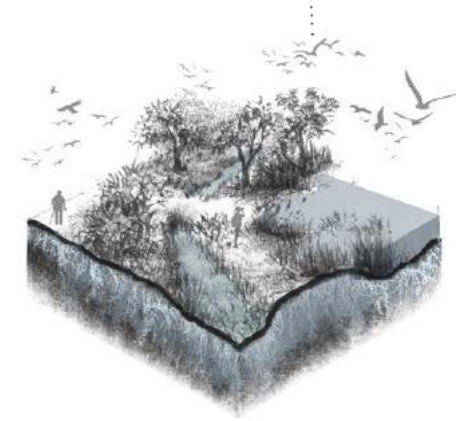
Movement corridor - Pedestrian
(Linking nodes - scrublands & lakes)

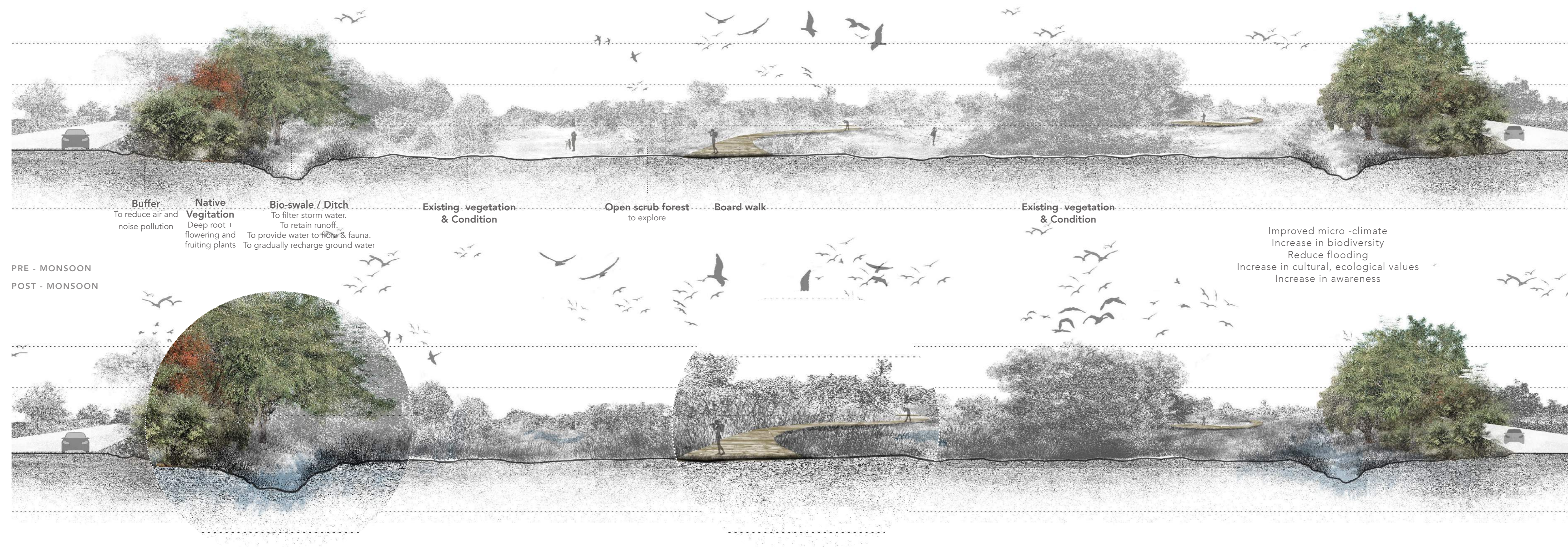


Groves / Sacred groves
(Element to bring permanence)



Seasonal lake
(Open access with thick vegetation buffer + Swales + To create micro climate + To filter pollutions)





Buffer
To reduce air and noise pollution

Native Vegetation
Deep root + flowering and fruiting plants

Bio-swale / Ditch
To filter storm water. To retain runoff. To provide water to flora & fauna. To gradually recharge ground water

Existing vegetation & Condition

Open scrub forest
to explore

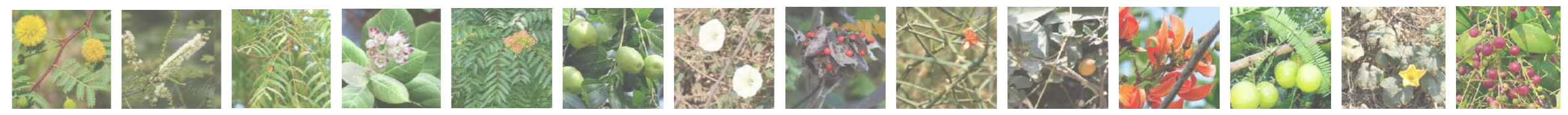
Board walk

Existing vegetation & Condition

Improved micro-climate
Increase in biodiversity
Reduce flooding
Increase in cultural, ecological values
Increase in awareness

PRE - MONSOON
POST - MONSOON

- Scrubland is one of the diverse ecosystem which has values attached to it. It is at higher elevation in linkage, which flows towards lakes.
- It gives open ground to explore. So the intervention is such that due to urbanization it's character doesn't get change much. So that thick vegetative buffer zone is proposed.
- Strategies are envisioned with urbanization. Idea is to give **buffer and swales** which can **protect** the core areas from pollutions. At the same time it **provides moisture and water to vegetation**.
- **Open access** to this land allows people to **interact with wilderness** which is there.



PROPOSED SECTION - B2x - B2x' CROPLAND _ VEGETATIVE BUFFER _ DITCH _ OPEN SCRUBLAND _ DITCH _ VEGETATIVE BUFFER _ CROPLAND

0 10m



Buffer
To reduce air and noise pollution

Native Vegetation
Deep root + flowering and fruiting plants

Bio-swale / Ditch
To filter storm water. To retain runoff. To provide water to flora & fauna. To gradually recharge ground water

Existing vegetation & Condition

Groves
Ficus benghalensis & *Ficus religiosa*

Improved micro -climate
Increase in biodiversity
Reduce flooding
Increase in cultural, ecological values
Increase in awareness

PRE - MONSOON
POST - MONSOON



- Enhancing the existing quality by intervening groves of trees with scrubland. Adding strong evident element with huge canopy.
- Open access to this land allows people to interact with wilderness which is there.

PROPOSED SECTION - B2 B2' CROPLAND _ ROAD _ VEGETATIVE BUFFER _ DITCH _ OPEN SCRUBLAND _ GROVES _ OPEN SCRUBLAND _ DITCH _ VEGETATIVE BUFFER _ ROAD _ CROPLAND

0 10m



Buffer
To reduce air and noise pollution

Native Vegetation
Deep root + flowering and fruiting plants

Pathways Permeable

Bio-swale / Ditch
To filter storm water. To retain runoff. To provide water to flora & fauna. To gradually recharge ground water

Soil building with mulching to hold moisture

Emergent plants
Provides habitat, soil stabilization, retain soil moisture

Seasonal lake

Improved micro-climate
Increase in biodiversity
Reduce flooding
Increase in cultural, ecological values
Increase in awareness

PRE - MONSOON
POST - MONSOON



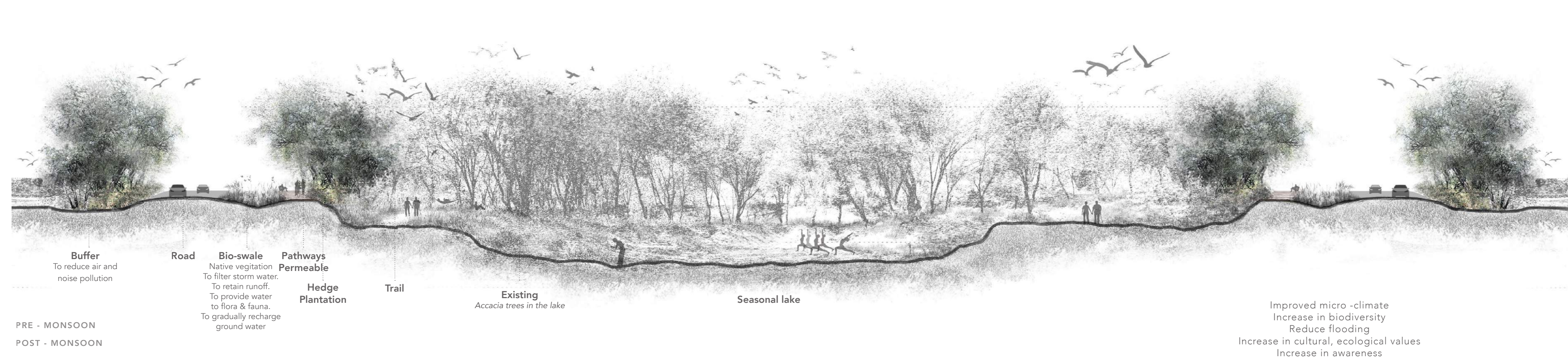
- Intervention is done such a way that existing lake system **functions well** by filtering pollutions through treating edges with **buffer zone consist of swales with native plantation.**
- Strategies are envisioned with urbanization. It will add re-creation values and human interaction with nature.
- Idea is to give **buffer and swales** which can **protect** the core areas from pollutions. At the same time it **provides moisture and water to vegetation.**
- Buffer zone will filter the Pollutions like air, water and noise. Here the bio swales are proposed as a filtering channel. The surface runoff and pollutants will be more.
- Seasonal lake infiltrates all the water due to sandy soil, hot climate, higher evaporation rate. **Open access** to this land allows people to **interact with lake environment.**

- Native plants
- Deep root plants
- Drought and Salinity tolerant
- Plants which can hold water longer
- Can take waterlogged conditions
- Fruiting and flowering species



PROPOSED SECTION - B1 B1' CROPLAND _ VEGETATIVE BUFFER _ PATHWAY _ SEASONAL LAKE _ PATHWAY _ VEGETATIVE BUFFER _ CROPLAND

0 10m



PRE - MONSOON
POST - MONSOON

Improved micro-climate
Increase in biodiversity
Reduce flooding
Increase in cultural, ecological values
Increase in awareness



- Intervention is done such a way that existing lake system **functions well** by filtering pollutions through treating edges with **buffer zone consist of swales with native plantation**.
- Strategies are envisioned with urbanization. It will add re-creation values and human interaction with nature. Along with the infiltration process, the recreational and aesthetic values are attached.
- Idea is to give **buffer and swales** which can **protect** the core areas from pollutions. At the same time it **provides moisture and water to vegetation**.
- Buffer zone will filter the Pollutions like air, water and noise. Here the bio swales are proposed as a filtering channel. The surface runoff and pollutants will be more.
- Seasonal lake infiltrates all the water due to sandy soil, hot climate, higher evaporation rate. **Open access** to this land allows people to **interact with lake environment**.



PROPOSED SECTION - B4 B4' CROPLAND _ VEGETATIVE DITCH _ ROAD _ BIO SWALE _ PEDESTRIAN _ HEDGE PLANTATION _ SEASONAL LAKE

0 10m

Landscape changes - Perception changes

It is essential to bring sensitivity in perspective towards the landscape.

Not defining land with any generic terms will make it shared commons for all.

Commons are those rare spaces that represent equality in terms of status, rights, or opportunities.

Commons have always been driven and shaped by people. People give an identity and values to the land as socio-cultural commons.

Commons need to stay shared and not taken over by any ownerships.

The design provides a foundation that allows people to create and carry out commons as shared ground with nature and culture.

A sense of open access to these lands will give that opportunity to give an identity to shared land to make it better in quality.

Now commons are not just shared natural resources but include opportunities of urban elements.

“ Acknowledging and appreciating what is existing and finding opportunities out of it will spread more awareness. “

