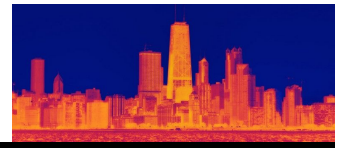
URBAN SUSTAINABLE DEVELOPMENT

Future Challenge

PM2.5

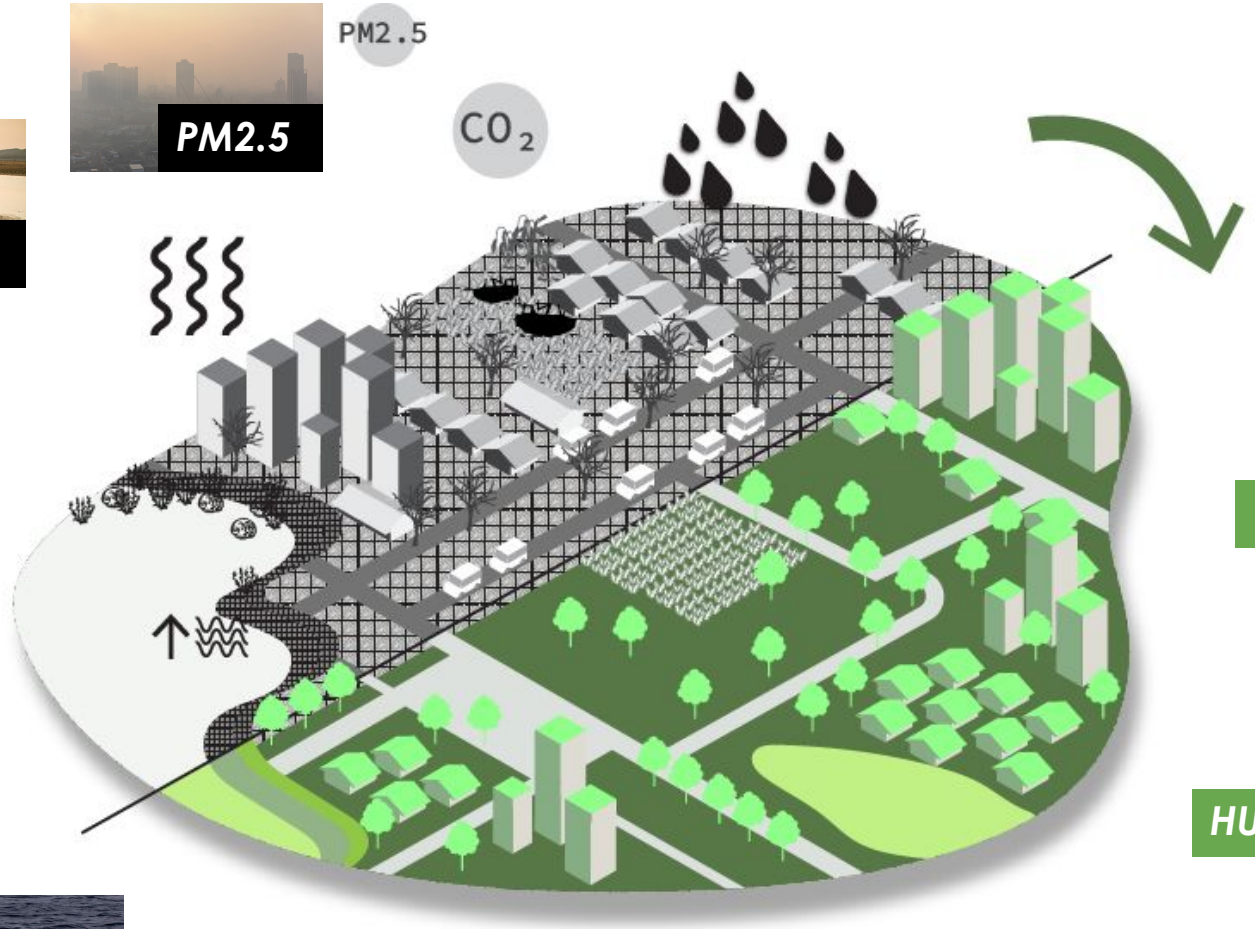
DROUGHT

FLOOD



URBAN HEAT ISLAND

CLIMATE CHANGE



GREEN ROOF

WATER MANAGEMENT

PARK

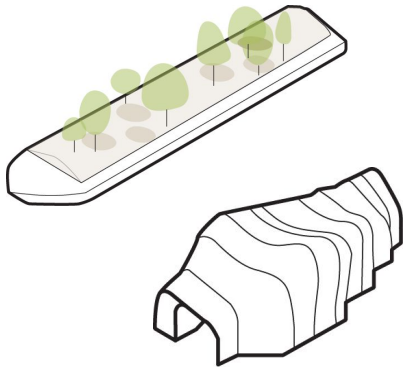
HUMAN CENTRIC

URBAN FOREST

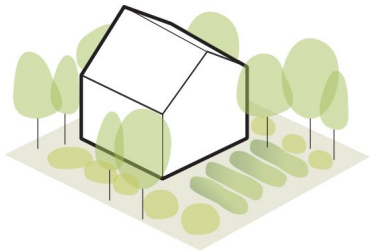
URBAN FARM

WILDLIFE HABITAT

Future Solution

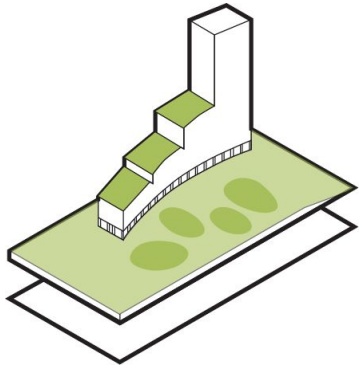


PROTOTYPE &
EXPERIMENTAL



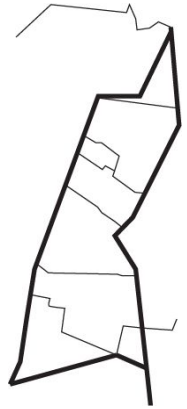
HOUSE

COMMUNITY



BUILDING

PARK

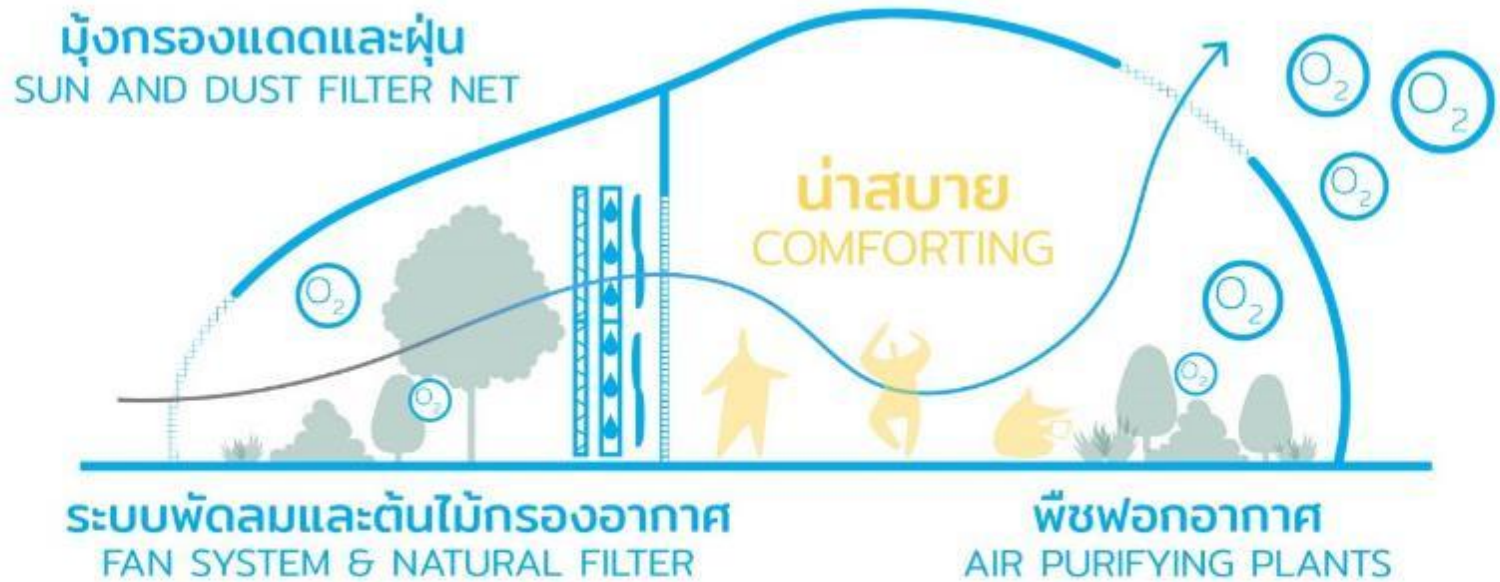


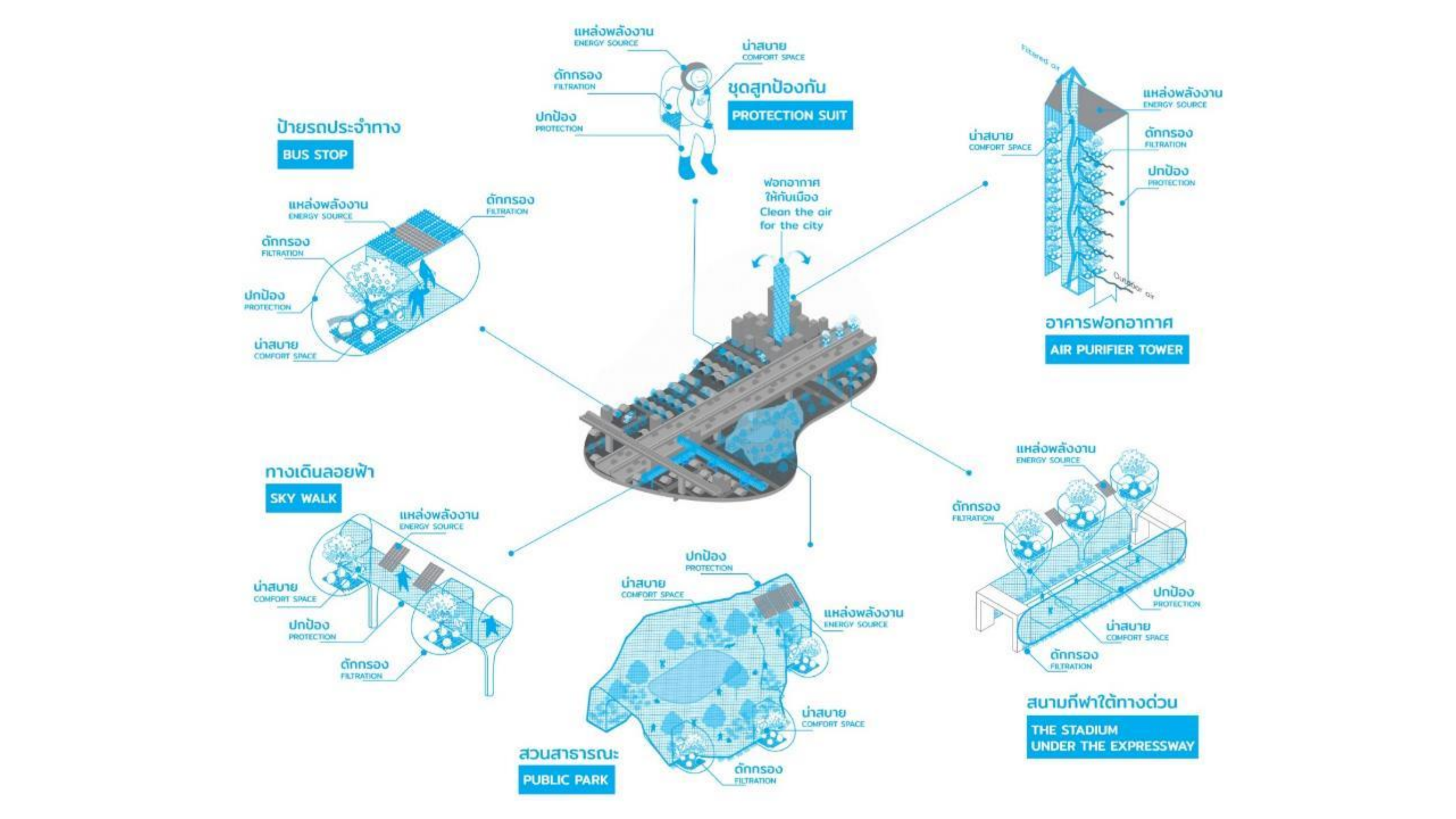
URBAN

Safezone Shelter

Safe Zone Shelter, Bangkok, Thailand

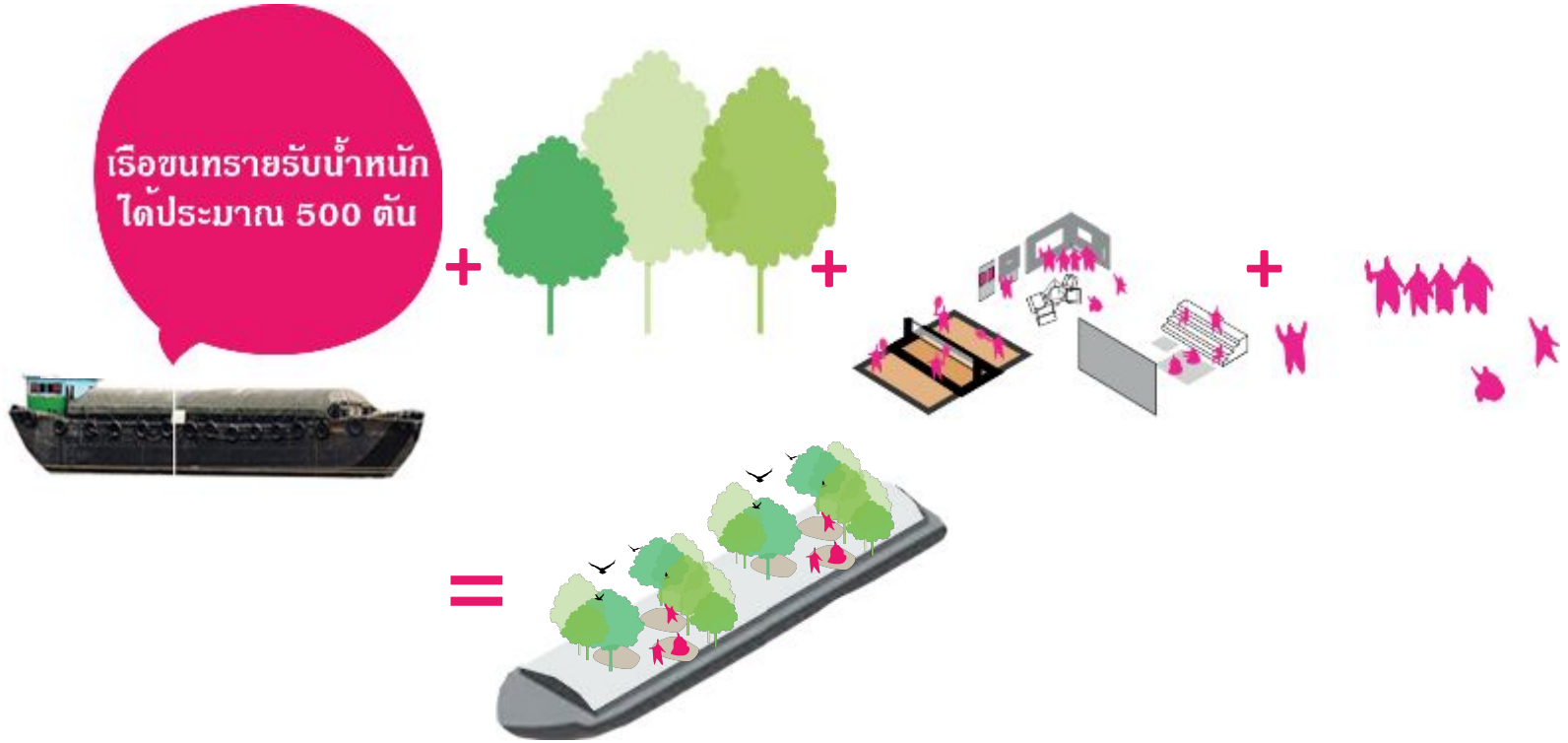

ปกป้อง
PROTECTION
กรองอากาศ
FILTRATION
สร้างภาวะน่าสบาย
COMFORT ZONE

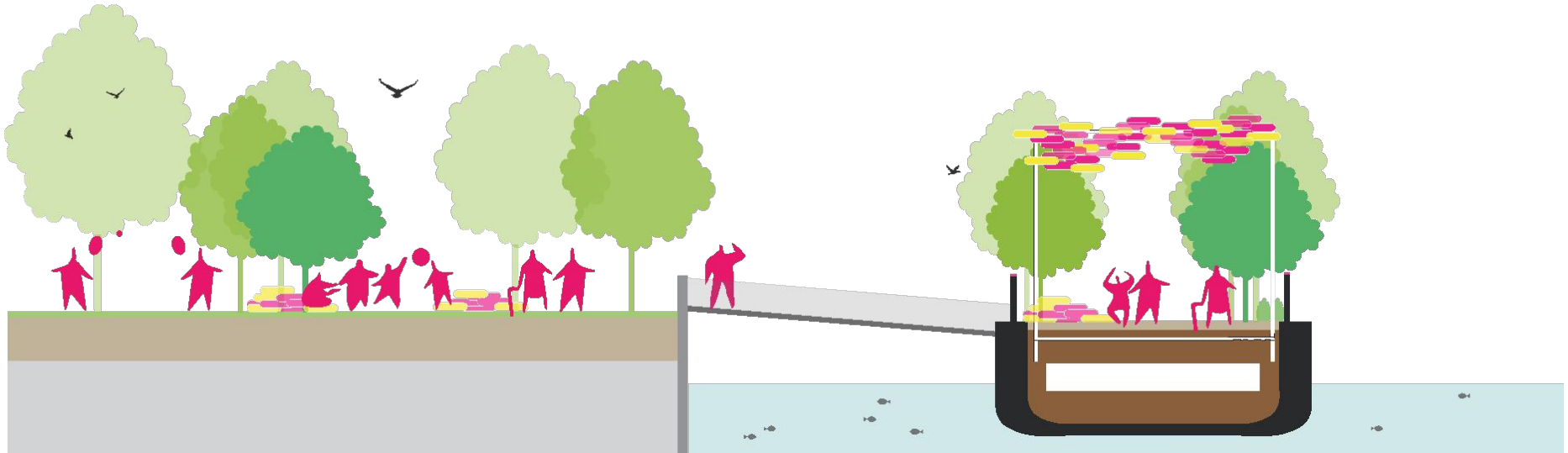

มุ้งกรองแดดและฝุ่น
SUN AND DUST FILTER NET
น่าสบาย
COMFORTING
ระบบพัดลมและต้นไม้กรองอากาศ
FAN SYSTEM & NATURAL FILTER
พืชฟอกอากาศ
AIR PURIFYING PLANTS


แหล่งพลังงาน
ENERGY SOURCE
น่าสบาย
COMFORT SPACE
ดักกรอง
FILTRATION
ปกป้อง
PROTECTION
ชุดสูทป้องกัน
PROTECTION SUIT
ป้ายรถประจำทาง
BUS STOP
ฟอกอากาศ
ให้กับเมือง
Clean the air
for the city
อาคารฟอกอากาศ
AIR PURIFIER TOWER
ทางเดินลอยฟ้า
SKY WALK
สวนสาธารณะ
PUBLIC PARK
สนามกีฬาใต้ทางด่วน
THE STADIUM
UNDER THE EXPRESSWAY

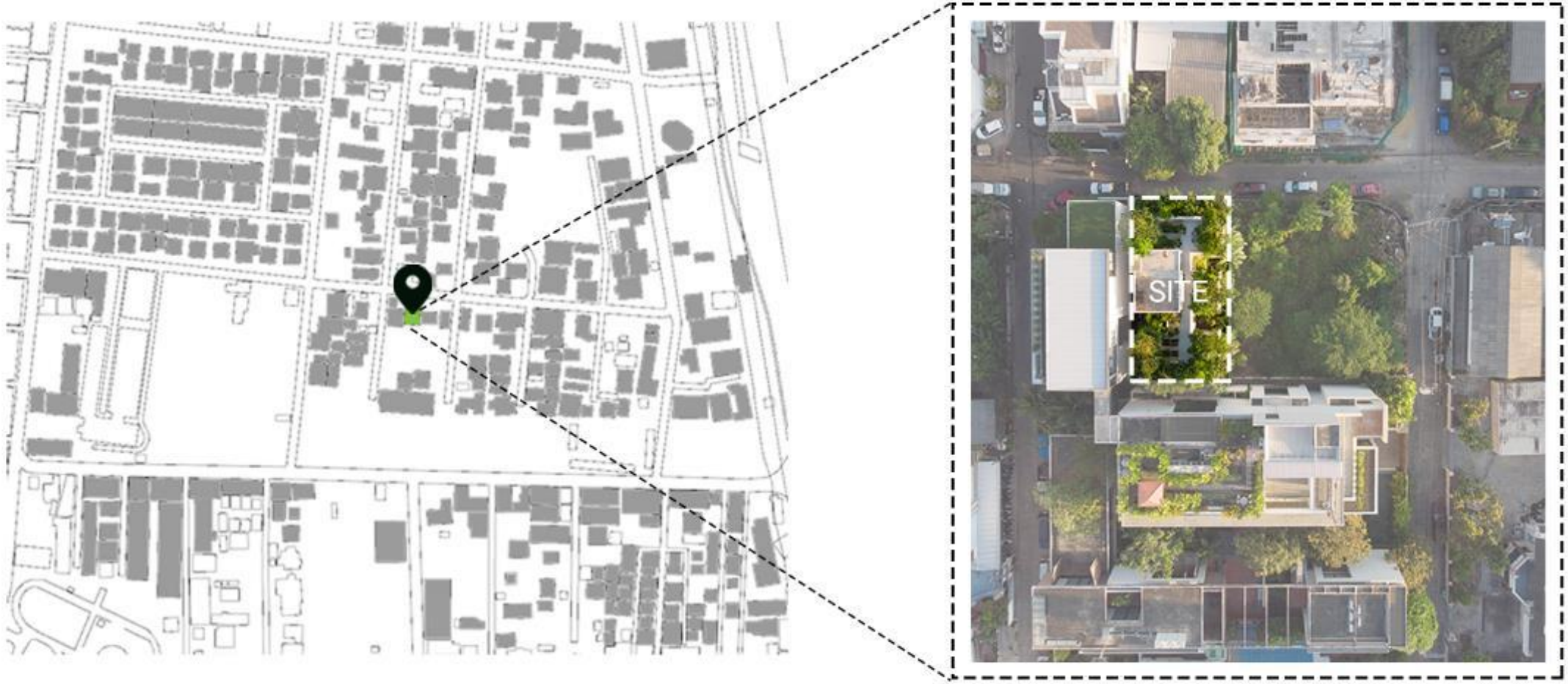

แสงที่สบายตา
COMFORTABLE LIGHT

Floating Park


เรือขนทรายรับน้ำหนัก
ได้ประมาณ 500 ตัน



Forest House

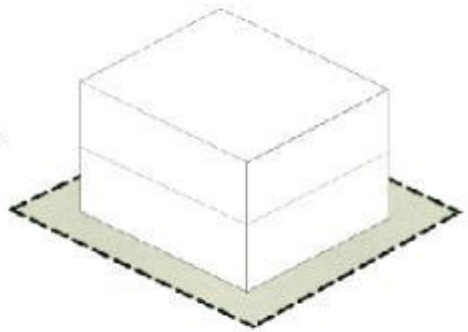


Residential Neighborhood

Past

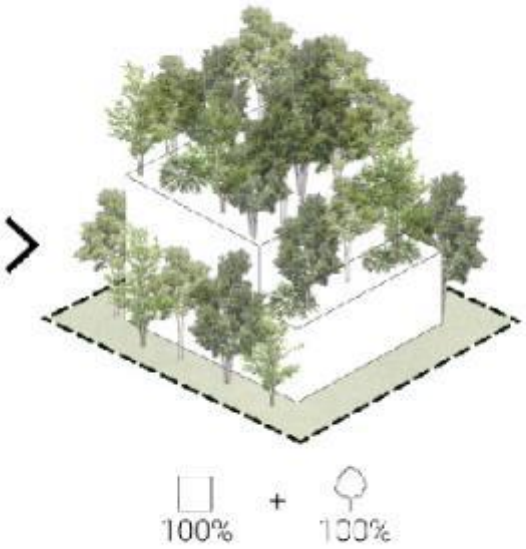
House + Garden

Present



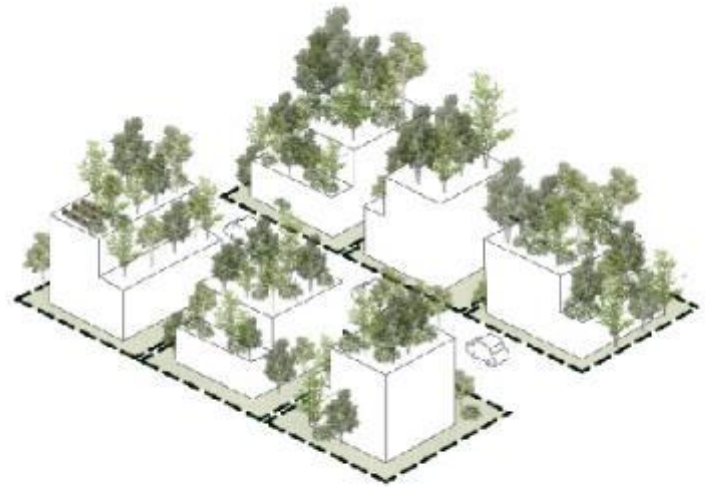
Maximize Plot

Future

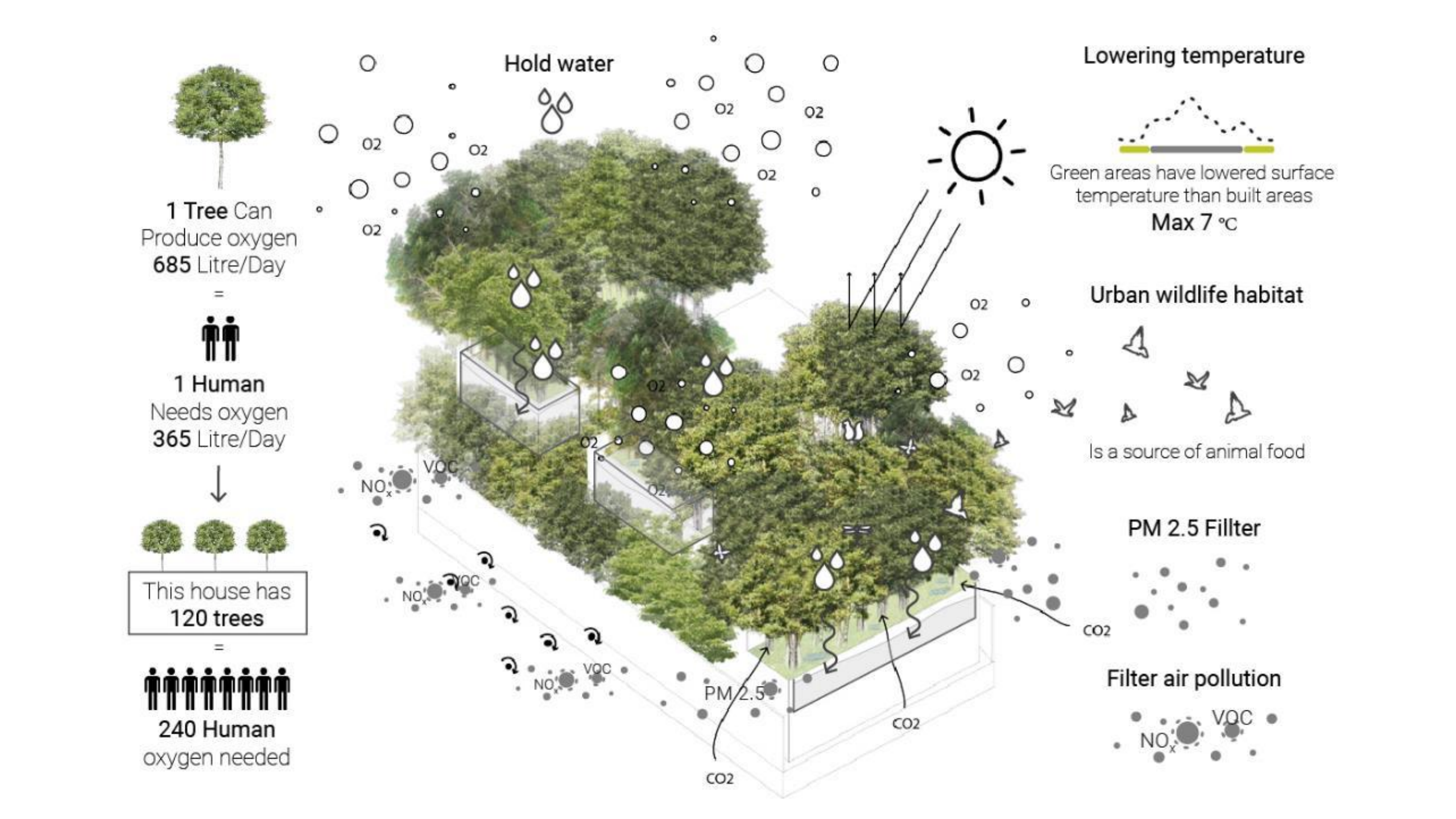


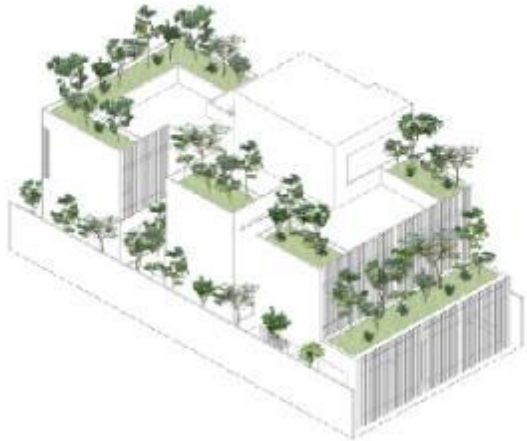
Maximize Plot + Maximize Garden

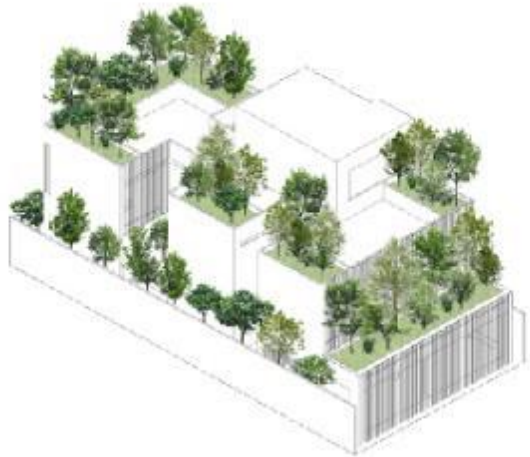
Future Scenario

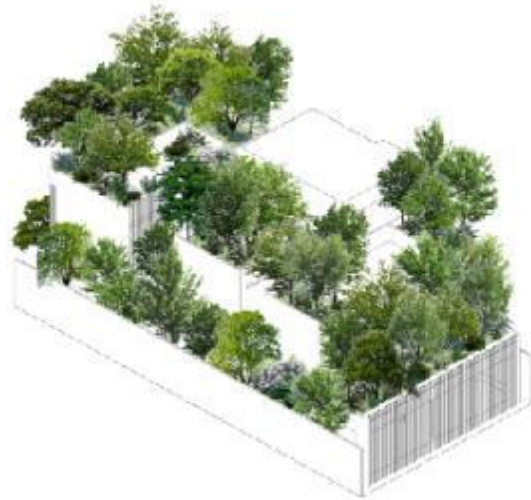


Forest City


1 Tree Can
Produce oxygen
685 Litre/Day
=
1 Human
Needs oxygen
365 Litre/Day
This house has
120 trees
=
240 Human
oxygen needed
Hold water
O2
VOC
NOx
PM 2.5
CO2
Lowering temperature
Green areas have lowered surface temperature than built areas
Max 7 ℃
Urban wildlife habitat
Is a source of animal food
PM 2.5 Fillter
Filter air pollution





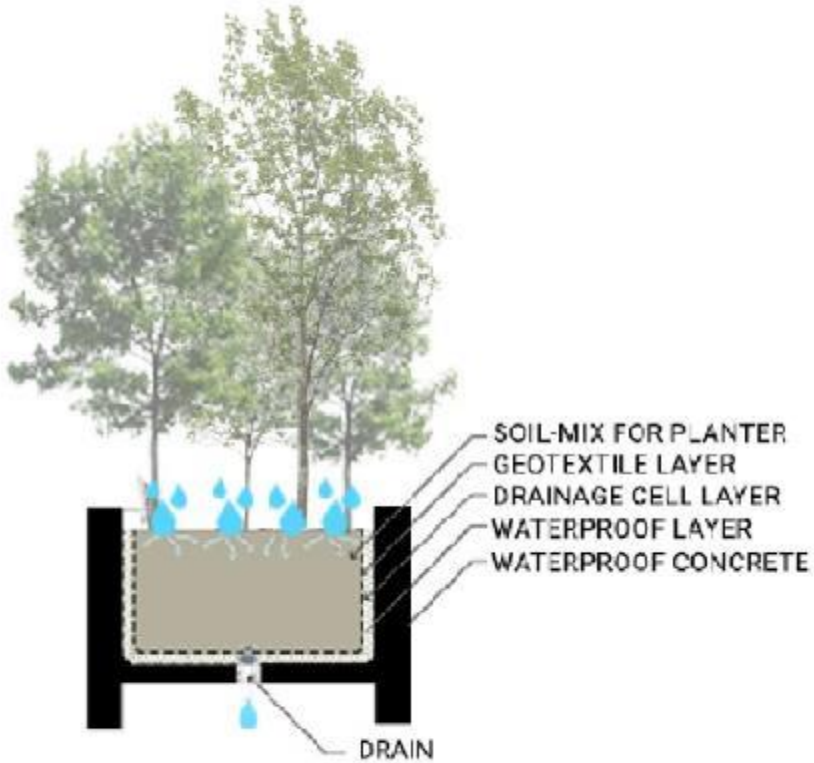


Tree size when first planted

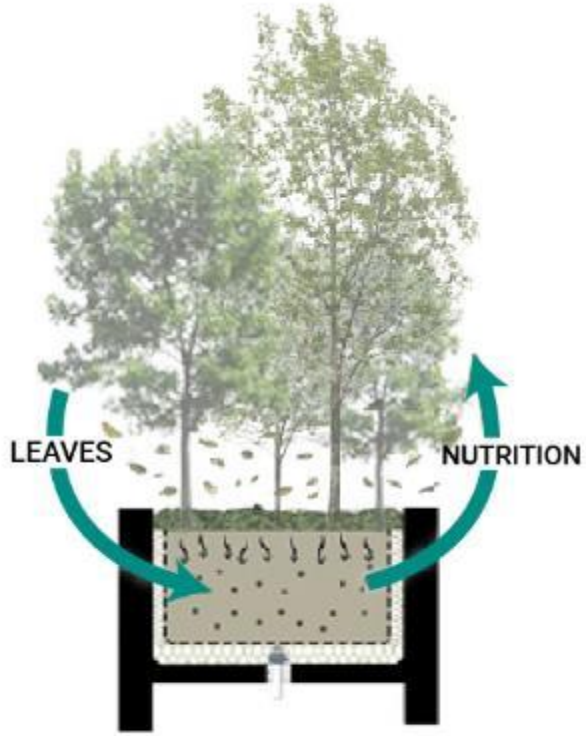
3 months after completion

10 months after completion

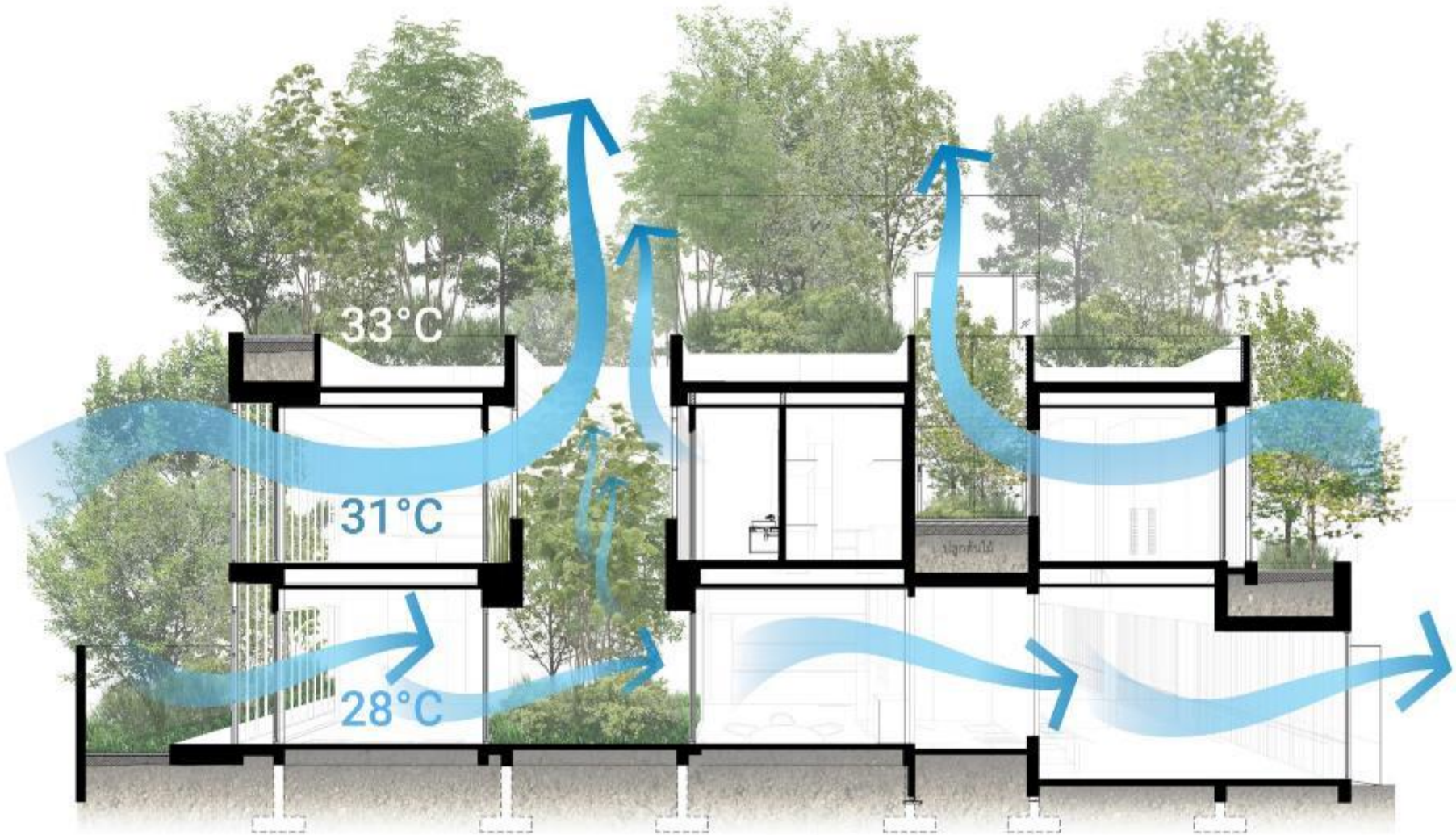
2.5 years after completion



Irrigation Diagram



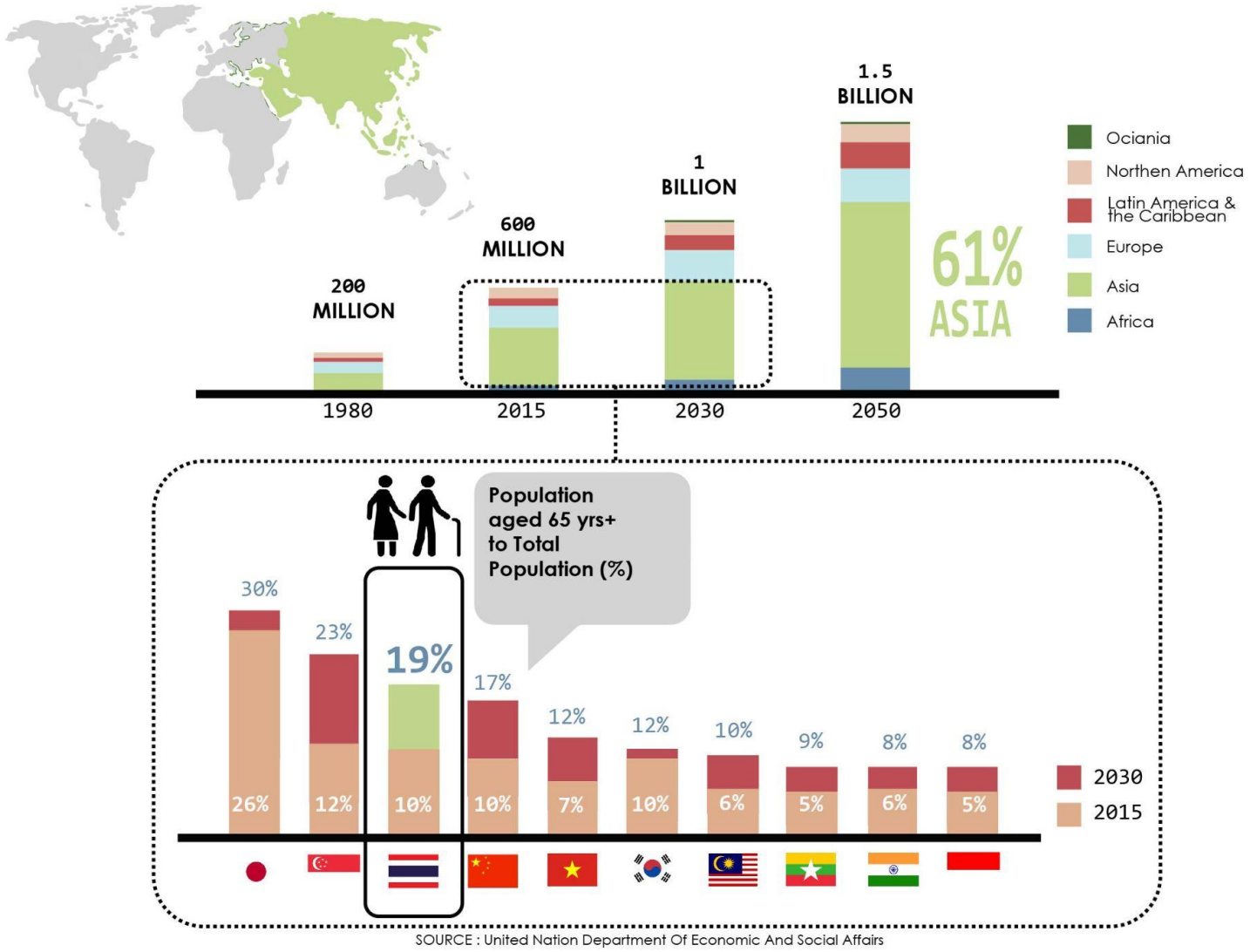
Natural Composting process


33°C
31°C
28°C

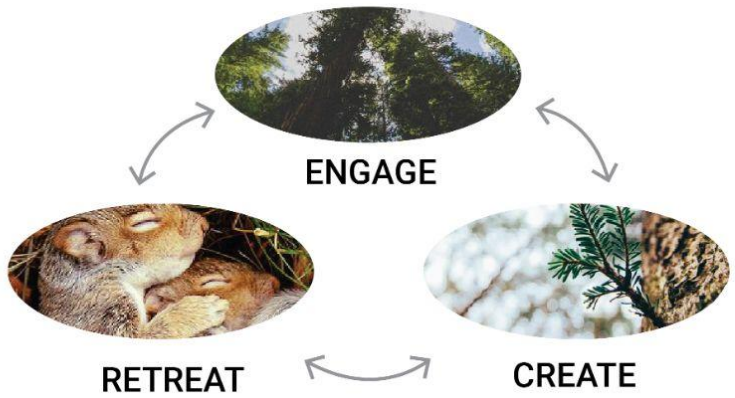

15

Jin Wellbeing County

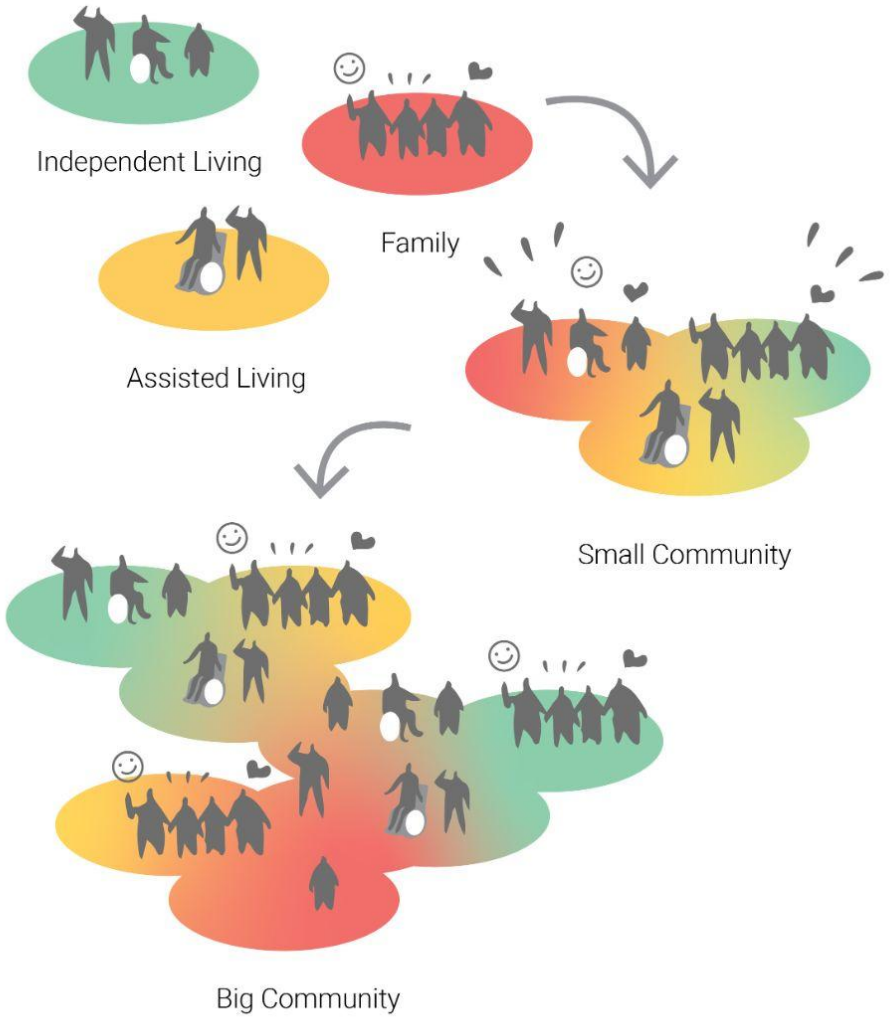
Thailand is entering Aging society



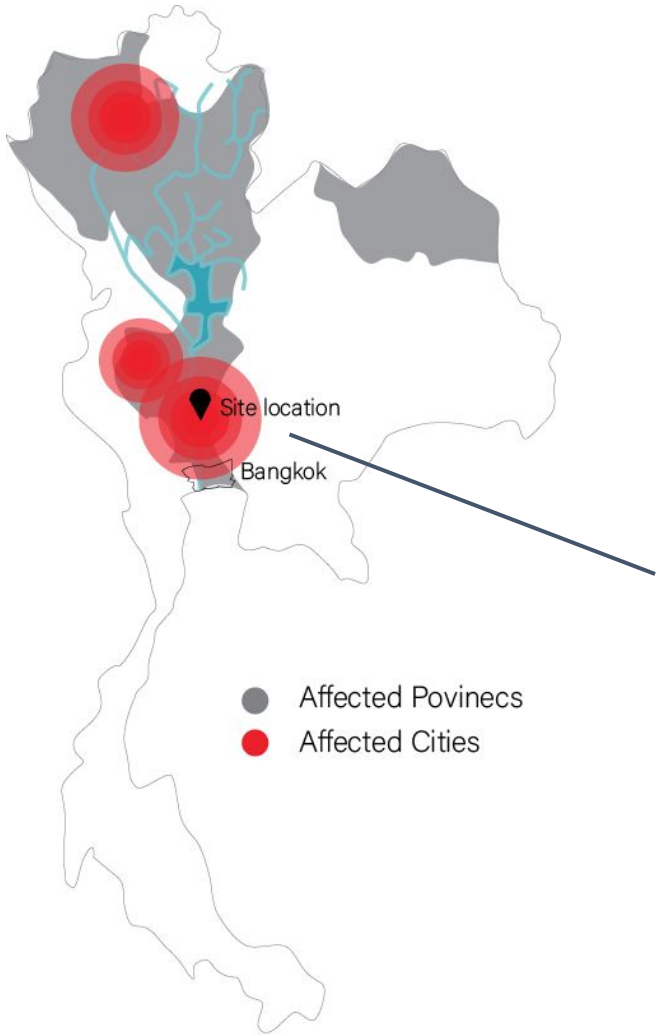
SOURCE : United Nation Department Of Economic And Social Affairs



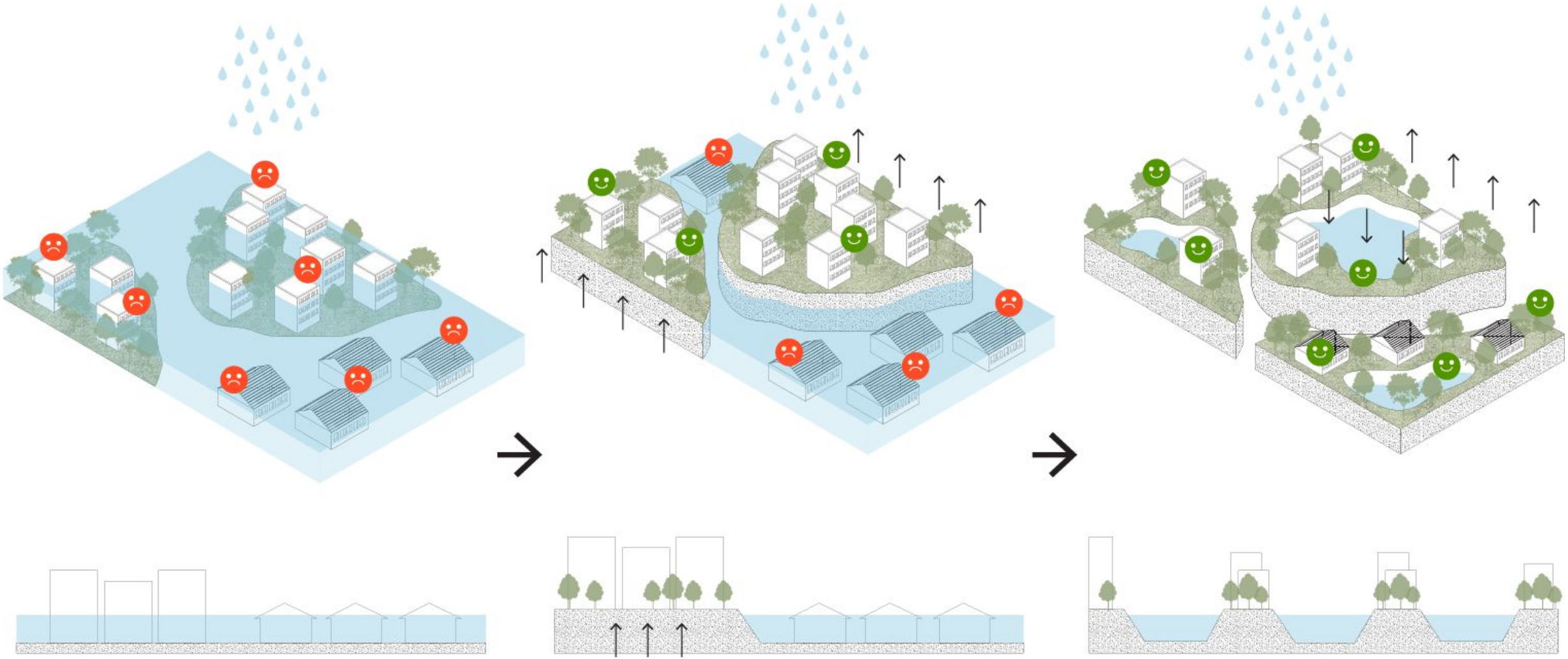
ACTIVITIES DYNAMIC



SENSE OF MULTI-GENERATION COMMUNITY



Thailand flood 2011



Urban areas on lowland

Current condition

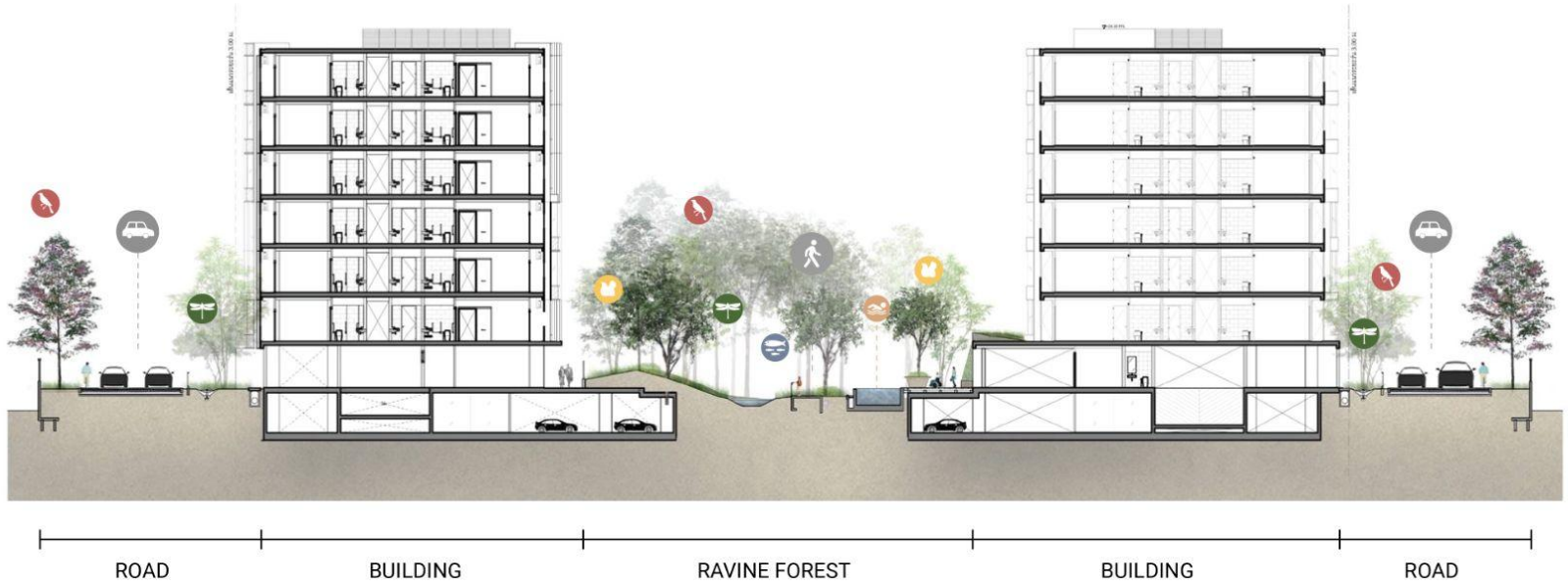
Urban areas with new development raised higher than surroundings.

Current solution

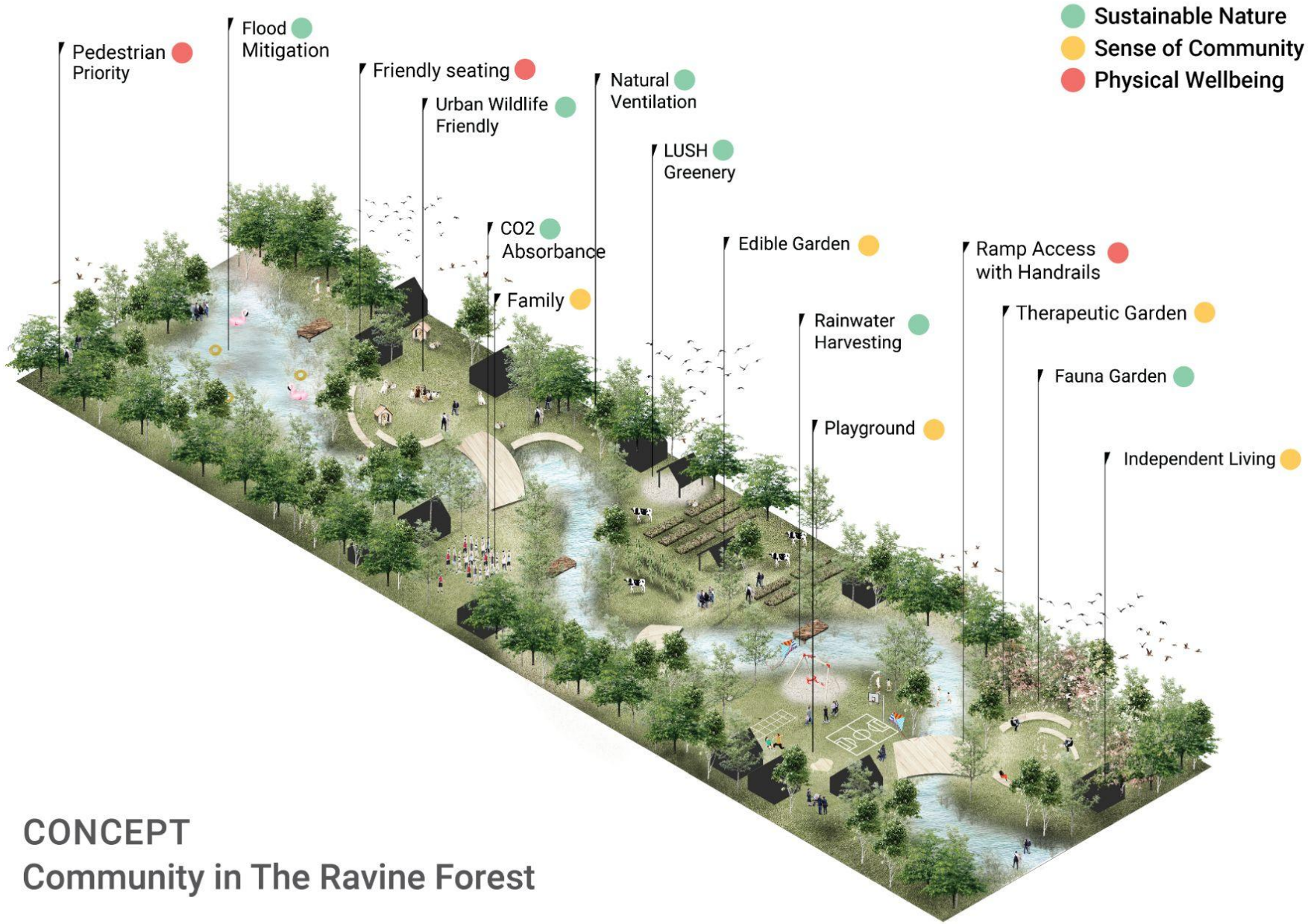
Urban areas with "Polder System" integrated in every development.

Future solution

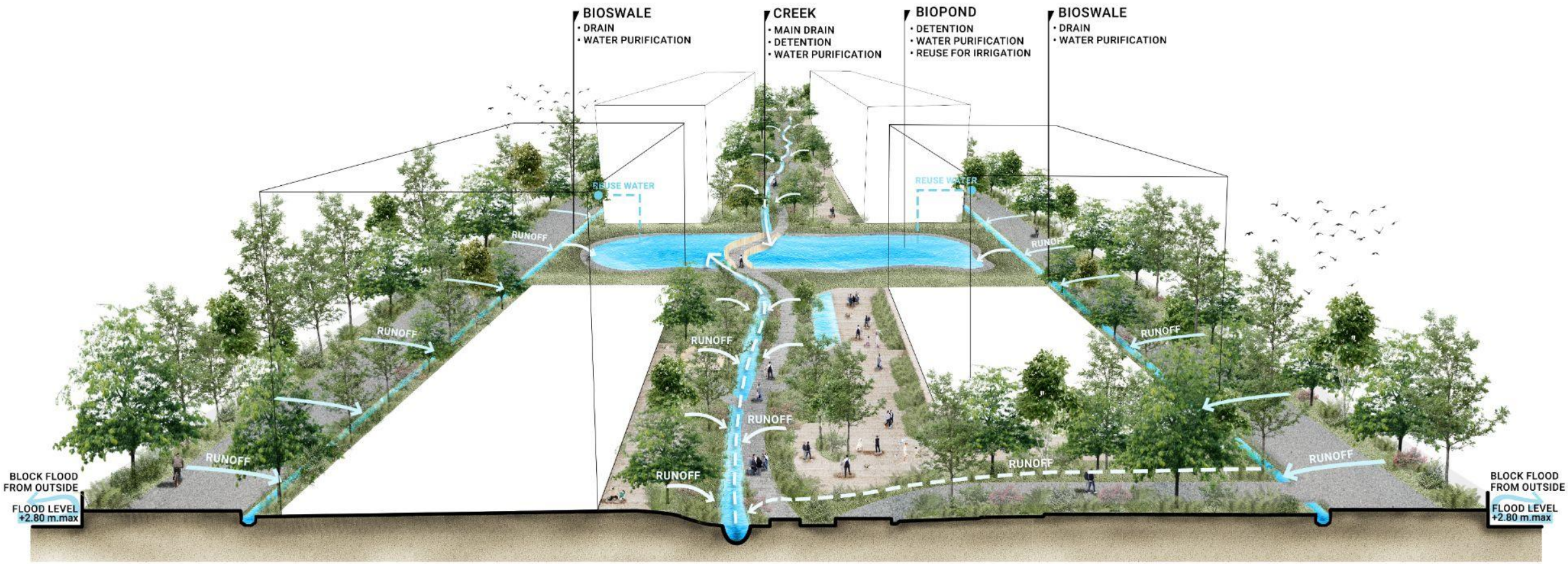
MASTER PLAN



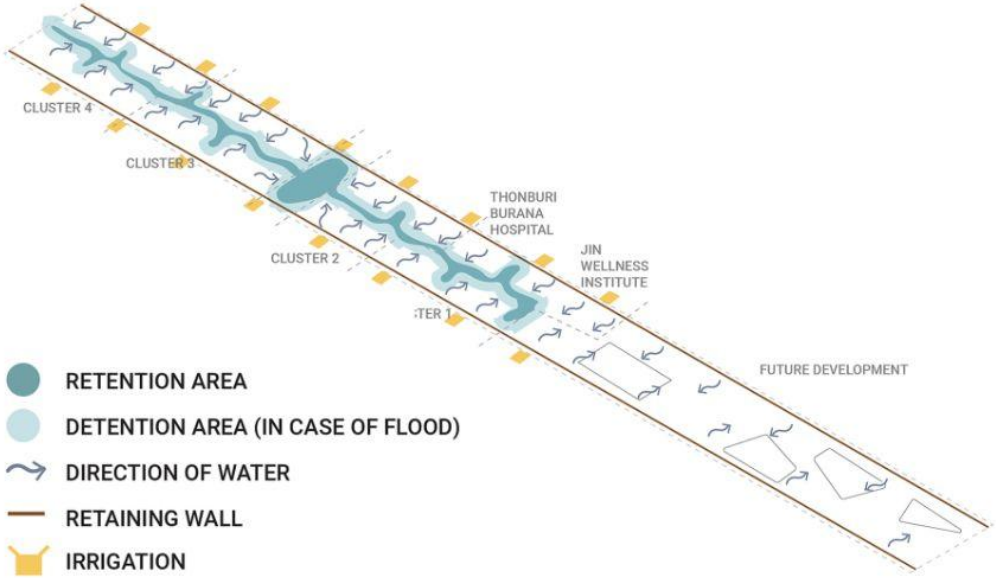
CROSS SECTION

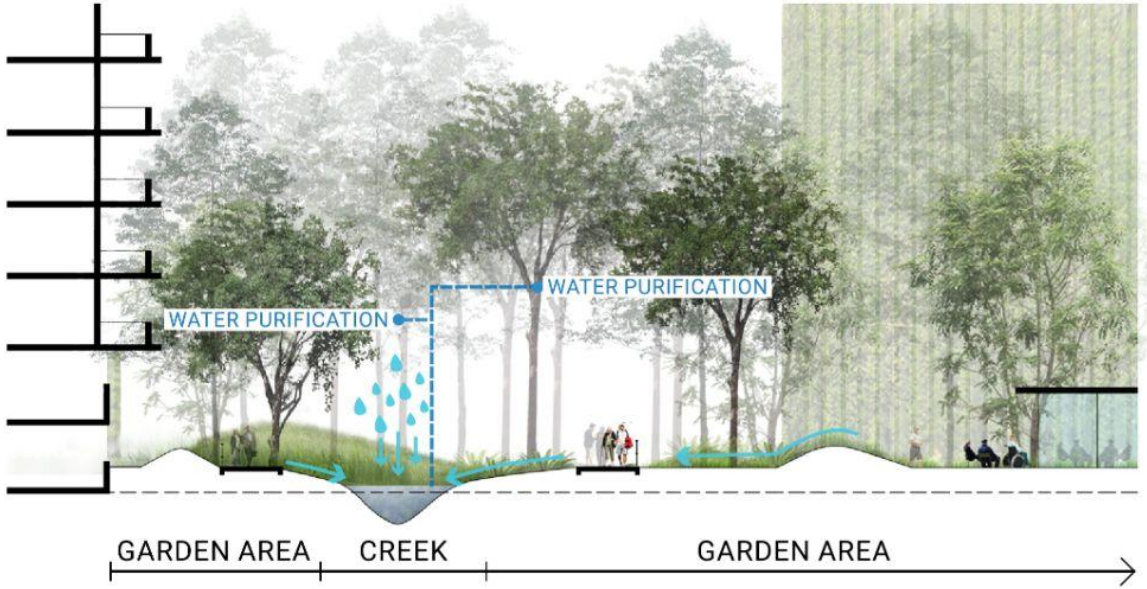


CONCEPT
Community in The Ravine Forest

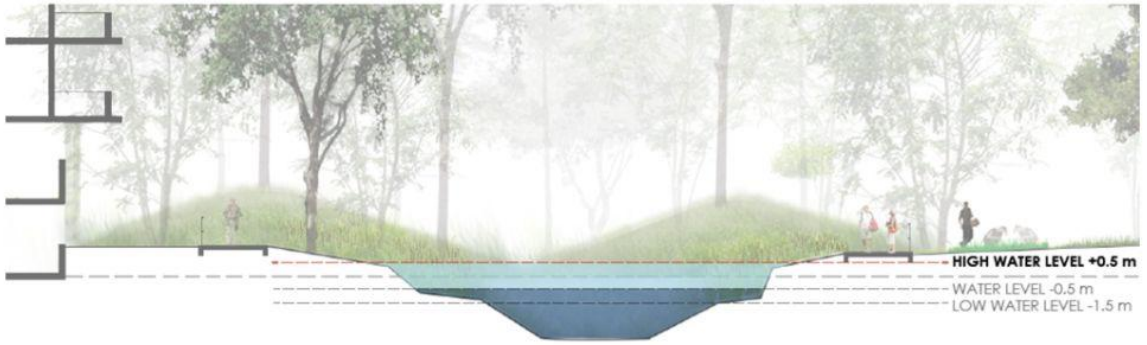


UPCYCLE WATER MANAGEMENT DIAGRAM





DRY SEASON



RAINY SEASON(FLOOD)

MAX(RAINFALL)	252.8	mm./month
SITE AREA	58,332	sq.m.
SITE RAINFALL	14,764	cu.m./month
1 DAY	491.53	cu.m.
4.5 DAY	**2,211.00**	**cu.m.**

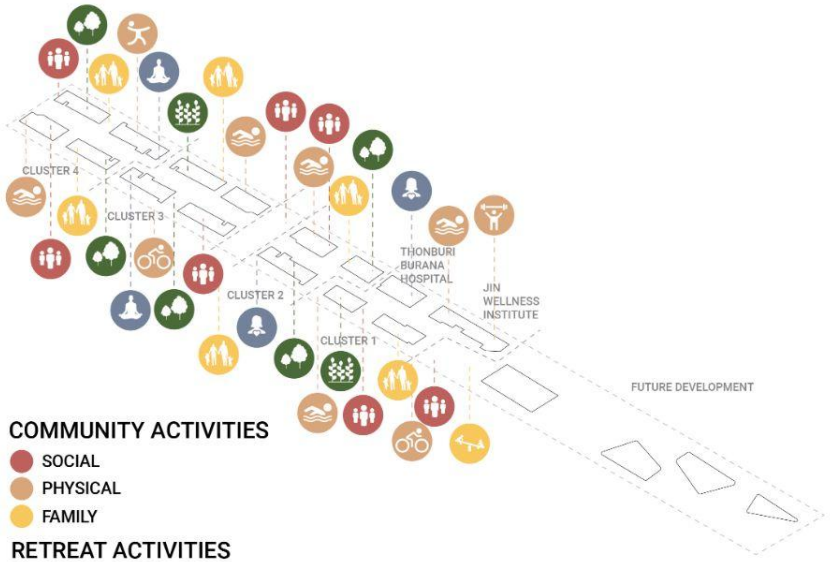
DETENTION VOLUME (IN CASE OF FLOOD)

BIOPOND VOLUME AVERAGE (1.2 m. deep)	1,500	cu.m.
CREEK VOLUME AVERAGE	800	cu.m.
TOTAL CAPACITY	**2,300**	**cu.m.**

IRRIGATION CONSUMPTION 674.55 cu.m./day

DETENTION VOLUME CAN SUSTAIN **3.5 DAY** OF IRRIGATION NEED

IRRIGATION DISTRIBUTION & FLOOD MITIGATION

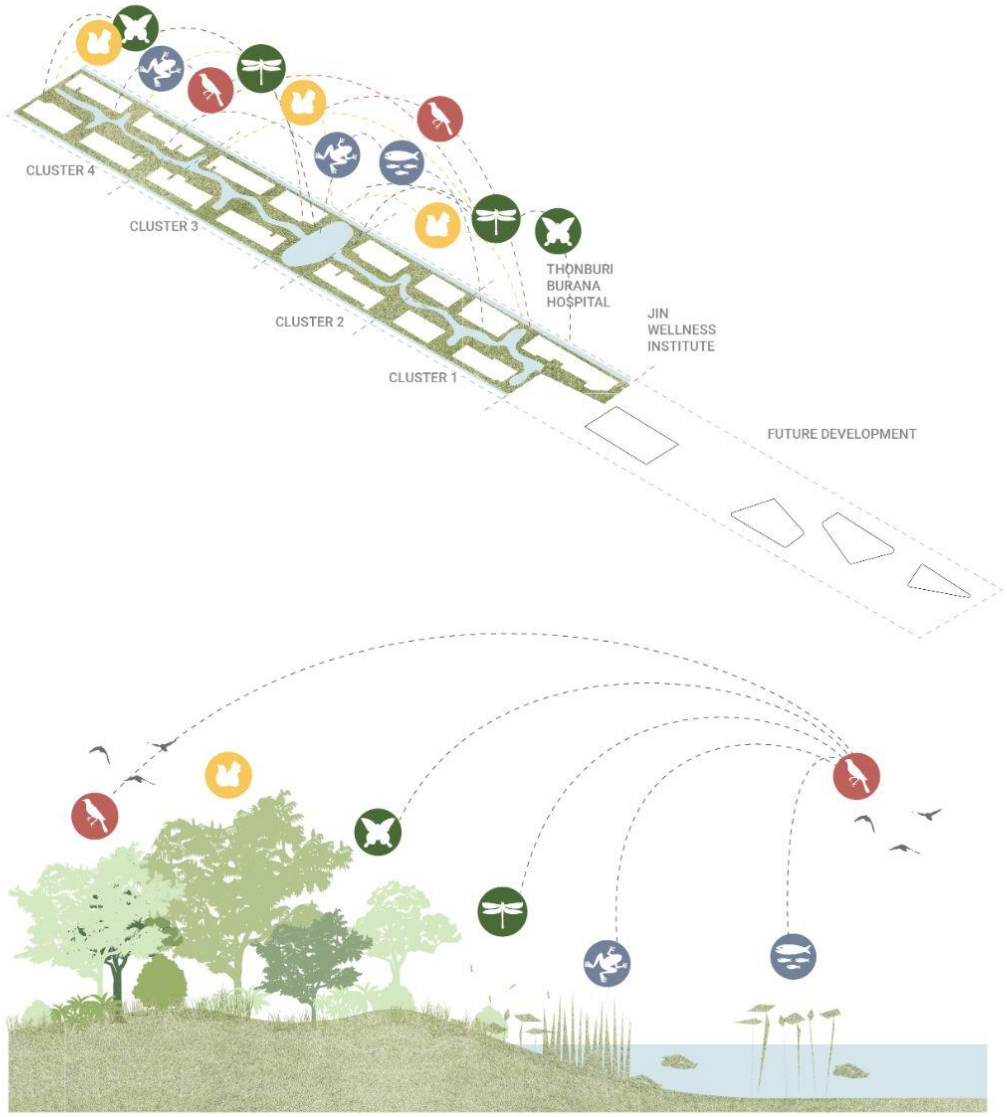


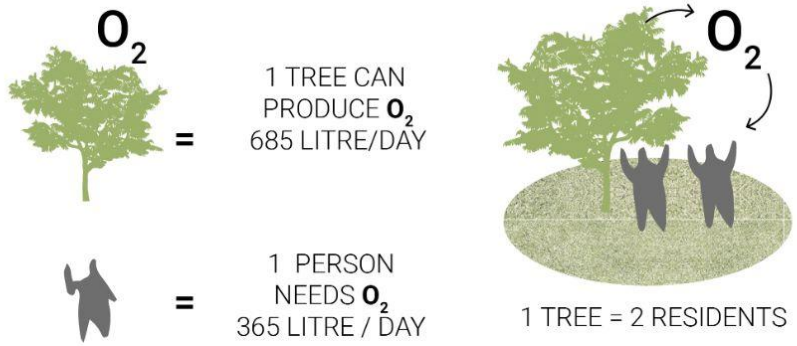
COMMUNITY ACTIVITIES

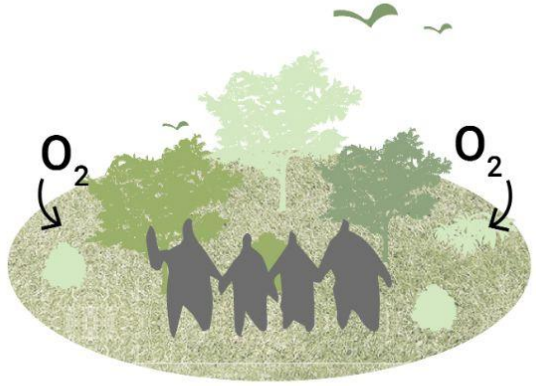
- SOCIAL
- PHYSICAL
- FAMILY

RETREAT ACTIVITIES

- NATURE/ ENVIRONMENTAL
- SPIRITUAL/MIND



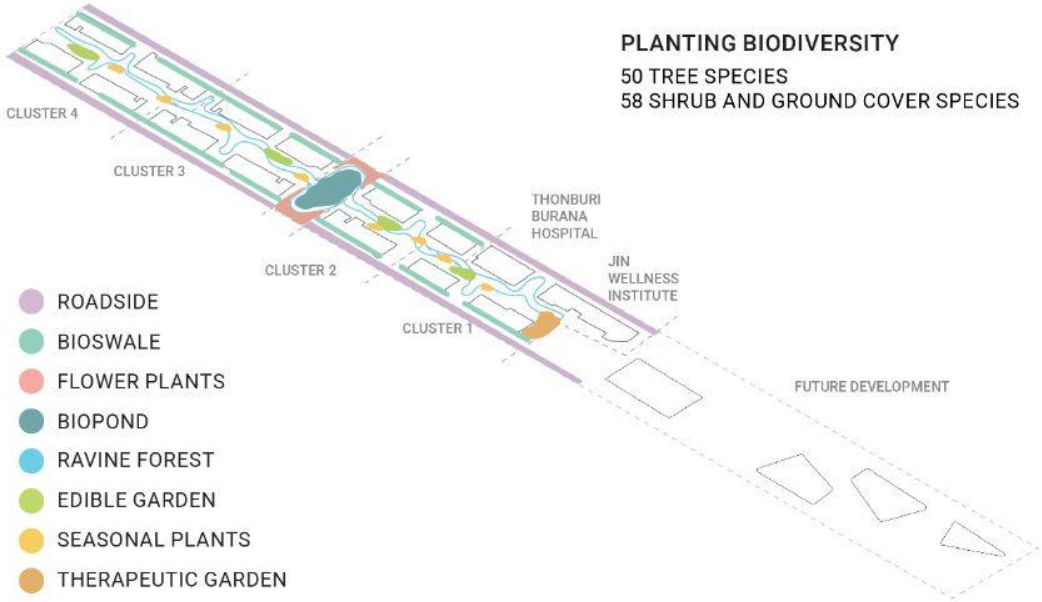




4,300 TREES = 8,600 RESIDENTS

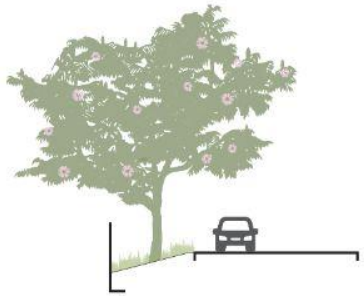
Oxygen production by trees can feed the entire population in the development

FOREST BIODIVERSITY AS HABITAT FOR RESIDENTS AND URBAN WILDLIFE



PLANTING BIODIVERSITY

50 TREE SPECIES
58 SHRUB AND GROUND COVER SPECIES



ROADSIDE

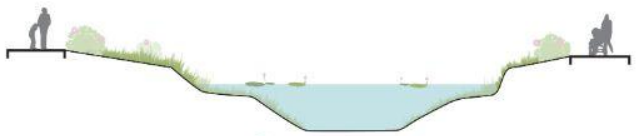
MILLETTIA BRANDISIANA KURZ · *WRIGHTIA RELIGIOSA* · *AGLAIA ODORATA*

BIOSWALE

ELAEOCARPUS GRANDIFLORUS · *DILLENIA INDICA L.* · *HELICONIA SPP*

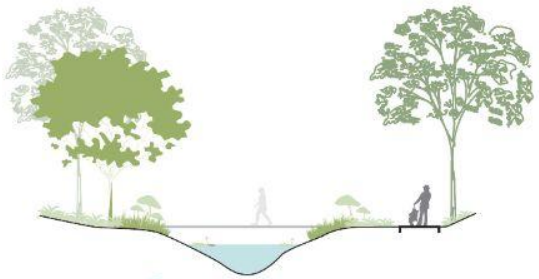
FLOWER PLANTS

PINK RUELLIA TUBEROSA · *THRYALLIS GLAUCA* · *PENNISETUM SETACEUM*



BIOPOND

CYPERUS ALTERNIFOLIUS · *THALIA DEALBATA* · *ACORUS CALAMUS*



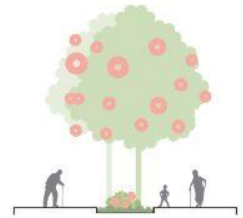
RAVINE FOREST

BARRINGTONIA ACUTANGULA GAERTN. · *ELAEOCARPUS HYGROPHILUS* · *ALOCASIA MACRORRHIZOS*

BAUHINIA SACCOCALYX PIERRE · *PANDANUS AMARYLLIFOLIUS* · *PSEUDERANTHEMUM ANDERSONII*

EDIBLE GARDEN

MORUS · *BOUEA MACROPHYLLA* · *OCIMUM CITRIODORUM*



SEASONAL PLANTS

LAGERSTROEMIA LOUDONII TEIJSM · *CASSIA BAKERIANA CRAIB* · *CRATEVA MAGNA*

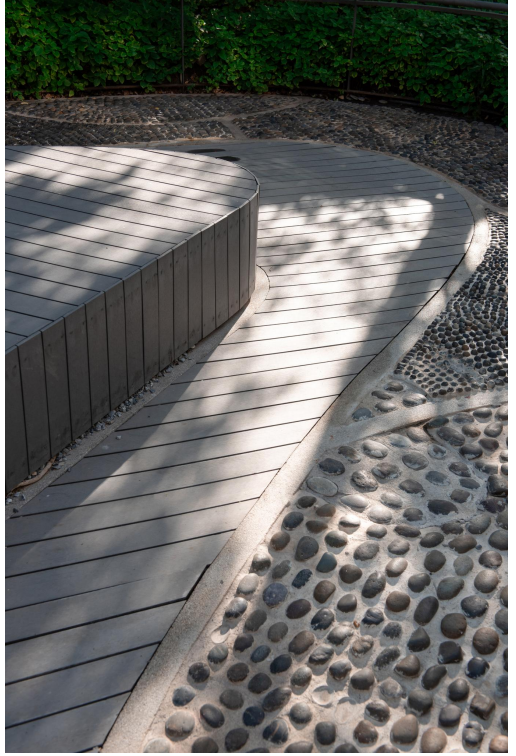
BAUHINIA PURPUREA L. · *TABEBUIA ROSEA (BERTOL.) DC.* · *LAGERSTROEMIA FLORIBUNDA JACK*

THERAPEUTIC GARDEN

CITHAREXYLUM SPINOSUM L. · *BAUHINIA ACUMINATA L.* · *MAGNOLIA X ALBA (DO.) FIGLAR*

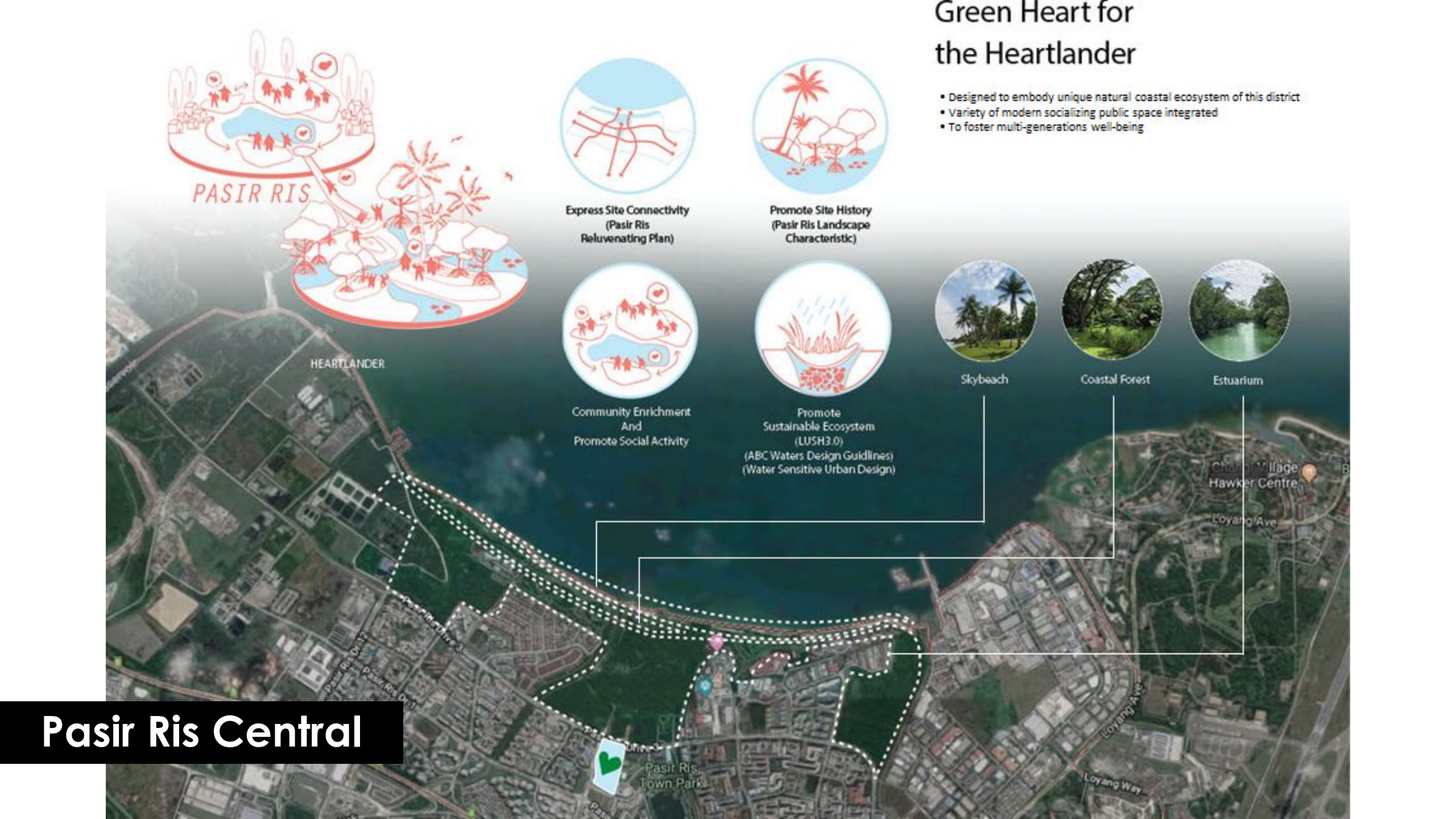
MURRAYA PANICULATA · *MILLINGTONIA HORTENSIS LINN. F* · *CALOPHYLLUM INOPHYLLUM L.*

PLANTING DESIGN STRATEGY




BEFORE
HOME TO VARIOUS NATIVE BIRDS


AFTER
RECOLONIZING OF INTERMEDIATE EGRETS



Pasir Ris Central

Total Landscape Replacement area

Total Landscape Replacement area

Total Softscape Area

Total Vertical Green

Total Urban Farming Area

Green Plot Ratio

Landscape Replacement Area Communal Space

Landscape Replacement Area Greenery

Communal Planter Box

Landscape Deck

Rooftop ORA

Rooftop Urban Farming

Covered Communal Ground Garden

Greenwall

Communal Rooftop Garden

LUSH3.0

Pasir RIs Planting Concept

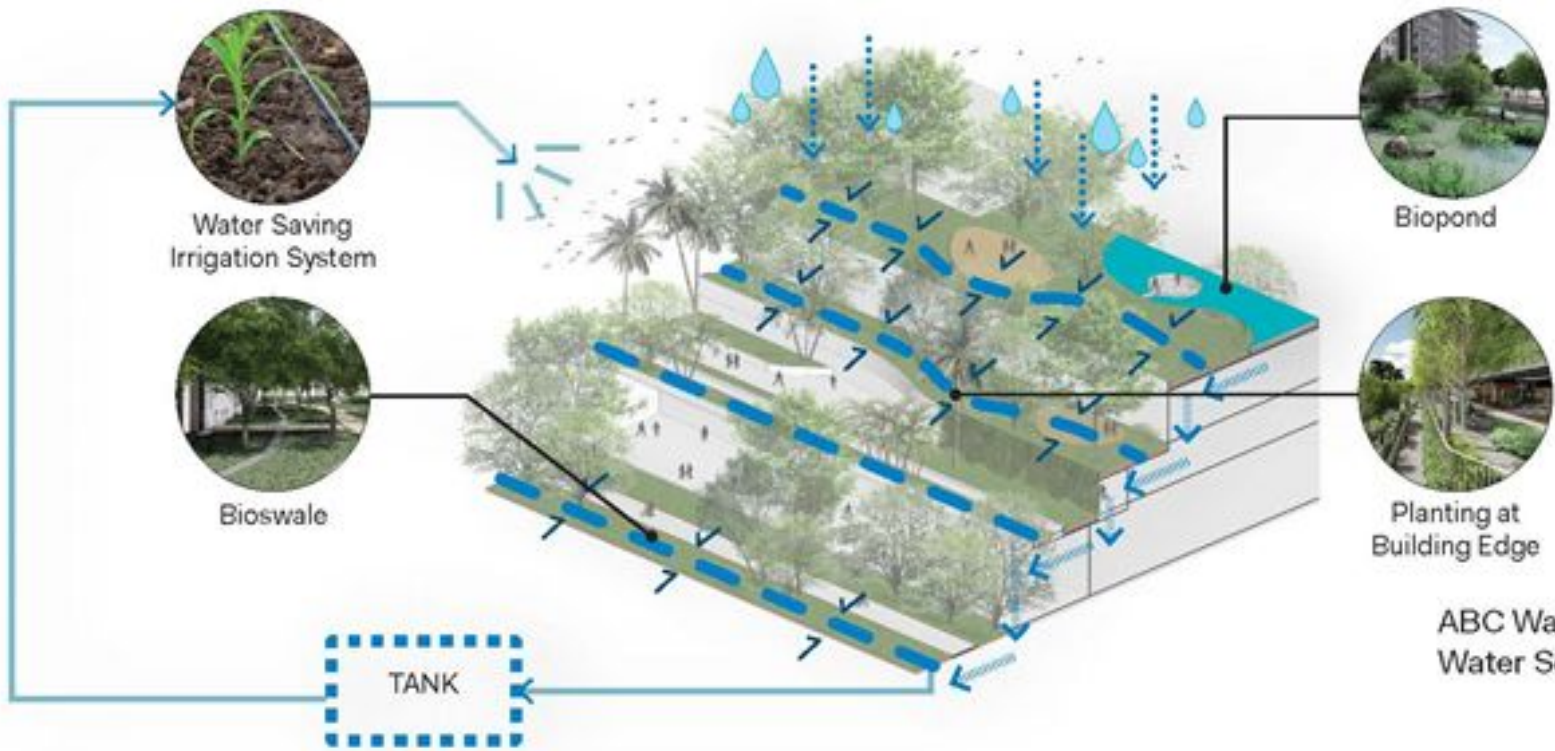
Promote Sustainable Ecosystem

Pasir Ris Planting Concept

- Beach ecology, coastal forest and estuarium are represented through planting design arranged for various landscape area
- Promoting sustainability and enhance the sense of discovery

Urban Forest

- Multiple layers of greenery are incorporated to accommodate LUSH 3.0 and green replacement design
- Enriching ecosystem at large and improving life of local communities

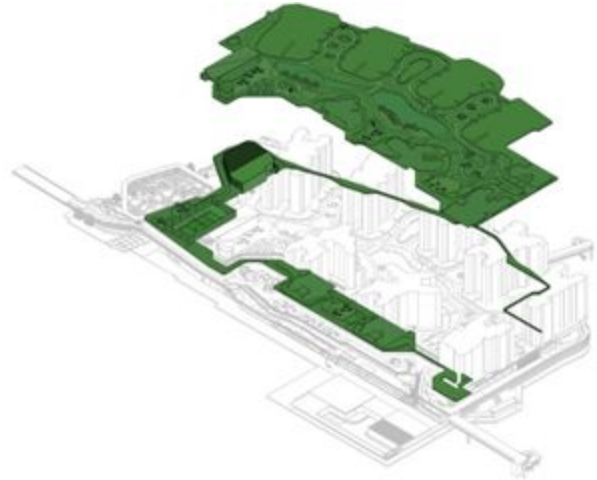


Sustainable Water Management Solution

- Water management and irrigation system are designed to be a part of landscape architecture
- Collect, purify & direct the infernal stormwater through landscape elements instead of concrete

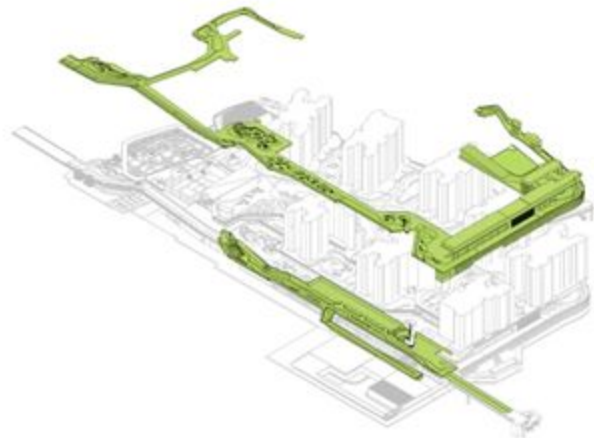
ABC Waters Design Guideline/
Water Sensitive Urban Design/
Irrigation System

3F & 4F
RESIDENTIAL
DECK



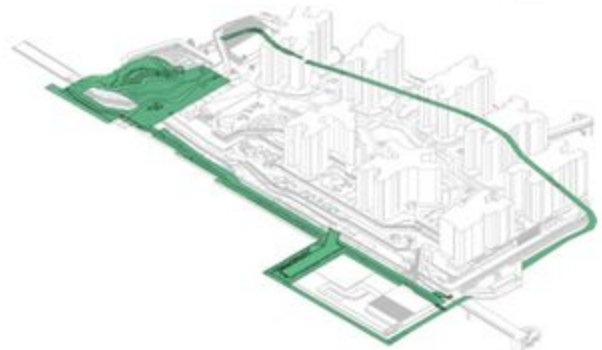
ESTUARIUM

MF & 2F
SKY BEACH
CLUB



BEACH FOREST

1F
TOWN PLAZA,
CENTRAL
GREENWAY &
NODAL POINT



COASTAL FOREST

LEVEL 3

1 ARRIVAL LOUNGE
2 BICYCLE CLUB

LEVEL 4

WELCOME DUNE
3 THE AVENUE
4 MIST TRAIL

READING DUNE
5 STUDY PAVILION
6 CO-WORKING PAVILION
7 READING PAVILION

RELAX DUNE
8 CHILLOUT CORNER
9 WEB SEATS
10 SWING PAVILION

CLUB 8
11 CLUBHOUSE
12 PARTY ROOM
13 GOURMET KITCHEN
14 SONG ROOM 1
15 SONG ROOM 2
16 THE SIGNATURE TREE
17 CO-WORKING LOUNGE
18 CLUB LOUNGE
19 CLUB GYM
20 CHANGING ROOMS
21 POOLSIDE BBQ PAVILION
22 TERRACE BBQ PAVILION
23 50M. LAP POOL
24 POOLSIDE DECK
25 JACUZZI LOUNGE
26 BOARDWALK
27 MEANDERING STREAM
28 API API BIO POND

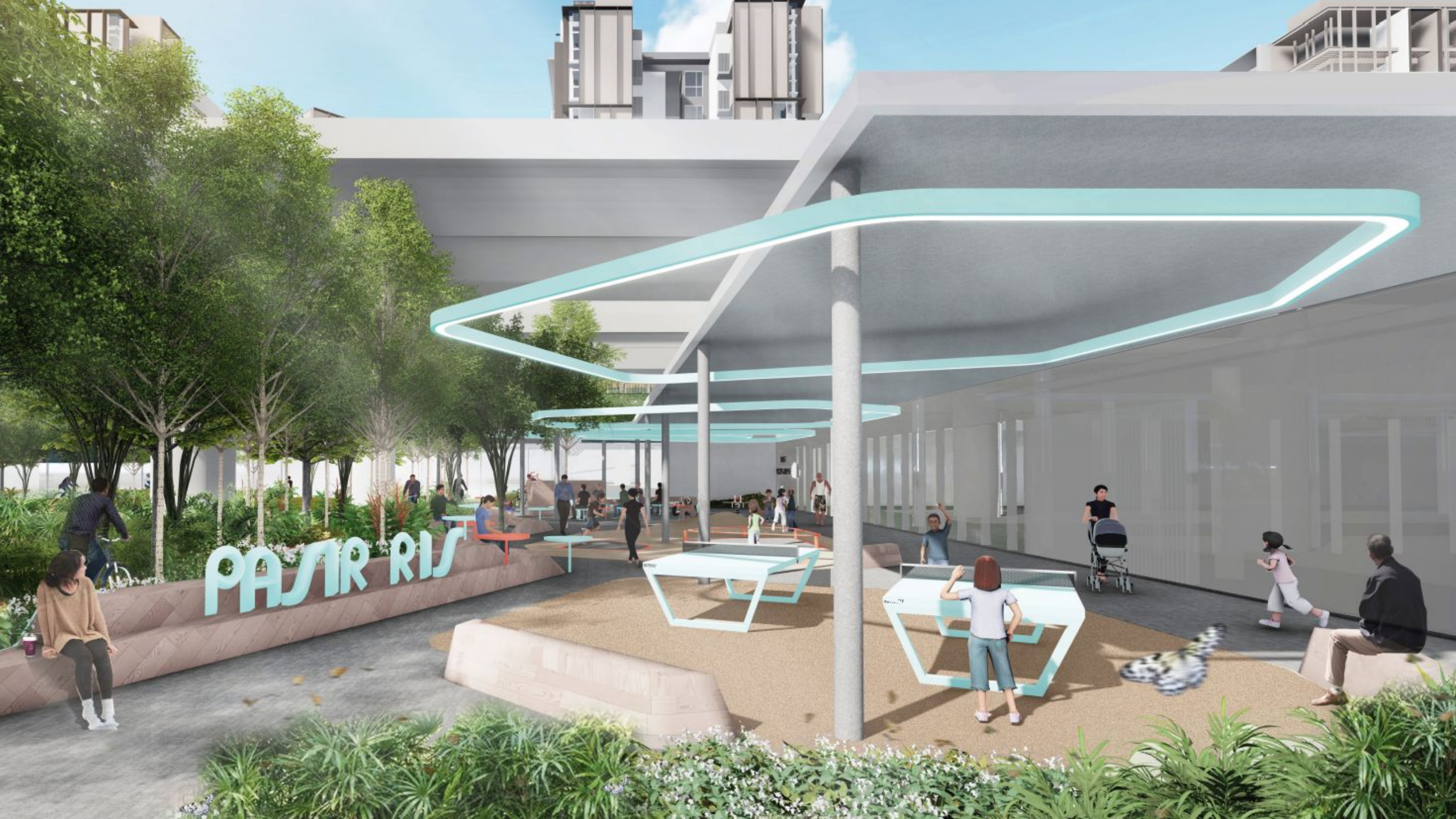
THE KIDS' CLUB
29 PARTY ROOM
30 INTERACTIVE PLAYROOM
31 WASHROOM
32 FOUNTAIN WATERPLAY
33 FOGGY WATERPLAY
34 CHILDREN'S POOL
35 POOL DECK
36 ADVENTURE POOL
37 CHILDREN'S PLAY AREA
38 WALL CLIMB
39 TODDLER PLAYGROUND
40 GRILL AREA

GARDEN DUNE
41 THE LAWN
42 SENSORY GARDEN
43 REFLEXOLOGY PATH
44 URBAN FARM
45 GREENHOUSE PAVILION

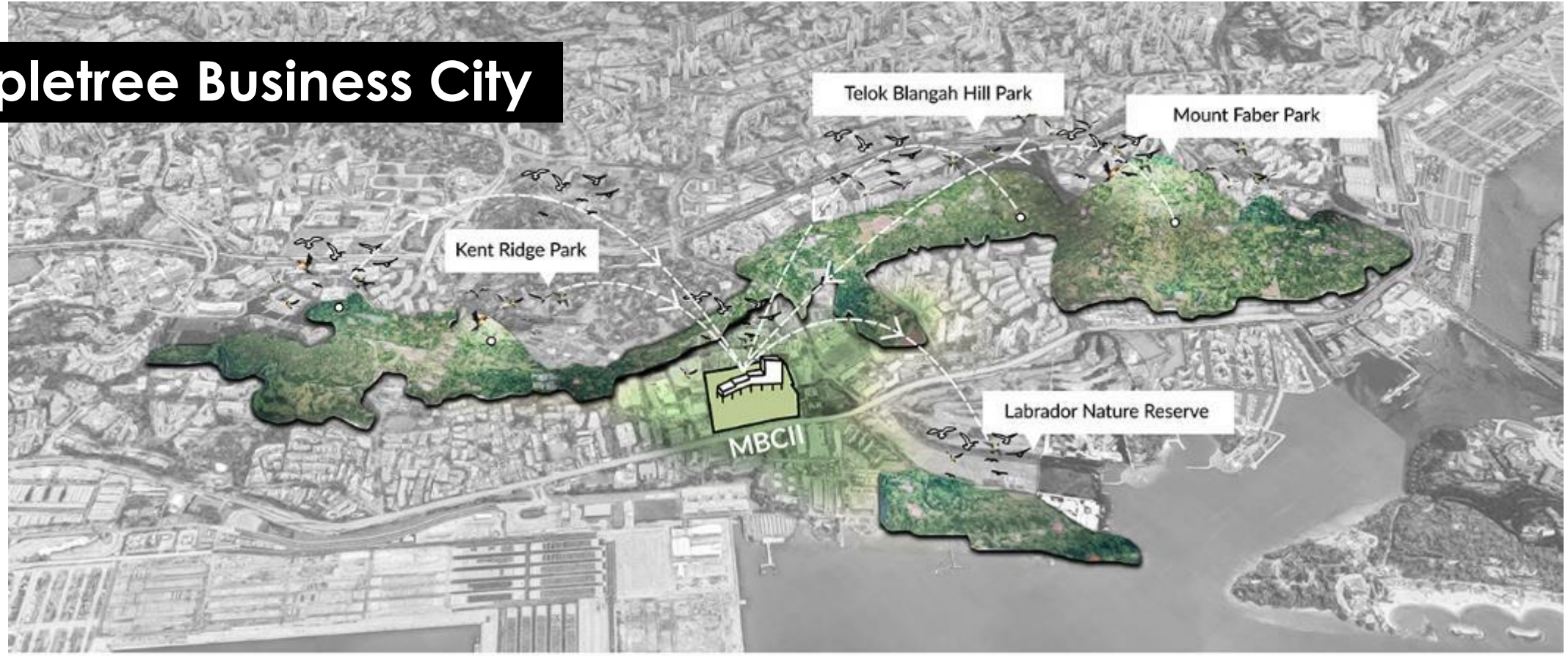
WELLNESS DUNE
46 YOGA DECK
47 OPEN GYM
48 ZEN PAVILION

OTHERS
BC BIN CENTRE (BASEMENT 1)
BM BULK METER (LEVEL 1)
PO MINDEF PUDO (PICKUP & DROP OFF) (LEVEL 1)
SS SUB-STATION (LEVEL 2)
PB PEDESTRIAN BRIDGE (LEVEL 2)
CG CENTRAL GREENWAY (LEVEL 2)
GS GENSET (LEVEL 3)
GH GUARDHOUSE (LEVEL 3)
WATER TANK ON ROOF


ZUMBA


PASIR RIS

Mapletree Business City




MASTERPLAN
1. Basketball court
2.Fitness station
3.Futsal
4.Yoga lawn
5.Jogging track
6.Garden path
7.Roof terrace
8.Bio-pond
9.Dan graham sculpture
10.Amphi-theater
11.Cafe and Restarant

Stone Gutter
a rainwater gutter connect
to bioswale at foot of each mound.

Stepping Stone
Ground cover plant grow
through some area, edge and transition
detail of hardscape and softscape.

Soft garden pathway
Allows lawn to grow up
in between

Lightweight Fill
Shape topography
controls soil depth and loading.

Tree Pits
Soil depths were size and
base on tree species and size.

Roof Structure
The forest garden was set on the roof
structure of car park.

Turf pave
Adds stability to the lawn and
stepping stone

Bioswale
Created at the foot of each
mound to collect rainwater and leads
into harvesting tank, treated and recycles
for irrigation.

Filter Fabric
Separation layer between soil and
lightweight fill.

Secondary Drainage Channel
Designed drainage system provide
additional drainage at low point.


Planter boxes


Green mounds


Forest Ecosytem

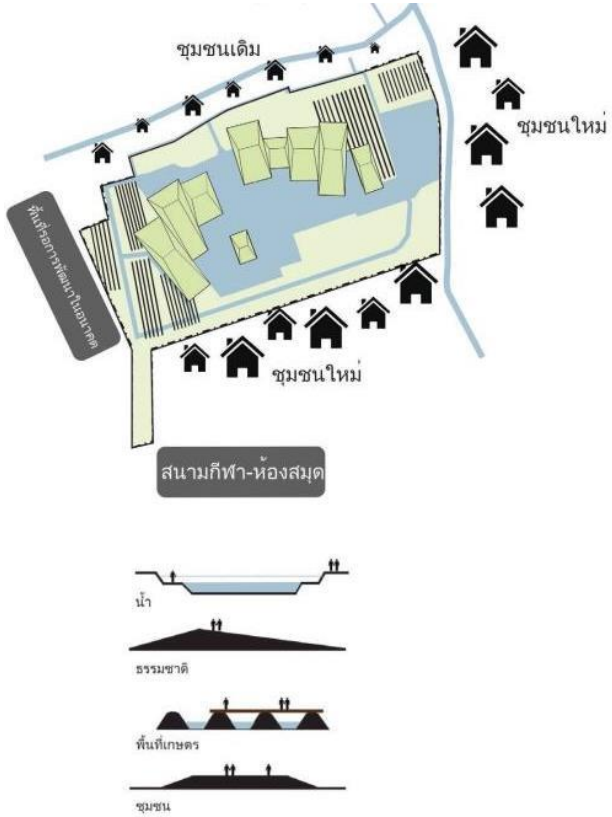

50

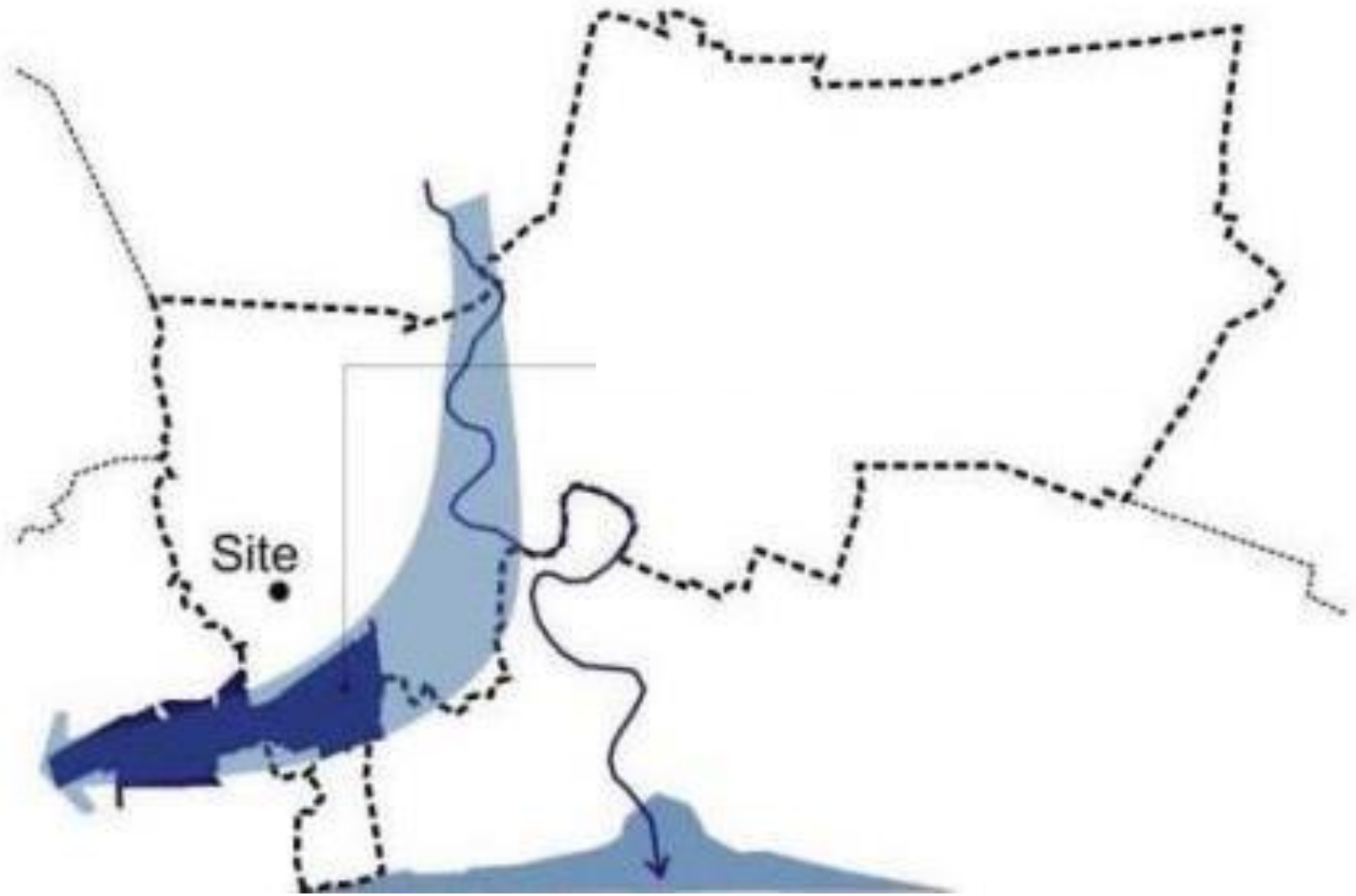

mapletree

Bangbon Ecological Park

Existing site

New proposal



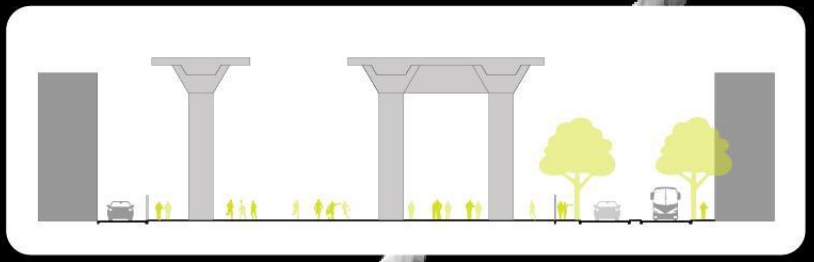


65000 ml
Water capacity

Queen Sirikit Park


ECONOMIC FOREST
CROSS SECTION
ECOSYSTEM LEARNING PATH
LIVING HABITAT
ECOLOGICAL EDUCATION
NATURAL WATER EDGE
CONSTRUCTED WETLAND
DIVERSITY OF SUBMERGED AND FLOATING PLANTS

Lankila Pat Sport Park

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ประกาศ
ข่าวสาร | บังคับ
ฟรี

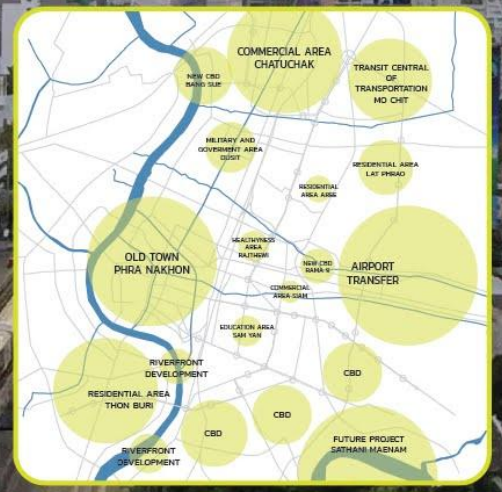

PN/157

BKK Green Link

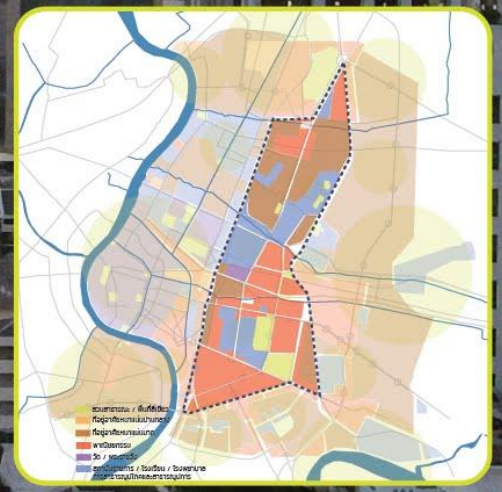
BANGKOK URBANIZATION

Today

Development of Public Transport



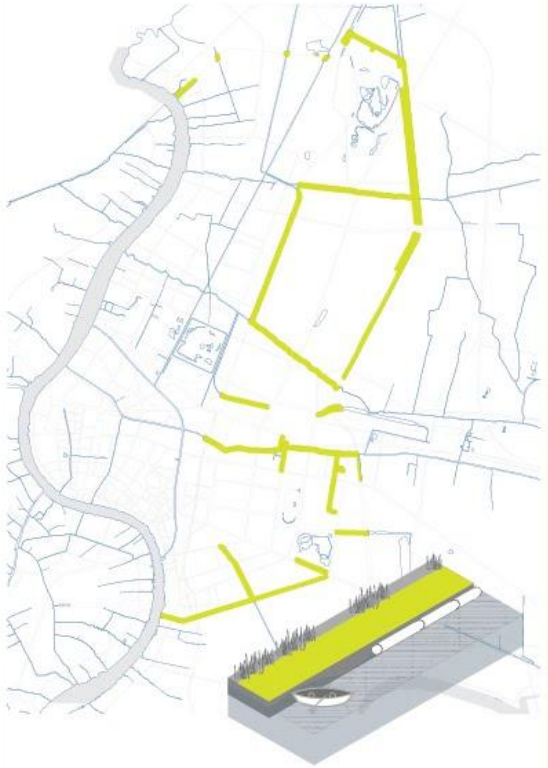
Development of districts

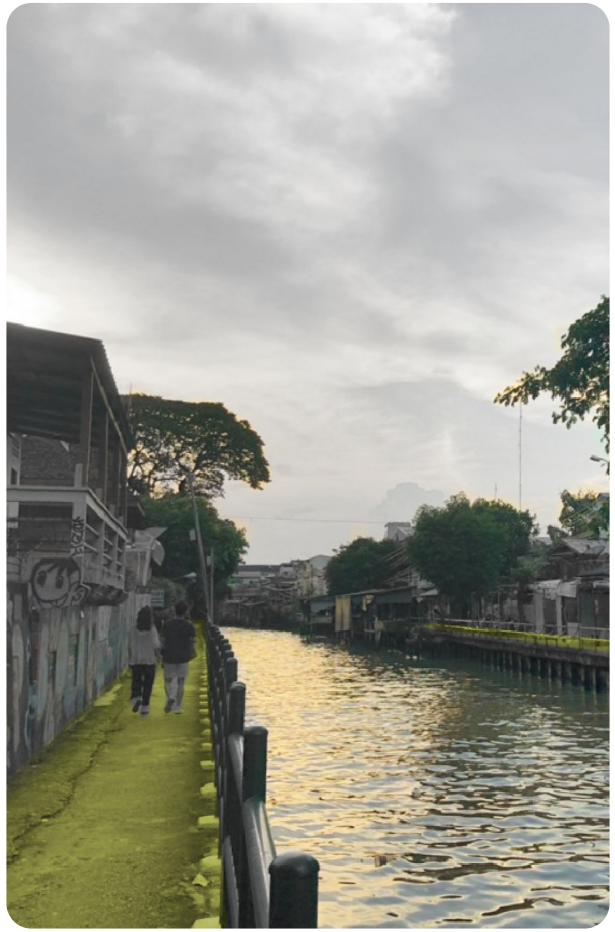


BKK Link targeted areas

CRITERIA

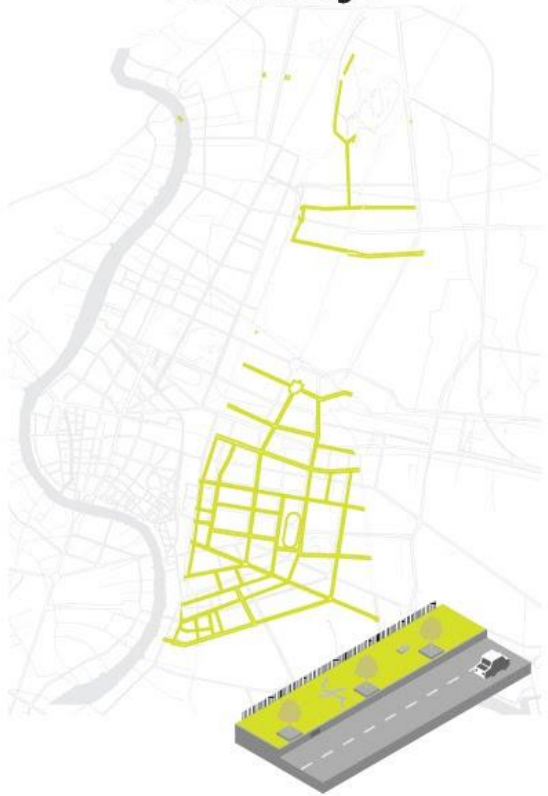
Canal bank





Canal banks are potential connectors between water and ground transportation.

Walkways



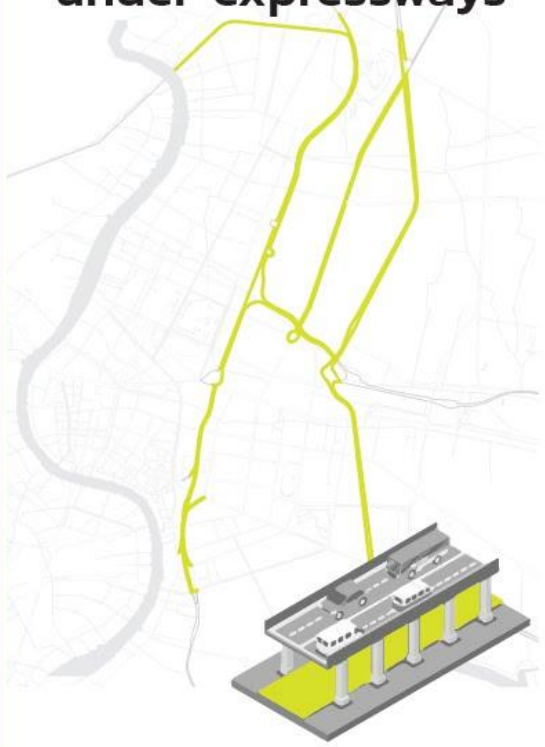
Transform walkways to offer more experiences to passers-by, and encourage interaction between people and the city.

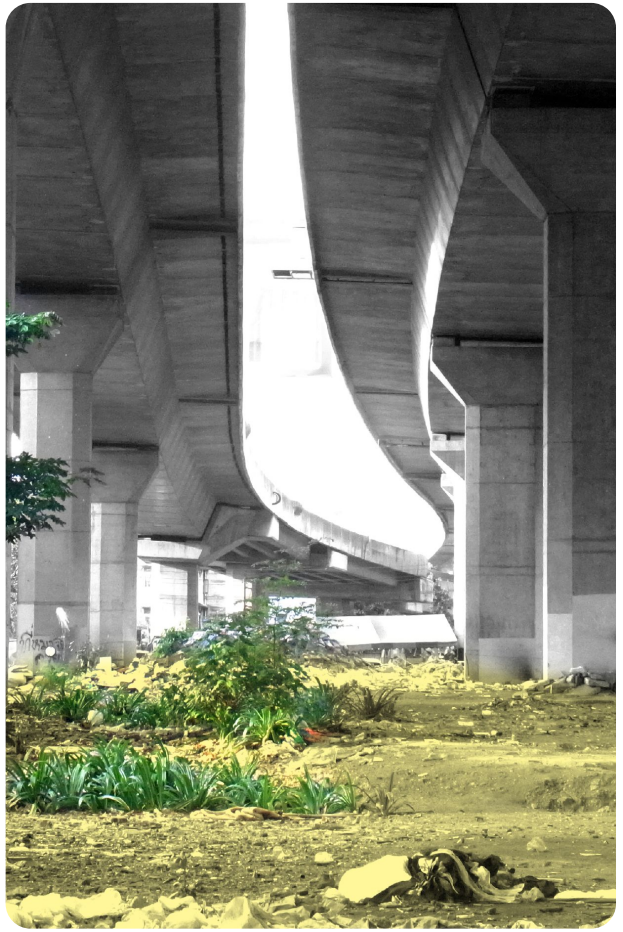
CRITERIA

Space along railways

Idle green spaces along railways laying across various neighbor-hoods are potential walkways for people.

Spaces under expressways

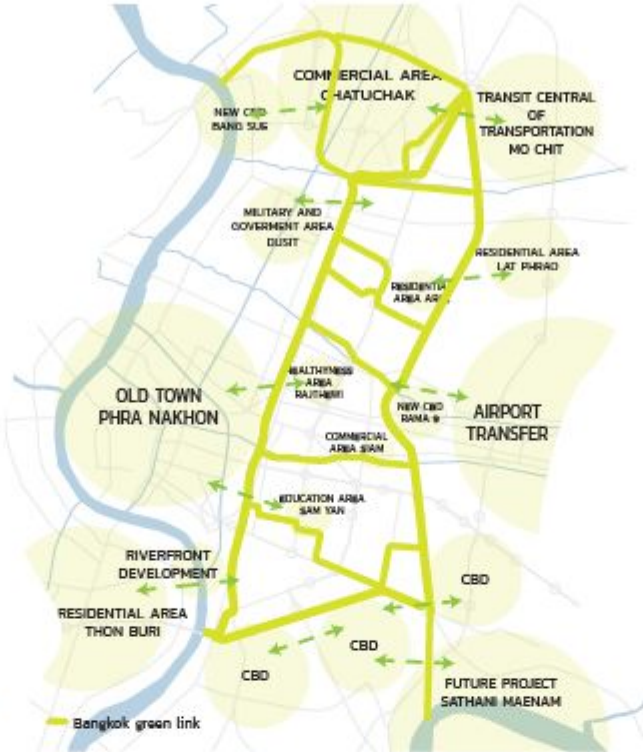




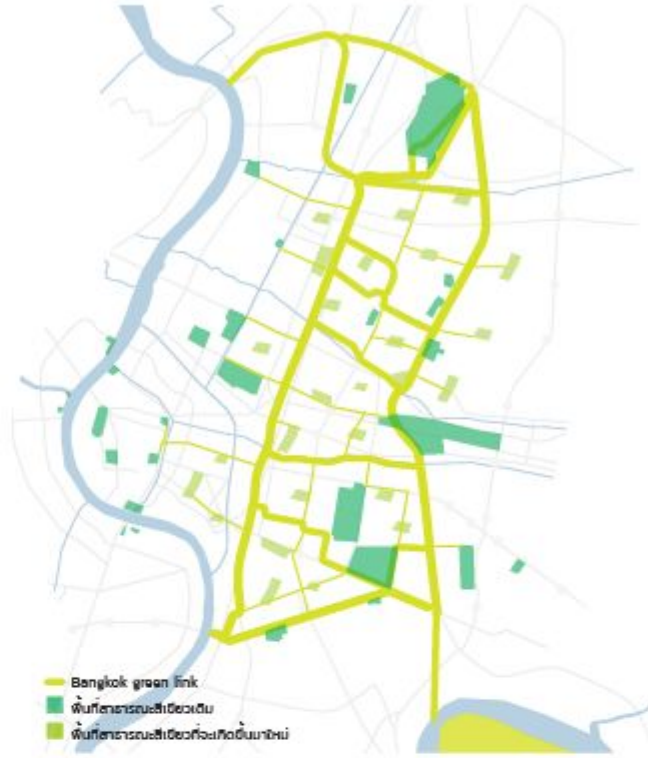
If spaces under expressways in Bangkok have transformed into public parks, we will have the equal of 4.5 of Lumphini Park

STRATEGIES

Linking Transportation
เชื่อมต่อการคมนาคม เพิ่มทางเลือกการเดินทาง
ที่เป็นมิตรกับสิ่งแวดล้อม

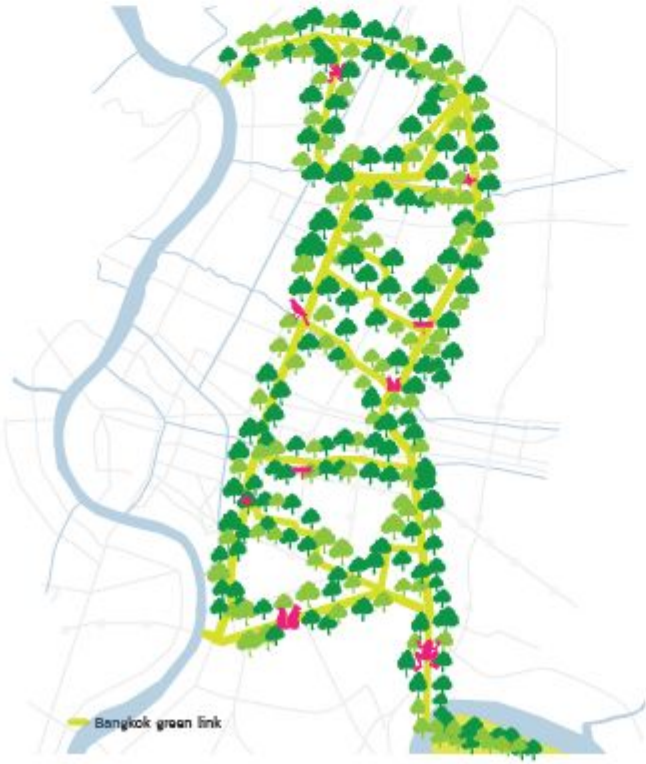


Linking District
เชื่อมโยงย่าน Node พื้นที่สาธารณะของเมืองทั้ง
ในปัจจุบันและอนาคต



Linking People
เชื่อมคน ชุมชน ผ่านพื้นที่กิจกรรมสำหรับทุกคน
เช่น สวนสาธารณะ หรือ Pocket park

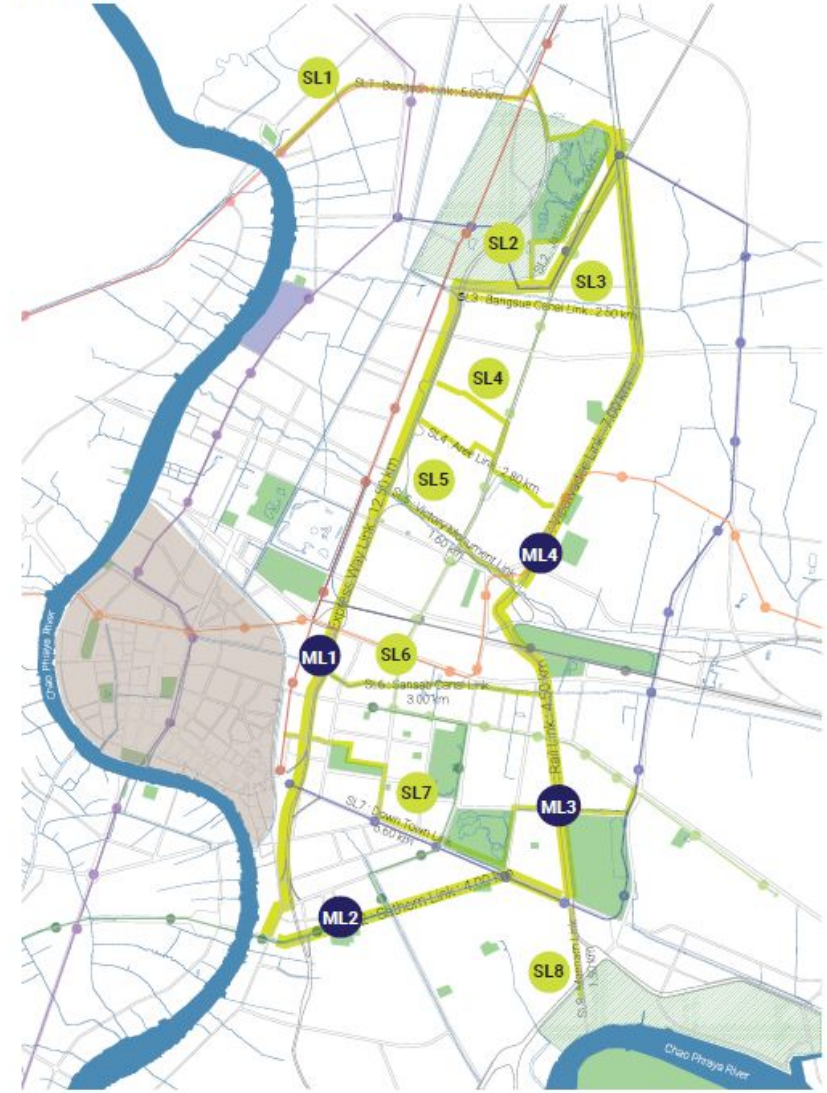
STRATEGIES



Linking Nature
เชื่อมธรรมชาติ คืนพื้นที่สีเขียวสู่เมือง

Linking Technology
เชื่อมเทคโนโลยีเพื่อตอบโจทย์ชีวิตคนเมือง และ
สร้างความยั่งยืน

Master Plan



MAIN LINK

ML1 : Express Way Link
Mixed Urban Activity Link

ML2 : Sathorn Link
Eco Smart Street Link

ML3 : Rail Link
Bike Express Link

ML4 : Vipawadee Link
Linear Park and Bike Express Link

SUP-LINK

SL1 : Bangson Link
Energy and Urban Farm Link

SL2 : Jatujak Link
Park Link

SL3 : Bangsue Canal Link
Canal Link

SL4 : Aree Link
Lifestyle Link

SL5 : Victory Monument Link
Interchange and Support Urban Life Link

SL6 : Sansab Canal Link
Interconnected Urban and Canal Link

SL7 : Down Town Link
Innovative Exchange Link

SL8 : Maenam Link
Industrial Art and Nature Link

New parliament
Bangkok old town
Bangkok green link
Green public space
Canal and river
Future project

BTS Green Line
BTS Dark Green Line
MRT Orange Line
MRT Blue Line
MRT Purple Line
SRTET Dark Red Line
SRTET Red Line
ARL

Main Link : 28.00 km Sup-Link : 26.00 km **Total : 54.00 km**

ML2 Main Link 2: Sathorn Link – Eco Smart Street Link

This green link passes through Sathorn, a major road of Bangkok's CBD, combining technology, ecology and social activity. It aims to reconnect all scattered development and stakeholders together again. Sathorn Road and its historical canal will be improved into a better quality for safety, liveliness and effectiveness. Existing walkways will be widened and improved. Bicycle lanes will be added up along the road with rows of trees proving shadings. Accordingly, Sathorn Canal will be purified by engineering mechanics and plants, plus added accessible communal space for people enjoyment.

ML3 Main Link 3: Rail Link – Bike Express Link

This green link will turn rarely used area along railways into a bike express way, providing alternative transportation routes that connect various nodes like Makkasan station, Benjakiti Park and Klong Toei Area.

ML4 Main Link 4: Vipawadee Link – Linear Park and Bike Express link

This green link will turn the congested Vipawadee road, the current main access to inner Bangkok from the northern part, into linear greenery. Huge overcrossing will be refurbished with friendly design, as well as the left-out canal that will be revitalized with pleasant atmosphere.

SL1 Sub Link 1: Bangson Link – Energy and Urban Farm Link

This green link will be transformed from unutilized area between the elevated expressway and rail line into a neighborhood node. Due to the amount of available areas, it has potential to be turned into solar farm for energy production, and urban farm for community agriculture.

SL2 Sub Link 2: Chatuchak Link – Park Link

This green link will help merge 3 existing separated parks to become one large harmonious greenery in Bangkok. It can connect people from Ladprao, nearby commercial and Transporation hub.

SL3 Sub Link 3: Bangsue Canal Link – Nature Canal Link

This green link is located along Bangsue Canal where abundant natural resources still remains, providing recreational space secluded from chaotic main road. It can connect people from nearby residential area to Mochit and Bangsue Transportation hubs.

SL4 Sub Link 4: Aree Link – Lifestyle Link

This green link will create connections between 2 main city nodes – Dindaeng Residential and Governmental District, and Aree Lifestyle Hub. There will be new elevated walkways and bicycle lanes, as well as widened walking paths and extension of shops and cafes. Greenery and attractive hangout spots will also be added along the walking paths, while car parking will newly be relocated inside buildings.

SL5 Sub Link 5: Victory Monument Link – Interchange and Urban Life Support Link

This green link passes under an expressway near Victory Monument. The existing food stalls will be newly reorganized and social spaces will be renovated to support neighborhood's urban life, including a friendly community hub along left-out canal banks.

SL6 Sub Link 6: Saensaep Canal Link – Interconnected Urban and Canal Link

This green link will help revitalize areas along Saensaep Canal, one of the oldest canals in Bangkok. Disconnection between water and road will be solved. All blocked up elements like fences will be torn down and substituted with public pocket spaces, allowing each unit - from local houses to commercial buildings to open back to the canal again.

SL7 Sub Link 7: Downtown Link – Innovative Exchange Link

This green link will connect diverse land and building usages in Bangkok's downtown, including Hualampong Transportation Hub, local community, the prestigious Chulalongkorn University, green public spaces, and commercial hubs, resulting a new innovative and knowledge passage. Such elements in local community like the main communal bridge of Phai Sing To area will be renovated to become safer and greener. Unutilized space and structures will also be transformed into a friendly accessible space for all.

SL8 Sub Link 8: Mae Nam Link – Industrial Art and Nature Link

This green link will revitalize abandoned rail ways near Klong Toey and prepare the area for new development of Mae Nam Station, situated opposite to Bang Kra Jao or Bangkok's green lungs aside Chao Phraya River. This old industrial area will be transformed into art and museum district with a combination of greenery and landmark architecture.