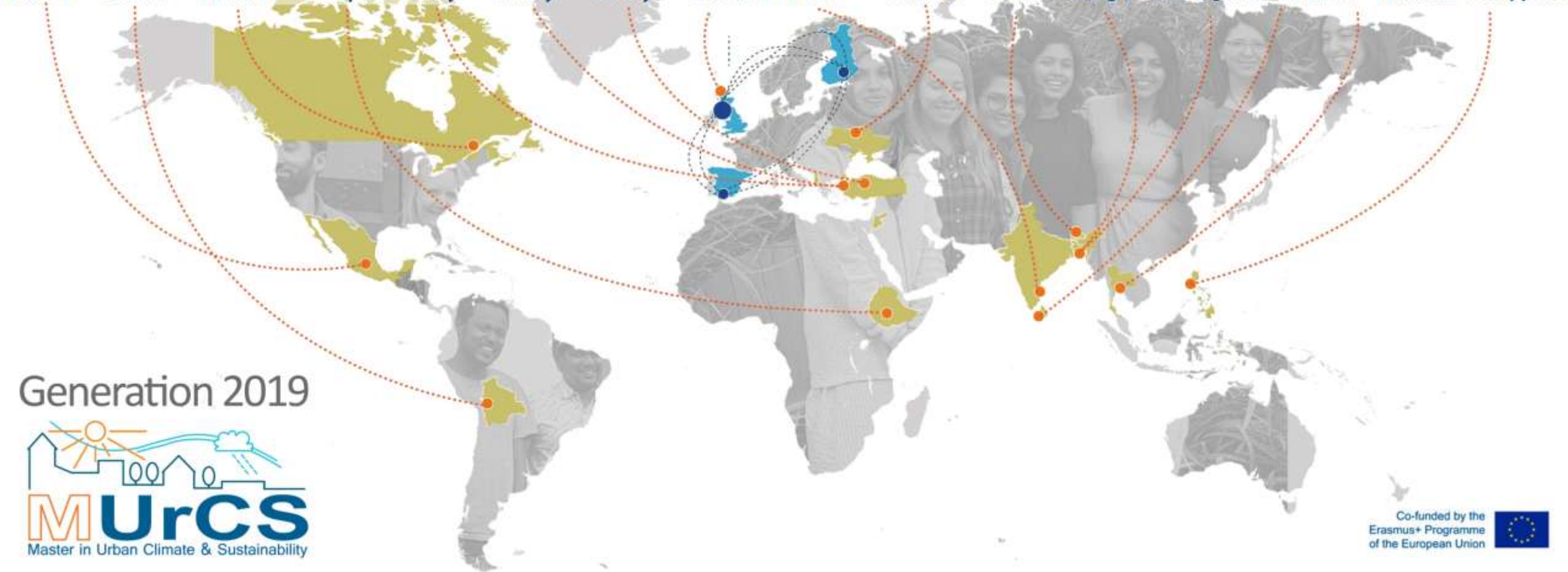


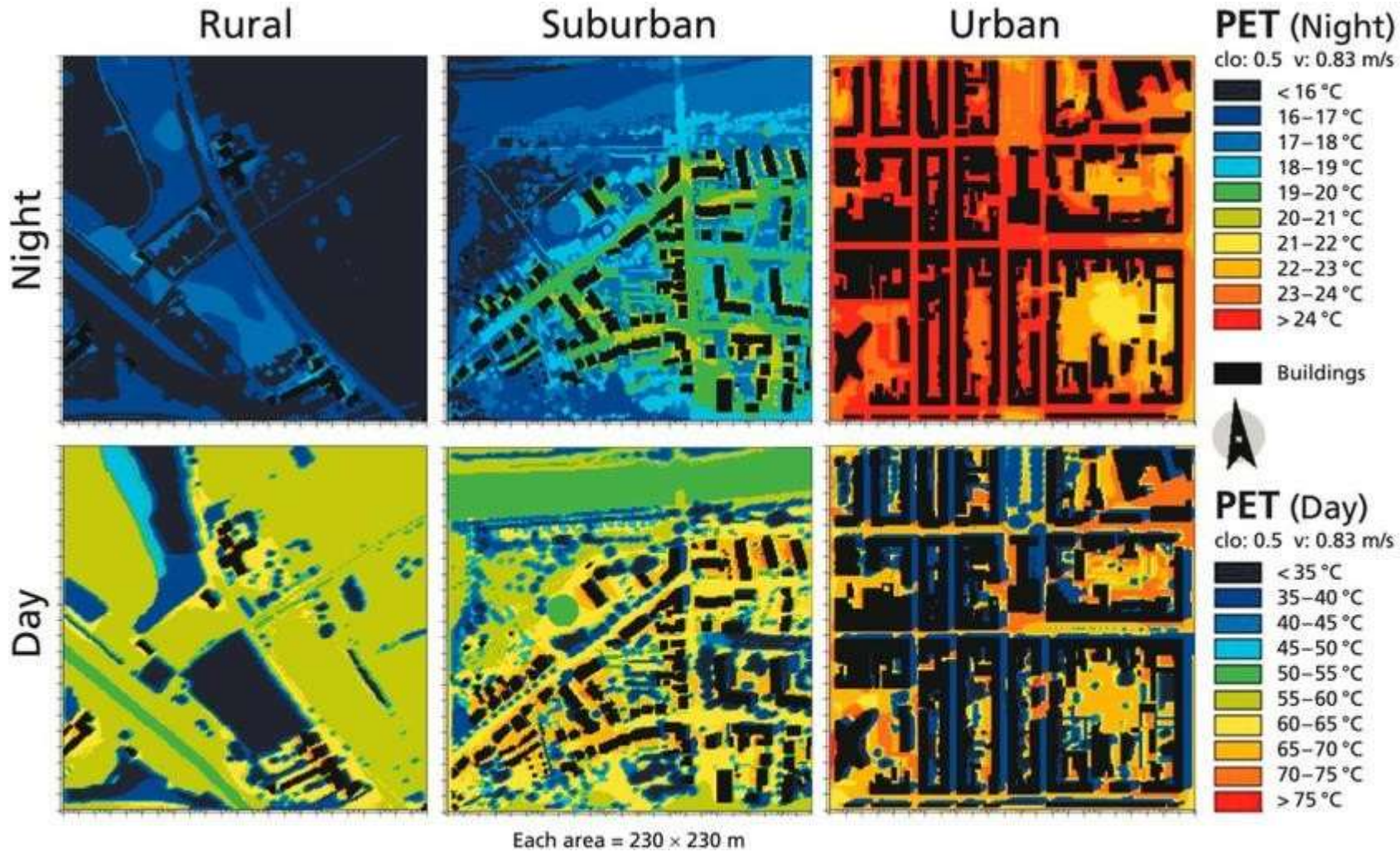


Milagros	Roberto	Abuzar	Abinet	Nadin	Irmak	Melis	Anna	Raju	Oksana	Sonam	Shammi	Rabeya	Shifana	Nichamon	Aira
Mexico City Mexico	La Paz Bolivia	Montreal Canada	Hawassa Ethiopia	Istanbul Turkey	Istanbul Turkey	Ankara Turkey	Aberdeen Scotland	Chennai India	Kiev Ukraine	Thimphu Bhutan	Dhaka Bangladesh	Chandpur Bangladesh	Colombo Sri Lanka	Bangkok Thailand	Manila Philippines



Generation 2019

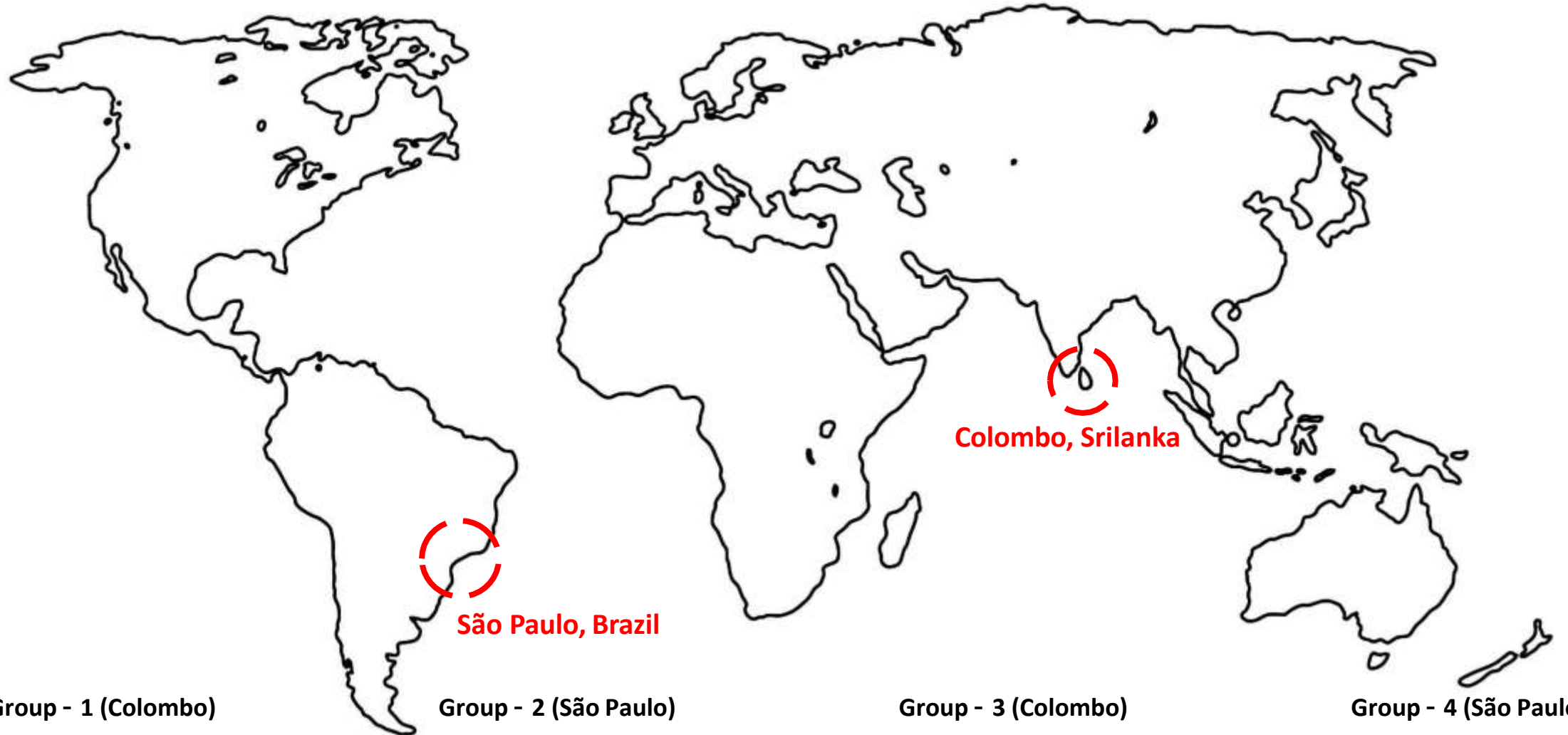




Climate Change in Urban Environment

16 MUrCS Students

Climate Change in Urban Environment



Group - 1 (Colombo)

Nichamon
Shammi
Milagros
Aira

Group - 2 (São Paulo)

Anna
Abuzar
Abinet
Sonam

Group - 3 (Colombo)

Irmak
Melis
Nadin
Roberto

Group - 4 (São Paulo)

Oksana
Rabeya
Raju S B
Shifana

Group - 1 (Colombo)

- Nichamon
- Shammi
- Milagros
- Aira





ANALYSIS



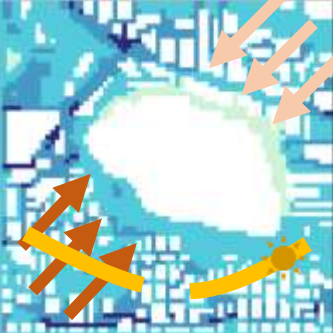
FLOW ACCUMULATION
GIS



FLOOD PRONE AREAS
(WATER RETENTION)
GIS

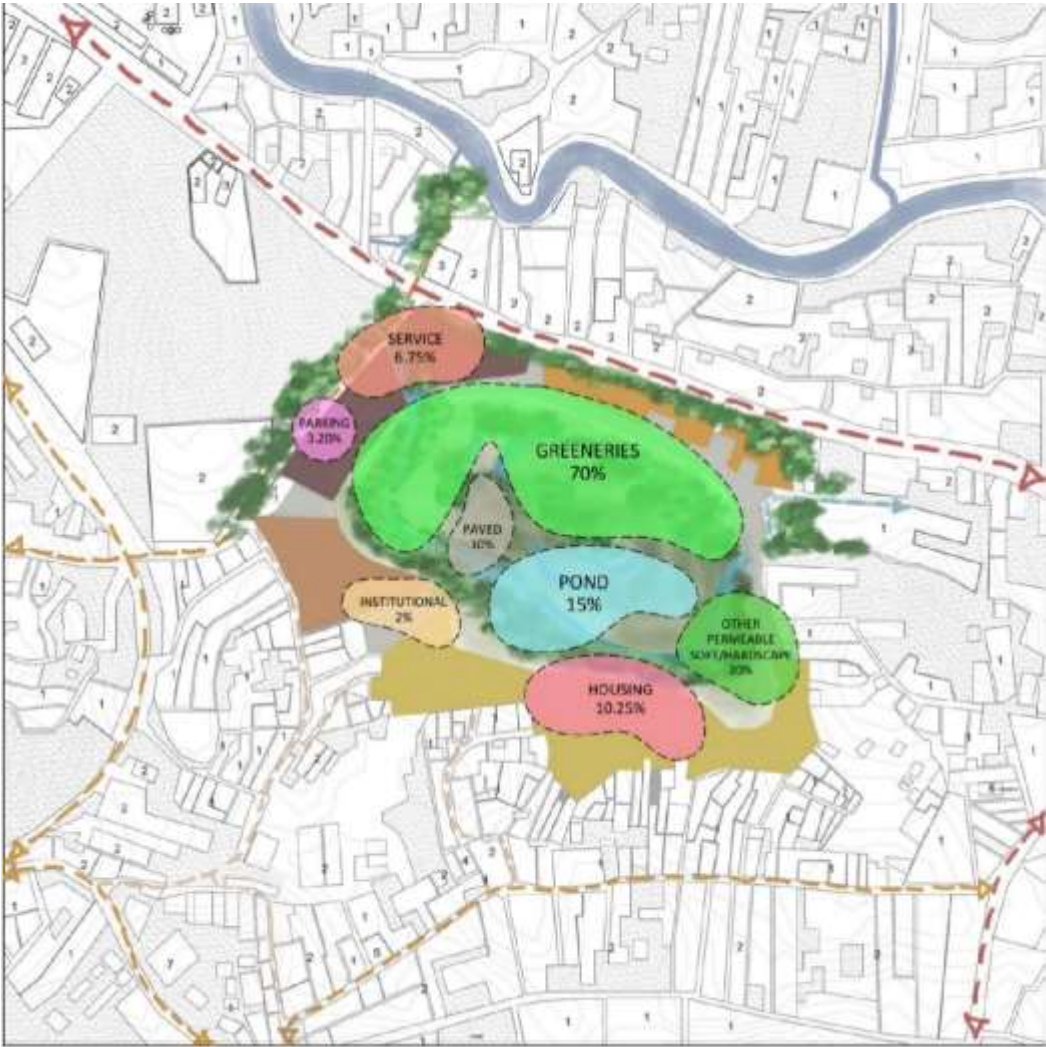


LOCAL CLIMATE ZONE
SAGA



POTENTIAL AIR
TEMPERATURE
Envimet

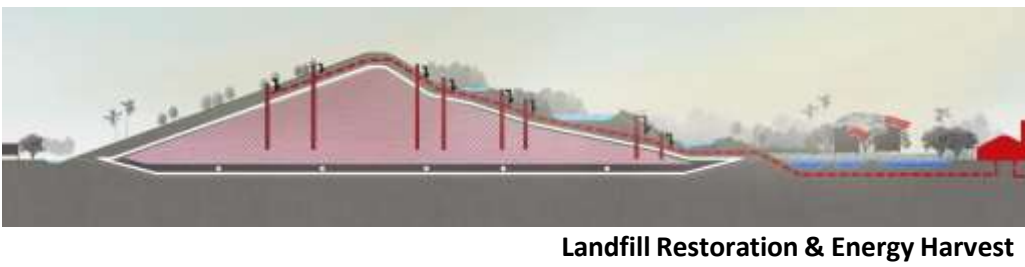
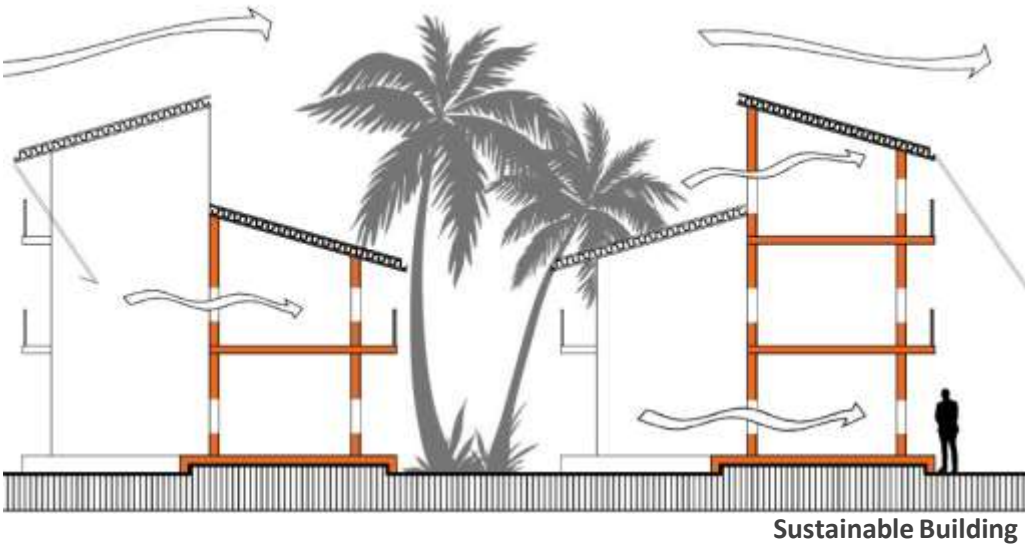
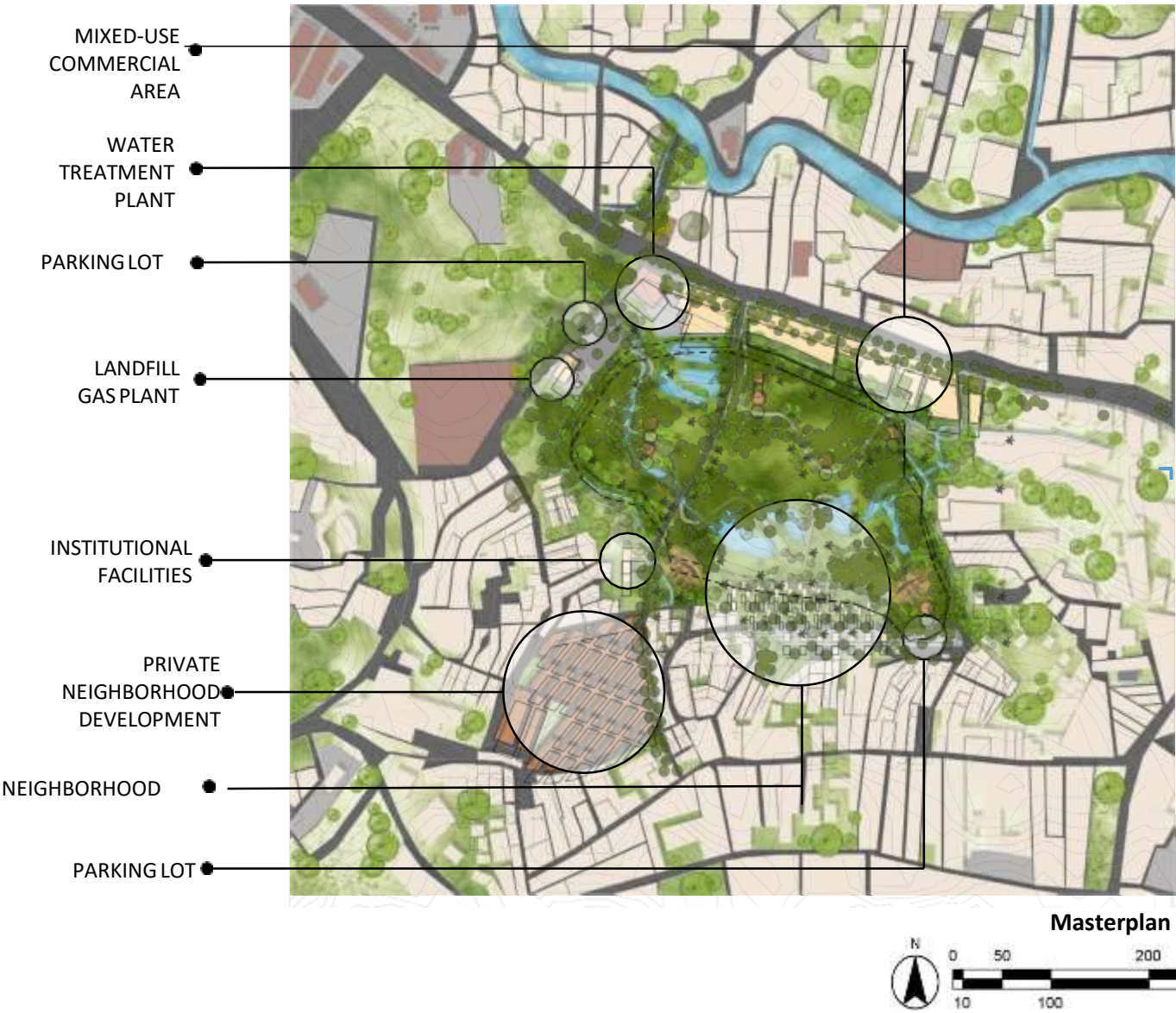
DESIGN CONSIDERATIONS



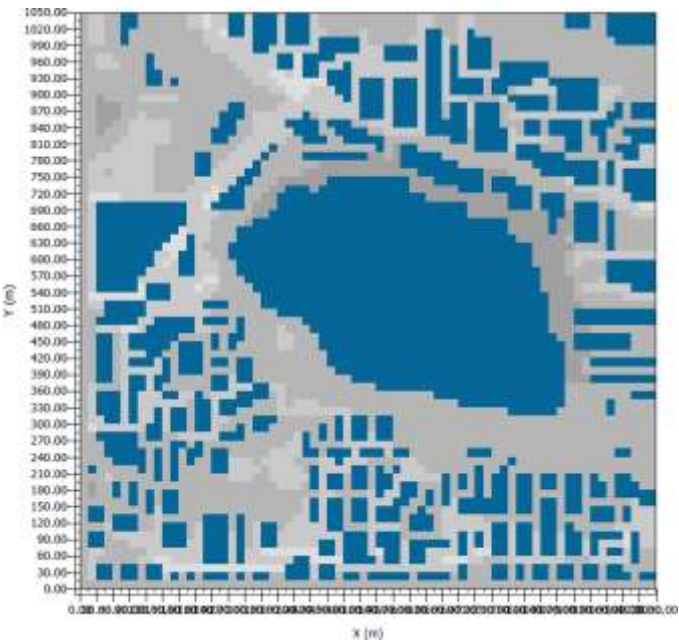
NEW MEETHOTAMULLA

| Ar. N. Rattanakijanant | Ar. S.Keya | Ar. M. Saloma | Ar. A. Valdez

PROPOSAL



NEW MEETHOTAMULLA



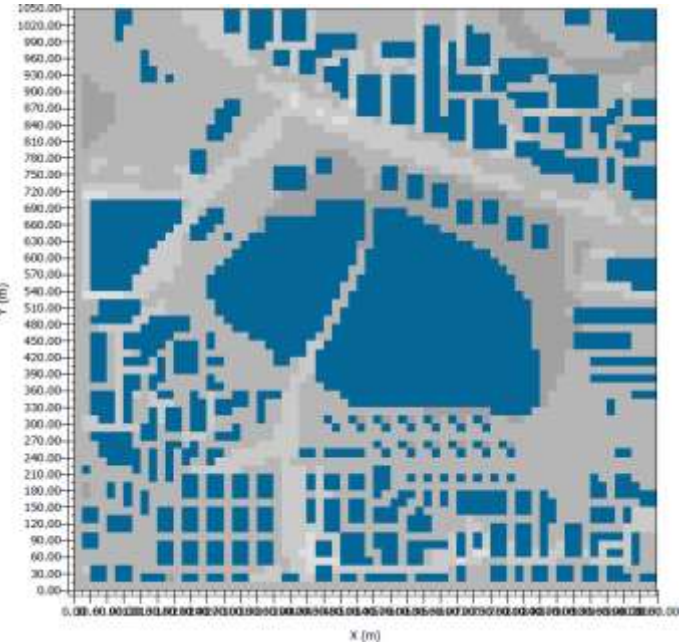
EXISTING SITE
15.00.01_18.04.2016

x/y Cut at k=1 (z=0.9000 m)

Potential Air Temperature



Min: 20.94 °C
Max: 33.65 °C



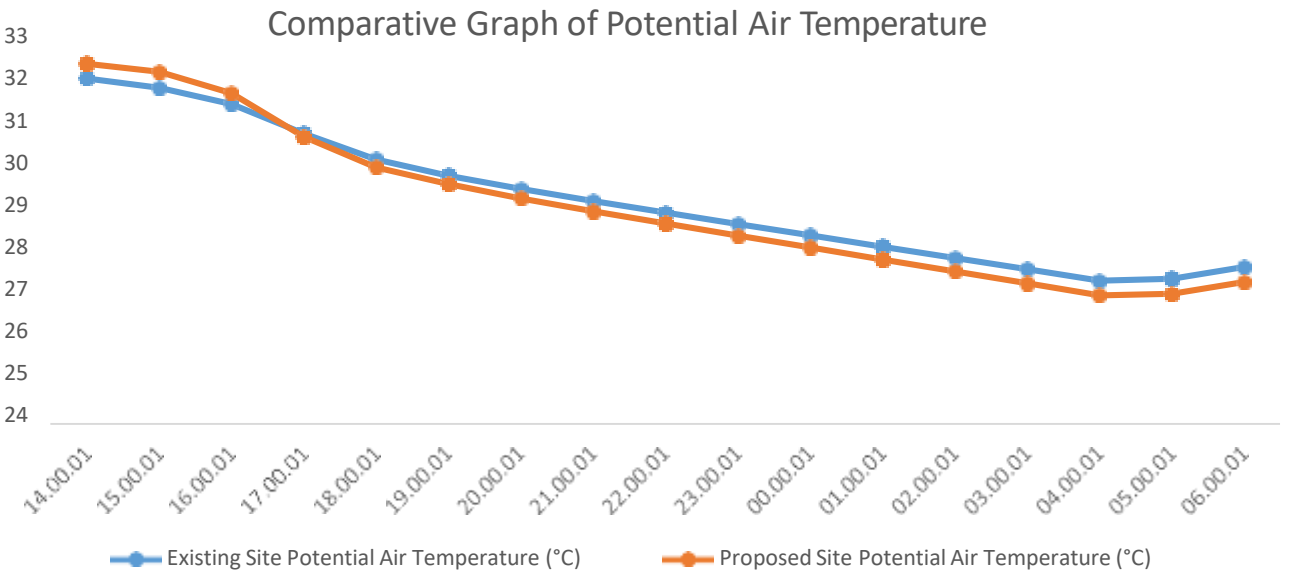
PROPOSED SITE
15.00.01_18.04.2016

x/y Cut at k=1 (z=0.9000 m)

Potential Air Temperature



Min: 20.95 °C
Max: 33.82 °C



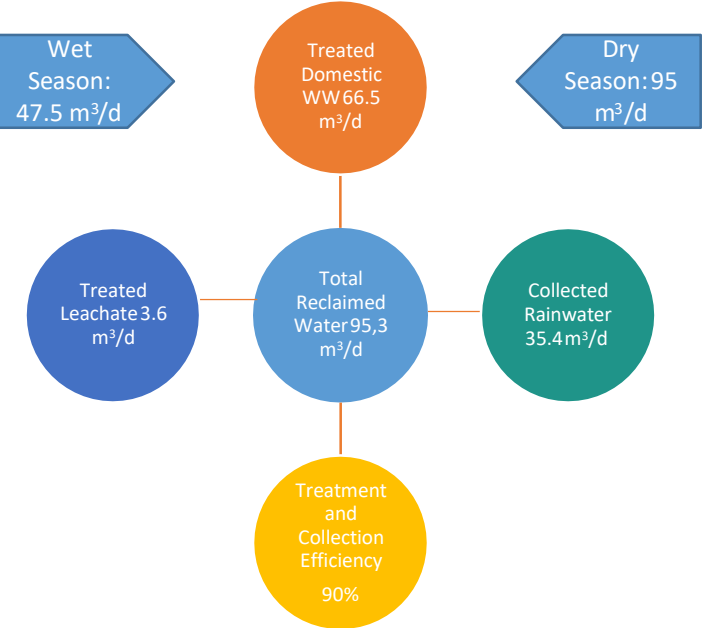
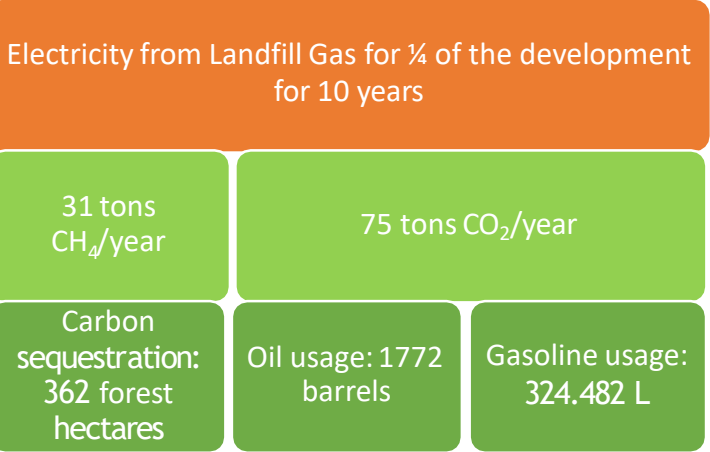
Group - 3 (Colombo)

- Irmak
- Melis
- Nadin
- Roberto



DESIGN APPROACH

Table: Design Approaches Considered for The Project



Environmental Aspects
<div>10 Waste to value in packaged solutions<ul style="list-style-type: none">• Wastewater Reclamation for irrigation and dust control• Landfill Gas → Electricity, mobile generator• Composting Facility → Compost for GI• Rainwater collection</div> <div>10 Phytoremediation with native pioneer plants<ul style="list-style-type: none">• Evapotranspiration cover• Wetland remediation• Plant buffer zone• Native weed cover instead of grass</div> <div>10 Long term Interventions: land Mining</div>

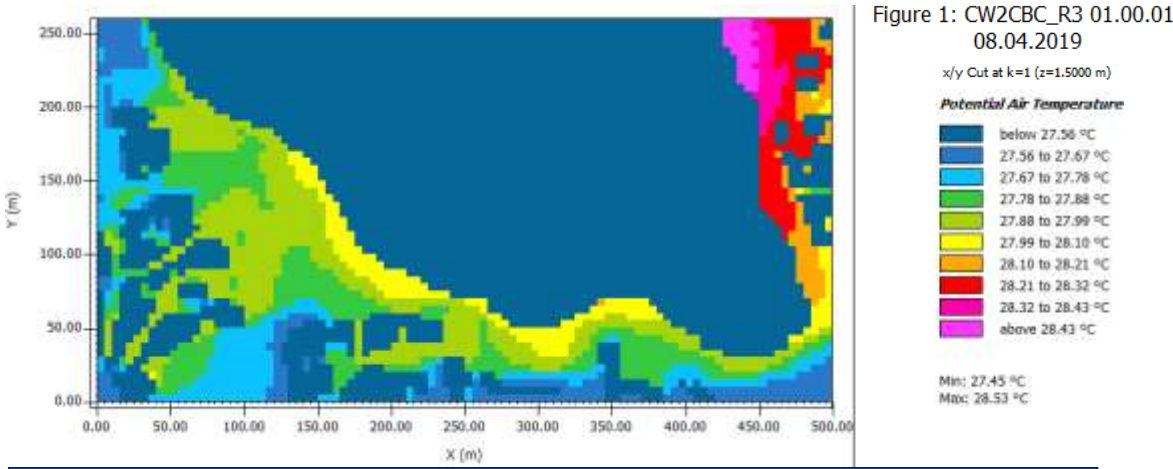


Development Aspects
<div>10 Site selection<ul style="list-style-type: none">• No development on top of the dumpsite• Safety: Slope stability and flood measures• Prevailing wind: SW → area in SE• Accessibility: Existing roads + new roads = connectivity improvement</div> <div>10 Development Type: Open-Low Rise<ul style="list-style-type: none">• LCZ and Envi-met overlays showed cooler temperature• Building clusters → passive cooling• Open courtyard supported with trees → natural wind circulation day and night</div> <div>10 Orientation<ul style="list-style-type: none">• Wind direction and solar radiation</div> <div>10 Materials and Surroundings<ul style="list-style-type: none">• Diurnal differences in MRT → concrete roads, grass, bushes, trees</div> <div>• Main themes: Outdoor thermal comfort in site, material and housing selection, social fabric preservation, circular economy for waste</div>



Social Aspects
<div>10 Preservation of the social fabric<ul style="list-style-type: none">• Open low rise, small lot housing</div> <div>10 Stakeholder and public engagement activities<ul style="list-style-type: none">• Public opinion survey• Stakeholder identification and demographic representation• Incentivization• Community inclusion for low income groups• Public awareness and empowerment activities• Social media</div> <div>10 Job creation with the construction and operation & maintenance</div> <div>10 Value building workshops for low income groups</div> <div>10 360° performance review of the project after every milestone based on the community feedback</div>

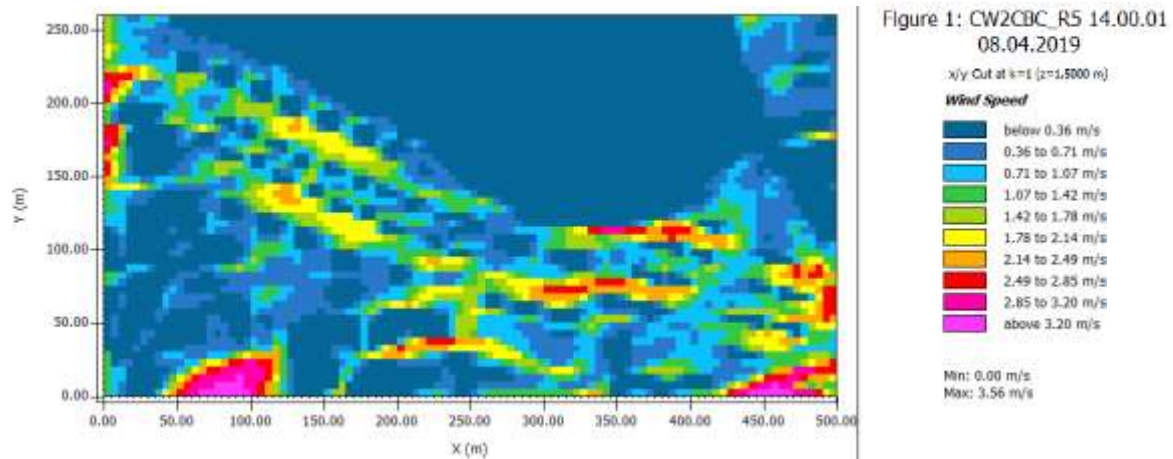
BASE CASE



Change in Potential Air Temperature During Day / Night

PROPOSED URBAN DEVELOPMENT

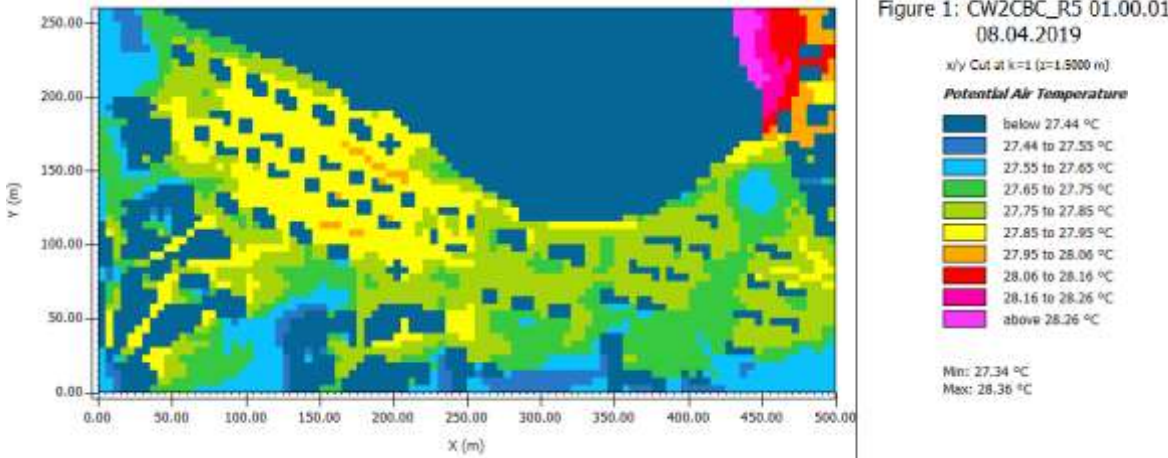
Alternative - I



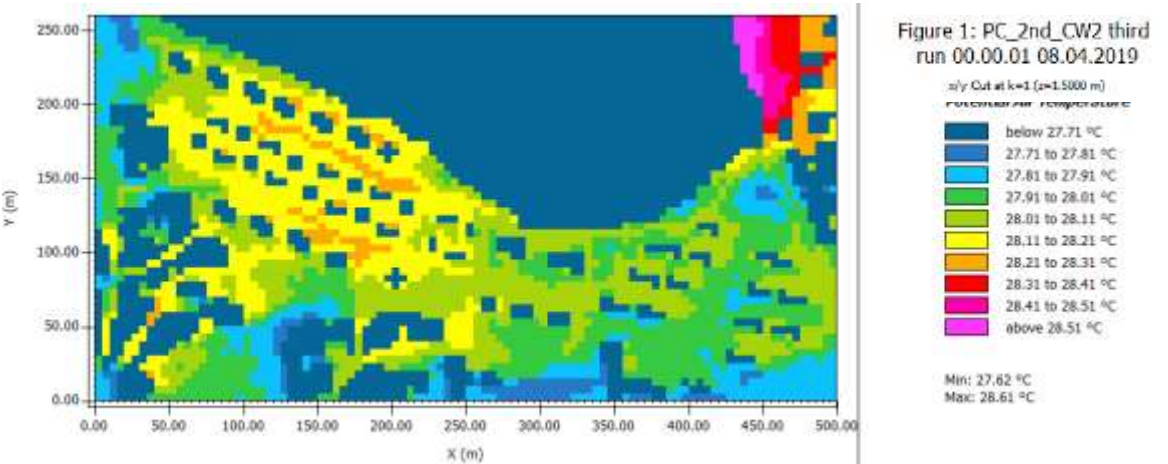
Change in Wind Speed between 14:00 pm and 23:00 pm

PROPOSED URBAN DEVELOPMENT

Alternative - I



Alternative - II



Change in Potential Air Temperature During Day / Night

PLANNING APPROACH

Table: Schedule of Works for the Proposed Project

		Year 1		Year 2		Year 3		Year 4		Year 5		PHASING OUT
		Sem	Sem	Sem	Sem	Sem	Sem	Sem	Sem	Sem	Sem	
		1	2	3	4	5	6	7	8	9	10	
Phase I	Risk Mitigation and Site Preparation											
	Slope Stability											
	Dumpsite Cover and Gas Collection System											
	Flood Control											
	Stakeholder Engagement and Public Awareness Activities											
Phase II	Project Implementation											
	Phase II-A: Site A and GW for Site B and WWTP Works											
	Phase II-B: Const. of the Site Band GW for Site C											
	Phase II-C: Const. of the Site C											
	Phase II-D: Green Infrastructure											
	Stakeholder Engagement Meetings											
Phase III	Operation & Maintenance											
	Gas Monitoring - Everyday											
	Treatment System Operation - Everyday											
	Treatment System Maintenance - Every 6 months											
	Gas Collection System Maintenance – Every 3 months											
	Resident Feedback Meetings - Every 3 months											
	Green Infrastructure Maintenance - Every week											



Risk Targets

Landslide

Fire

Flooding

Explosion

Asphixiation

Figure:

Phases of
The Project



Phase 1 Risk Mitigation and Site Preparation

- Slope Stability: Levelling and Compaction of the Dumpsite
- Dumpsite Cover and Gas Collection System
- Flood Control: Levelling of the development site, improvement in the drainage system
- Stakeholder Engagement and Public Awareness Activities

Phase II Project Implementation

- Phase II-A: Construction of the Site A and Groundworks for Site B, Construction and Procurement of Treatment Works
- Phase II-B: Construction of the Site Band Groundworks for Site C
- Phase II-C: Construction of the Site C
- Phase II-D: Construction of Site D and Green Infrastructure
- Stakeholder Engagement Meetings throughout Phase II

Phase III Operation & Maintenance

- Gas Monitoring - Everyday
- Treatment System Operation - Everyday
- Treatment System Maintenance - Every 6 months
- Gas Collection System Maintenance – Every 3 months
- Resident Feedback Meetings - Every 3 months
- Green Infrastructure Maintenance - Every week

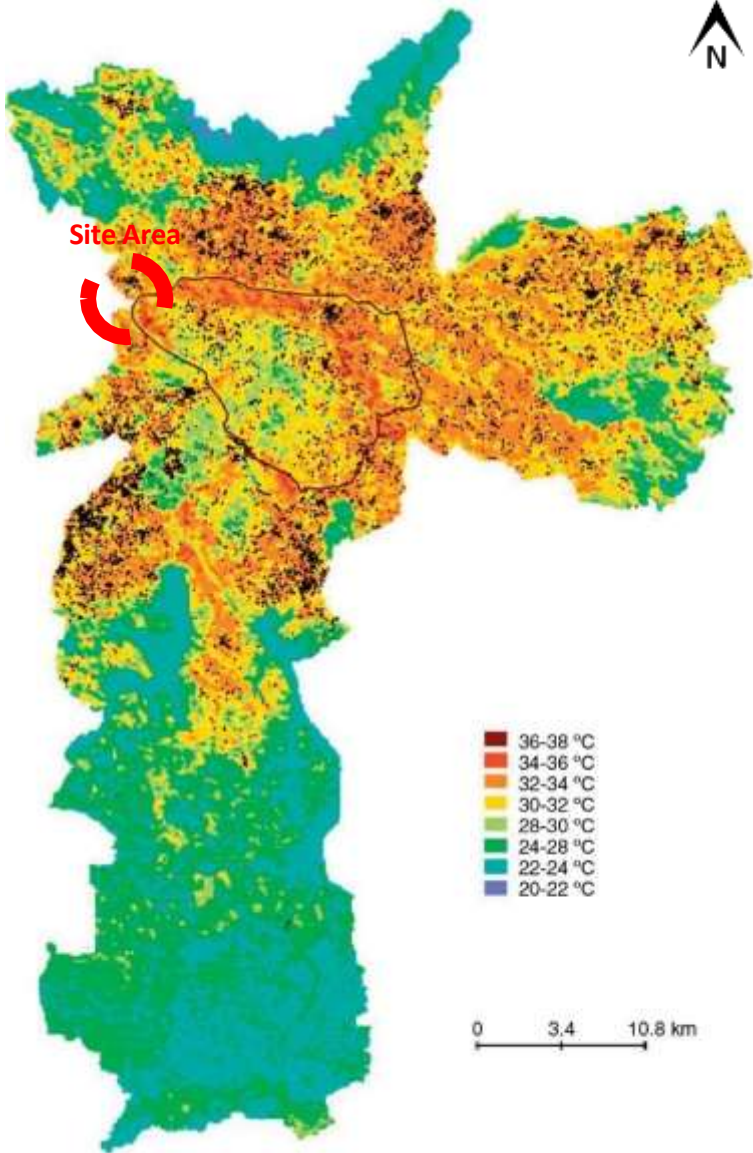
Climate Change in Urban Environment



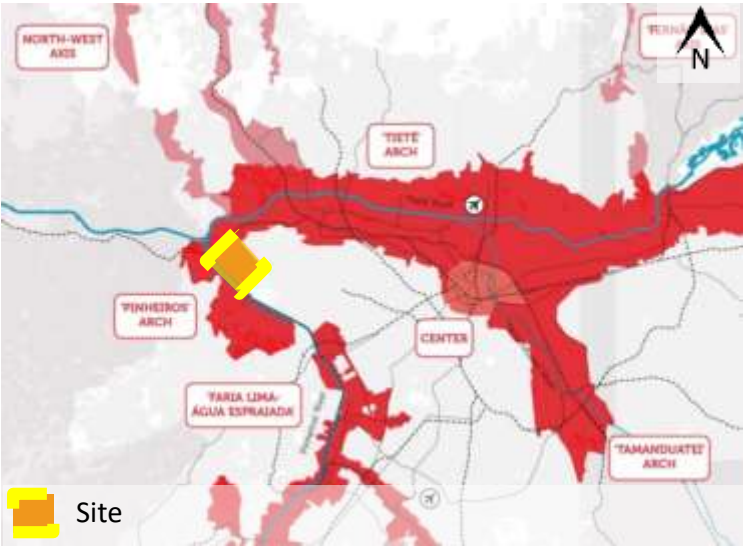
Group - 4 (São Paulo)

- Oksana
- Rabeya
- Raju S B
- Shifana

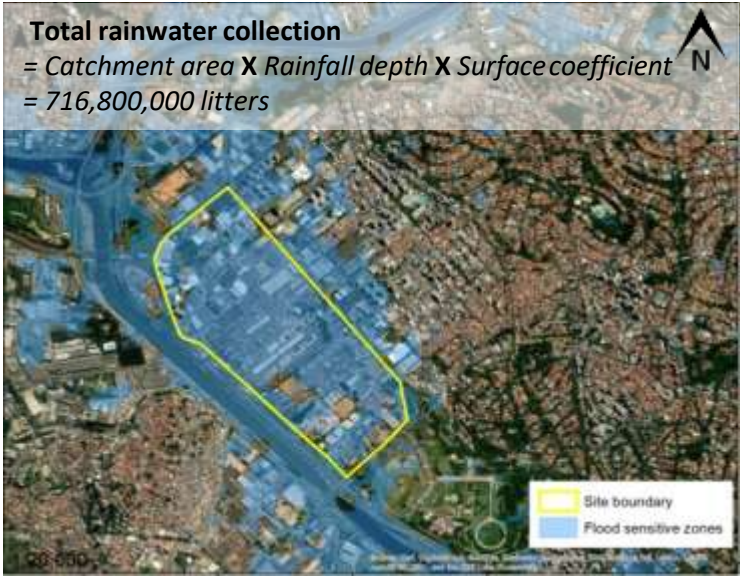
Site Analysis



Land Surface Temperature
(Ricardo Vieira et al, 2014)



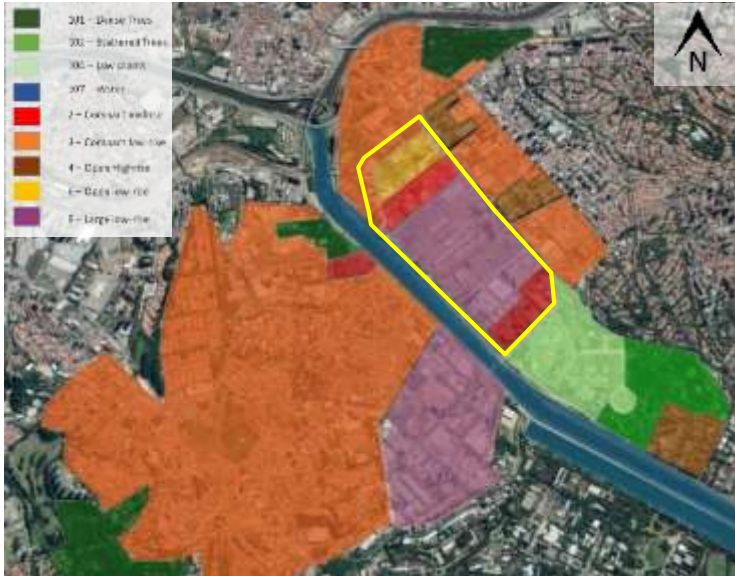
Housing development Sites



Rain water Accumulation area

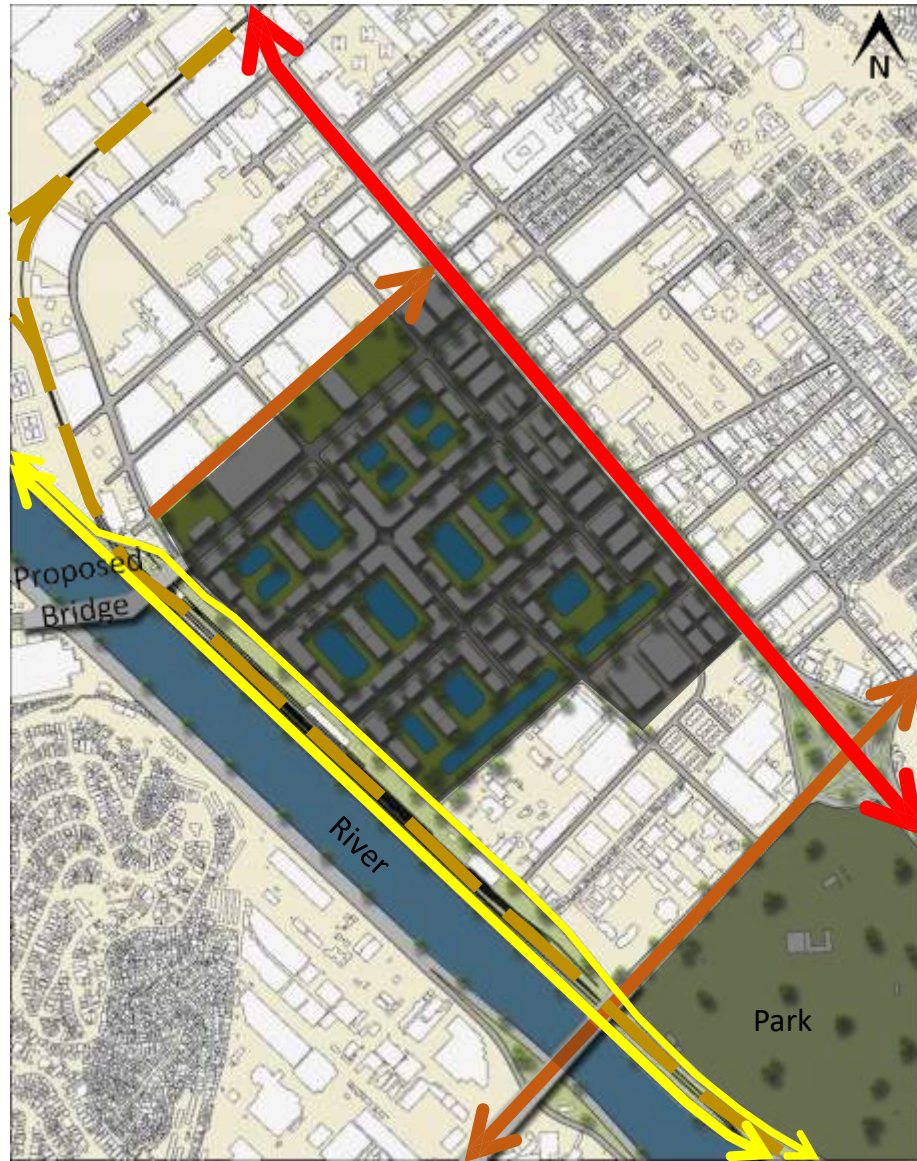


Site and the Context

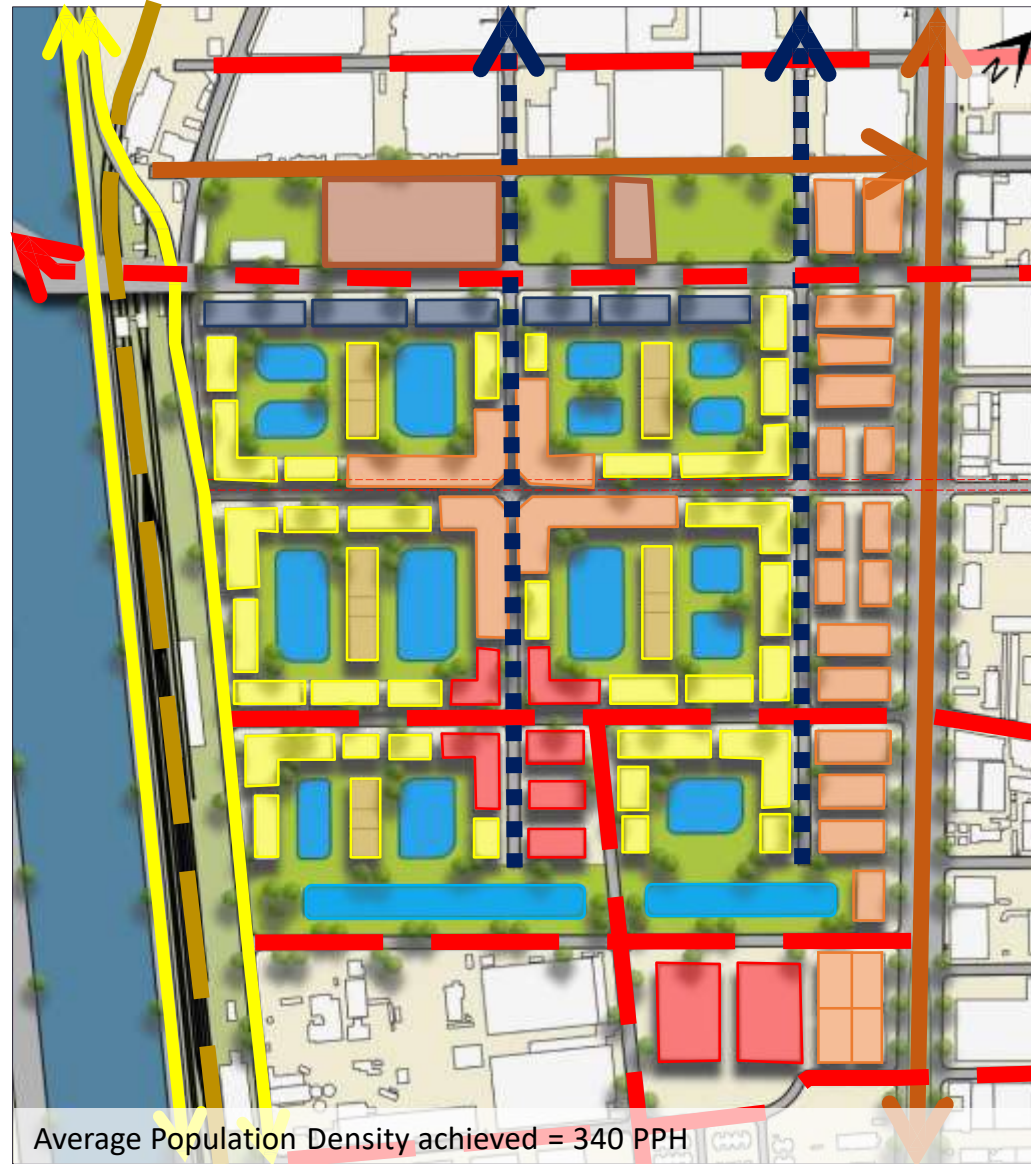


LCZ - Site and its Surroundings

Design

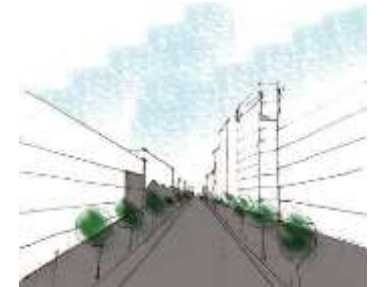


Proposed Master Plan



Average Population Density achieved = 340 PPH

Proposed Zoning Plan



Shaded streets due to proper location and orientation of high rise buildings

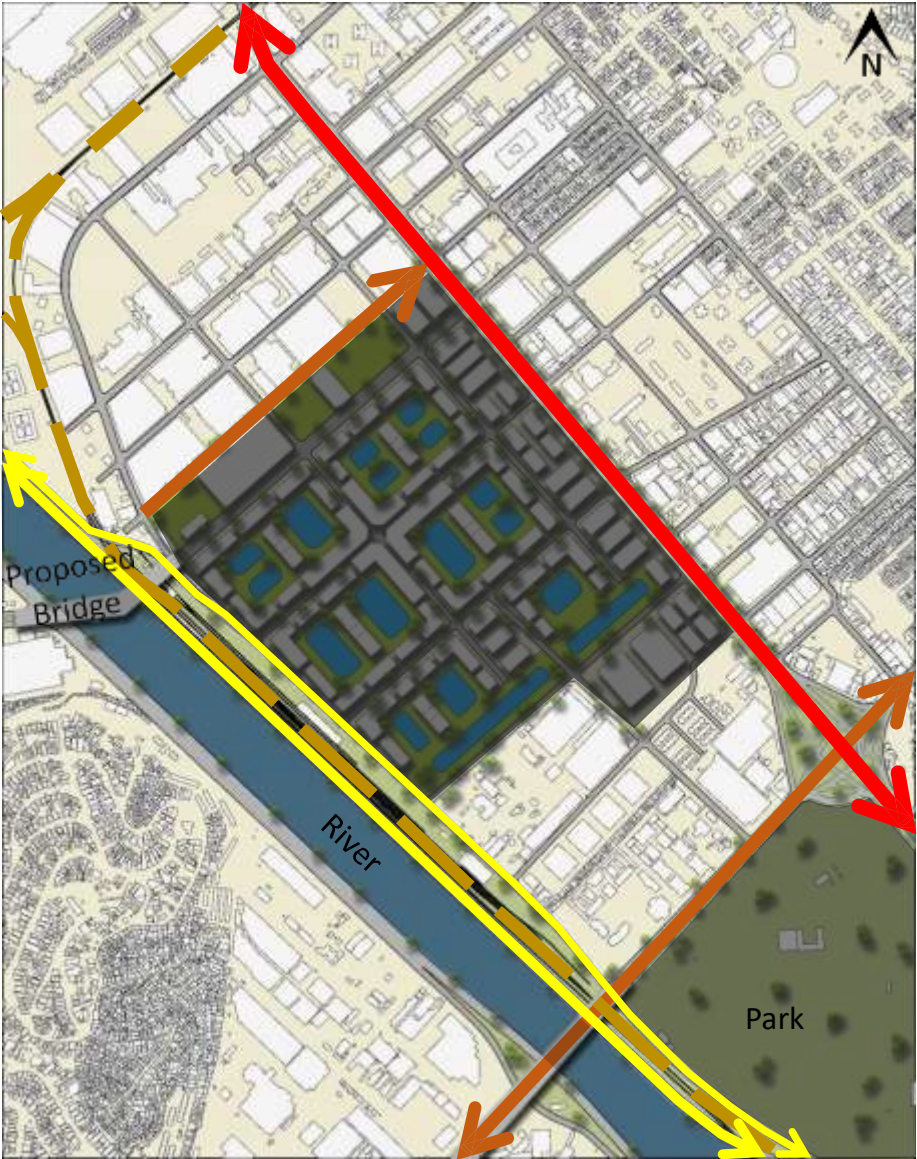


Stepped concept- wide gaps between buildings allow wind flow and divert the wind to

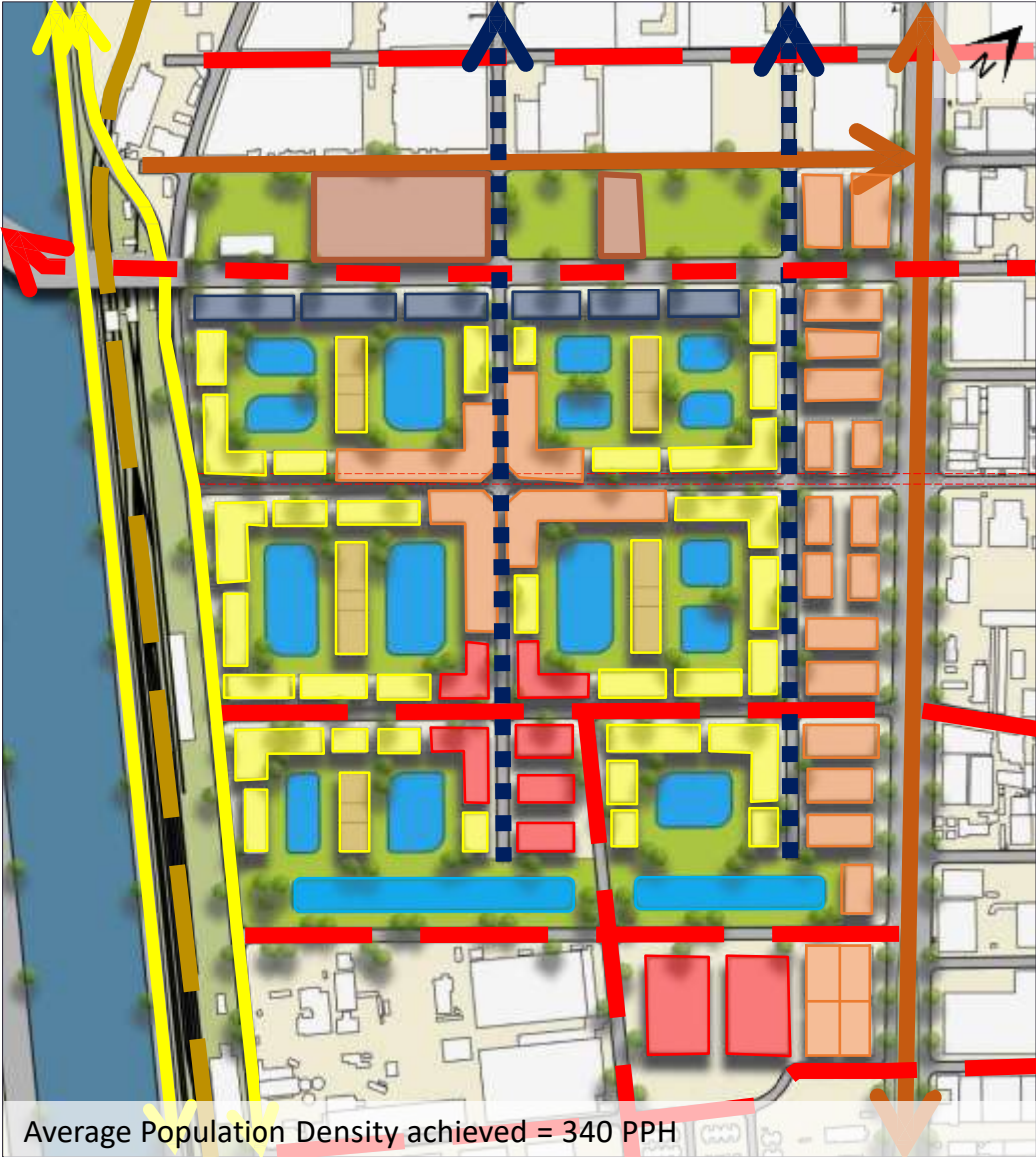


Vegetation and Shading improve the micro thermal comfort

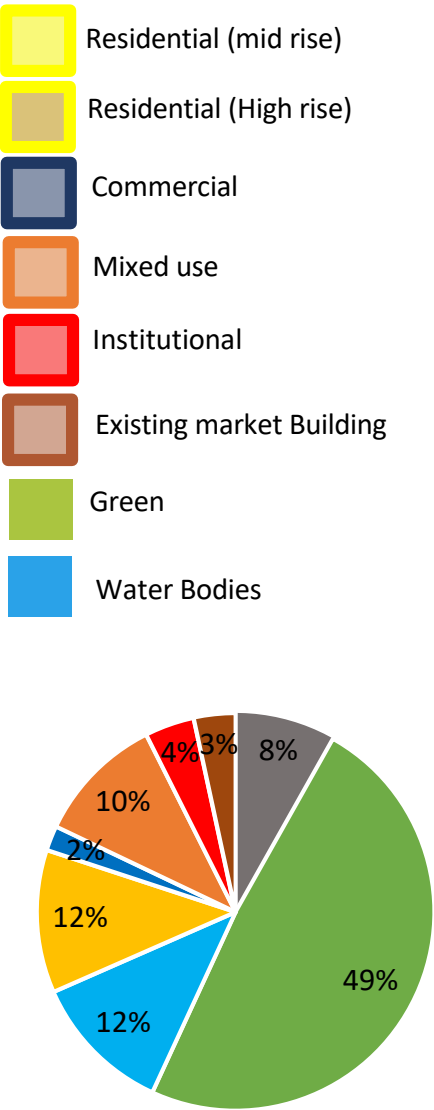
Design



Proposed Master Plan

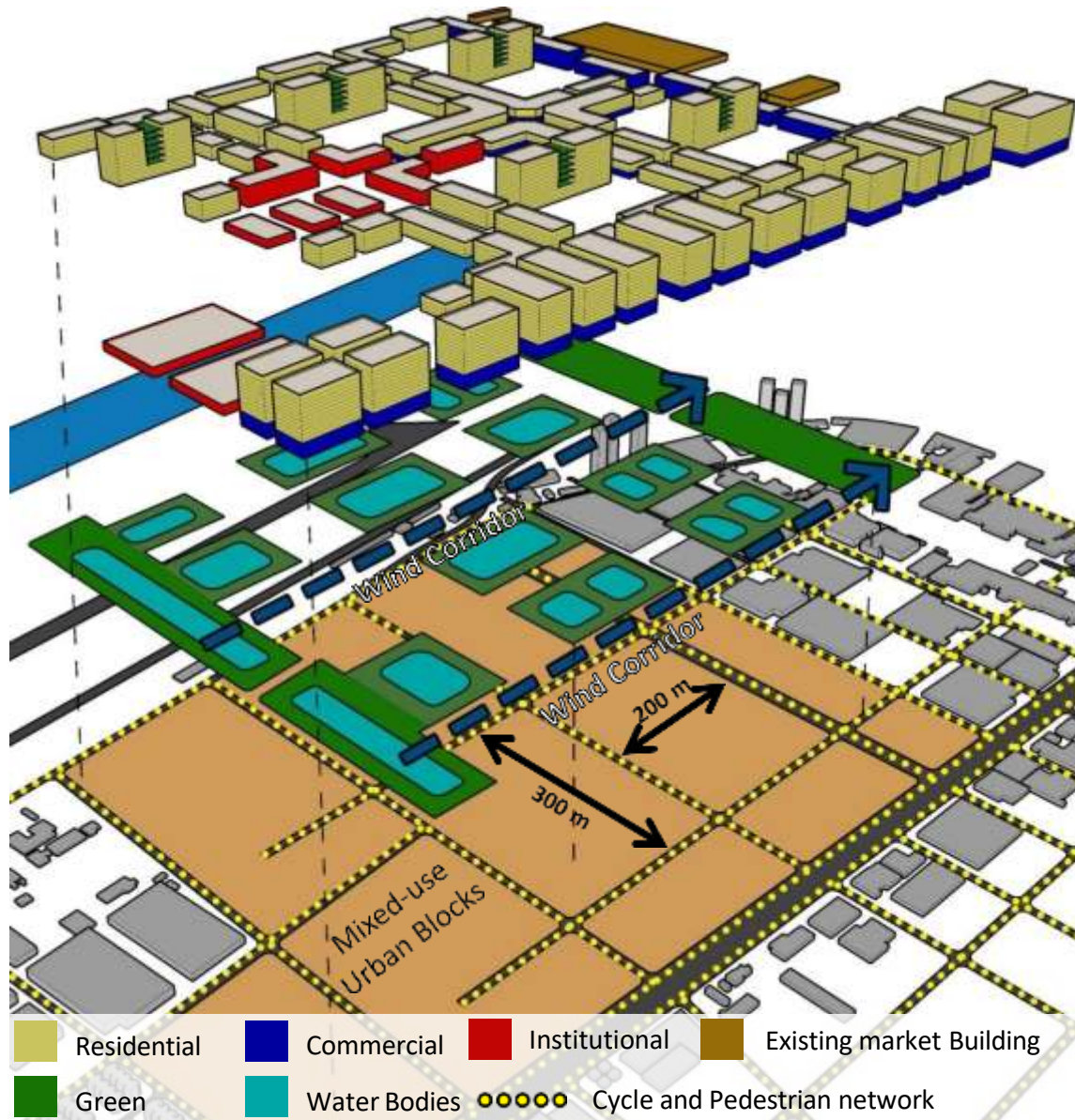


Proposed Zoning Plan

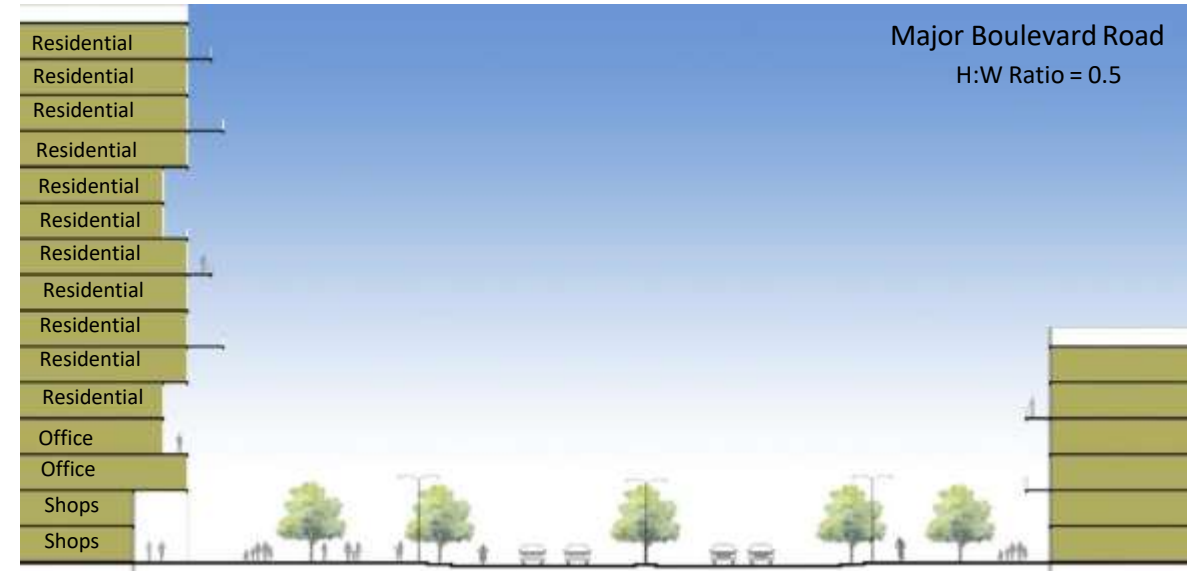
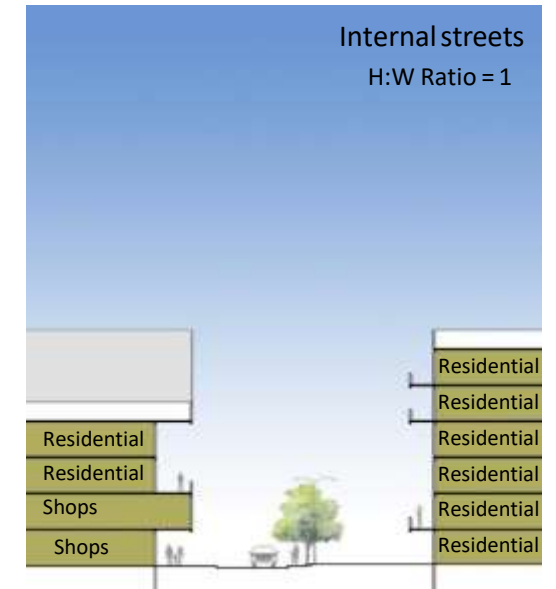
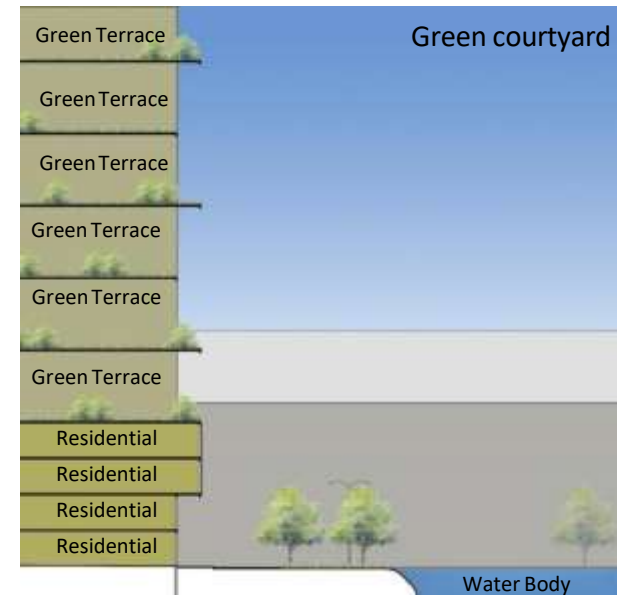


Land cover Distribution

Design

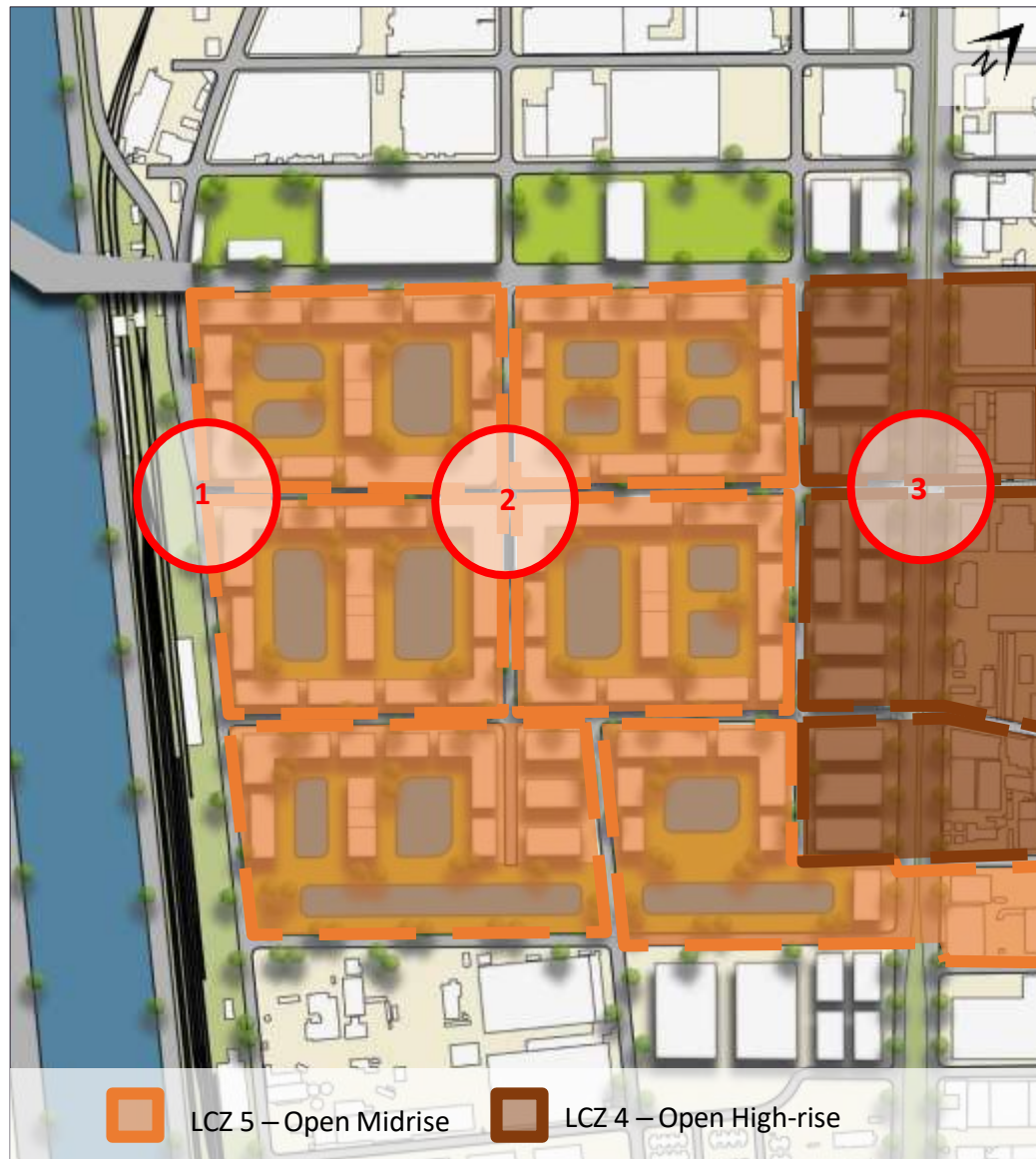


Exploded isometric view

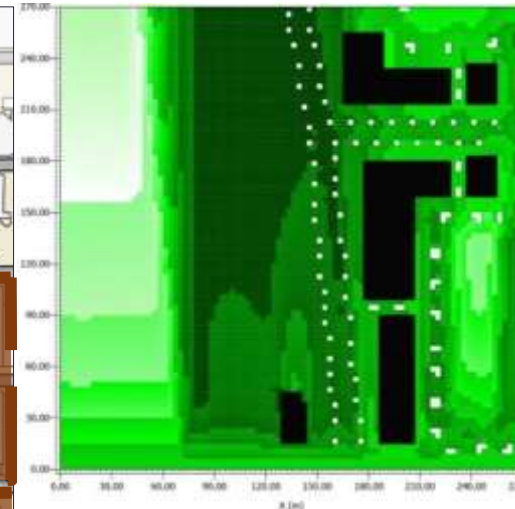


Sections

Design



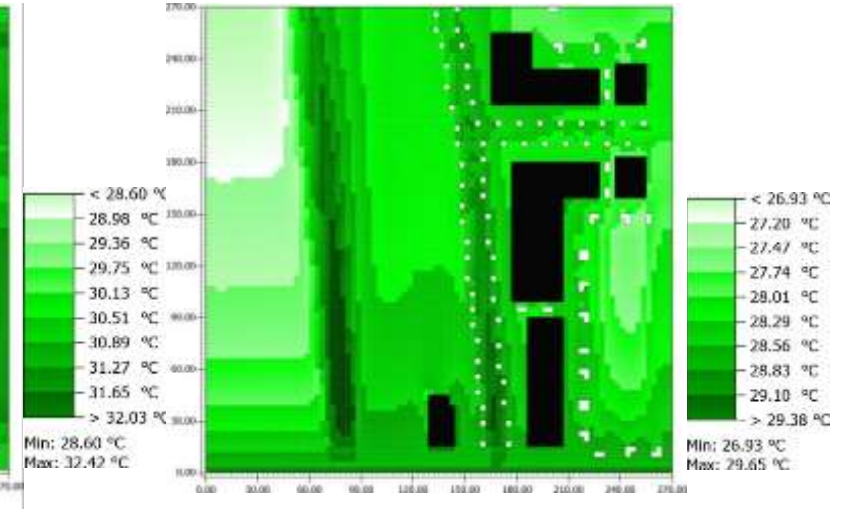
LCZ for the Proposed Master Plan



Receptor point 1

Date : 16-01-2020

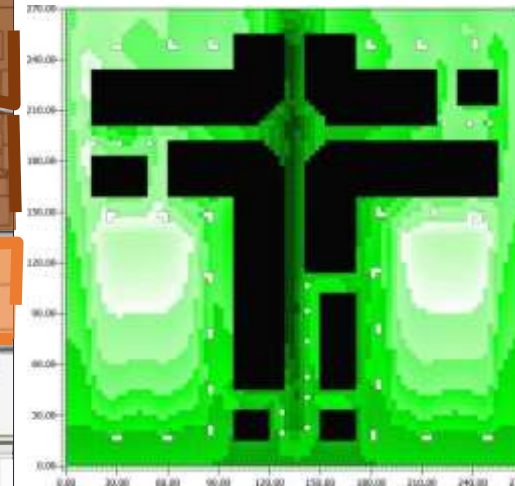
Time : 15.00



Receptor point 1

Date : 16-01-2020

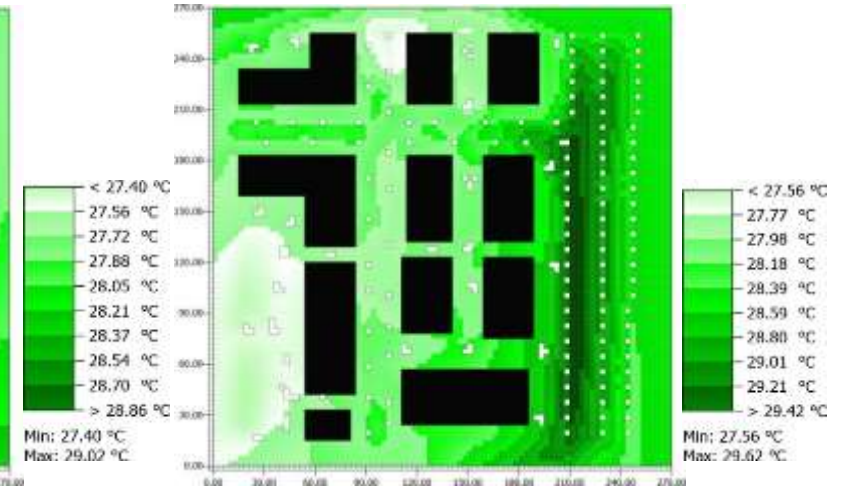
Time : 10.00



Receptor point 2

Date : 16-01-2020

Time : 10.00



Receptor point 3

Date : 16-01-2020

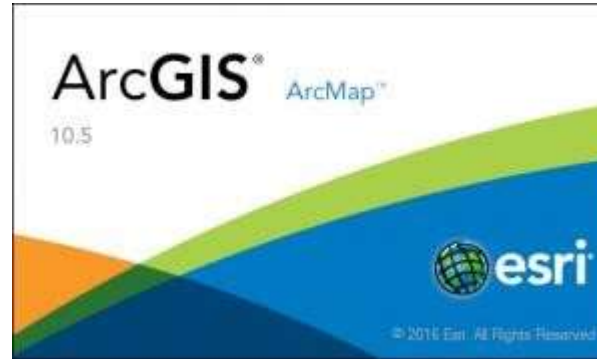
Time : 10.00

Min temperature: 21 degC
Max temperature: 32 degC

Software used for the coursework



Autodesk - Auto CAD



Esri - ArcGIS



SAGA - GIS



Google Sketch up



Adobe Creative Suite

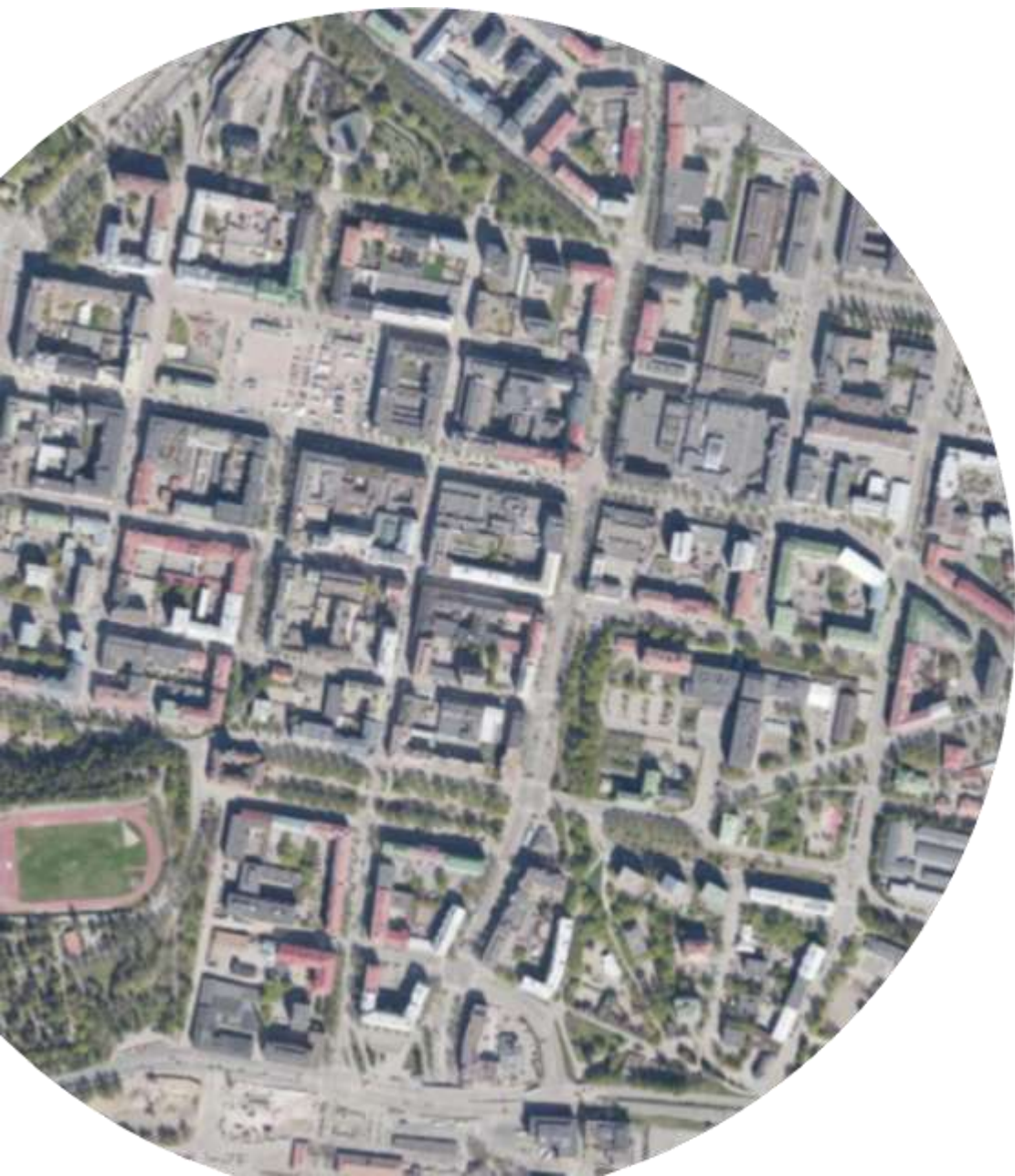


ENVI-MET



Urban and Interactive planning

7 MUrCS Students + 3 Finnish Students



Safety And Security Development Of Lahti City Centre

APPROACH OF PROJECT

My Everyday Places and Travel
Experience in Lahti

II

Arjen Paikat ja Reitit Lahdessa

KYSELY LAHDEN KESKUSTASTA
Raportti karttakyselyn tuloksista

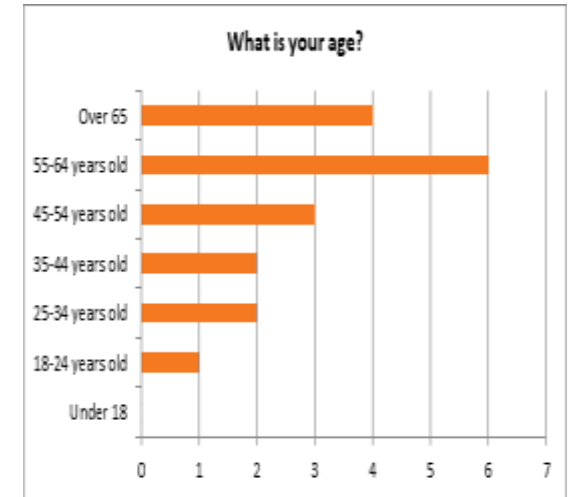
Previous
study analysis



Questionnaire
preparation



Online Survey
& Field Visit

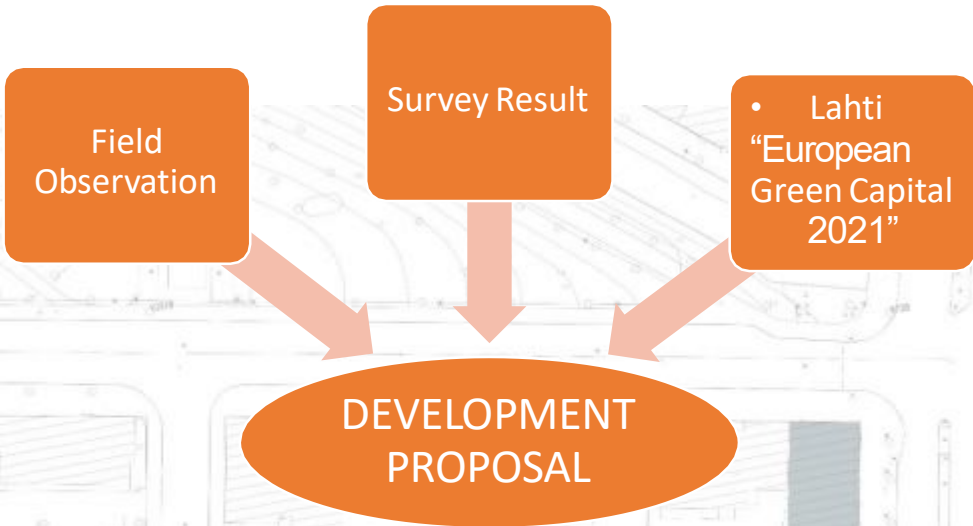


Result &
Report

FIELD STUDY

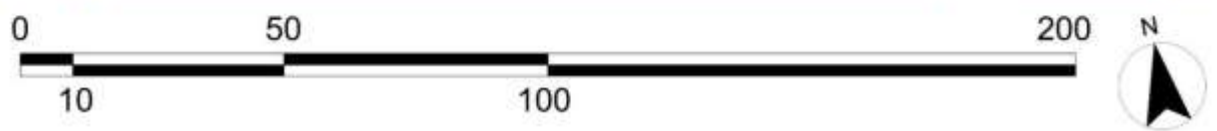
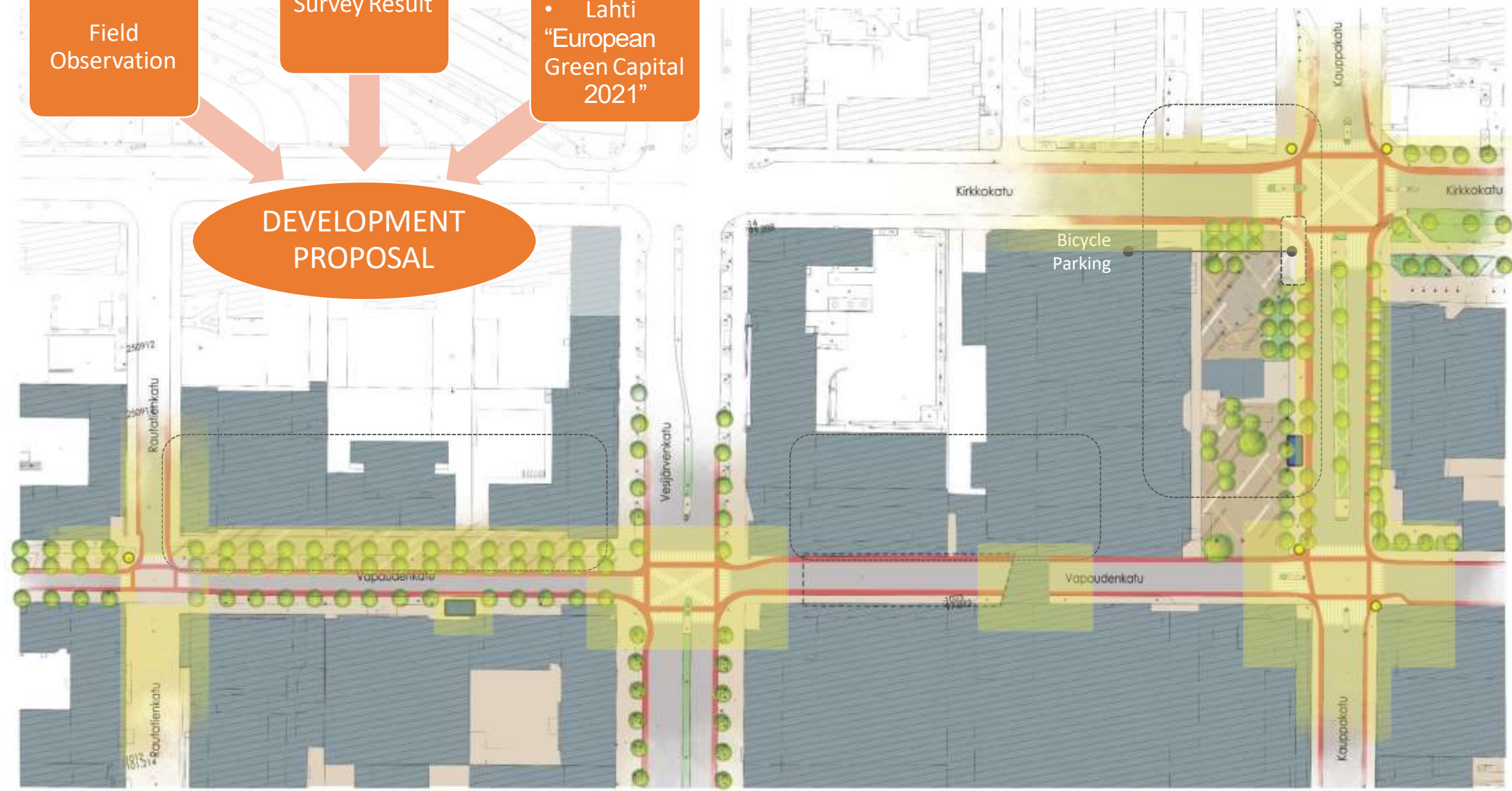
- Altori
- Railway Station
- Vapaudenkatu & Hansa Square
- Rautatienkatu





LEGEND

- Covered Bus Stop
- Traffic Light
- Bike Lane
- Multi-use Area
- Destination

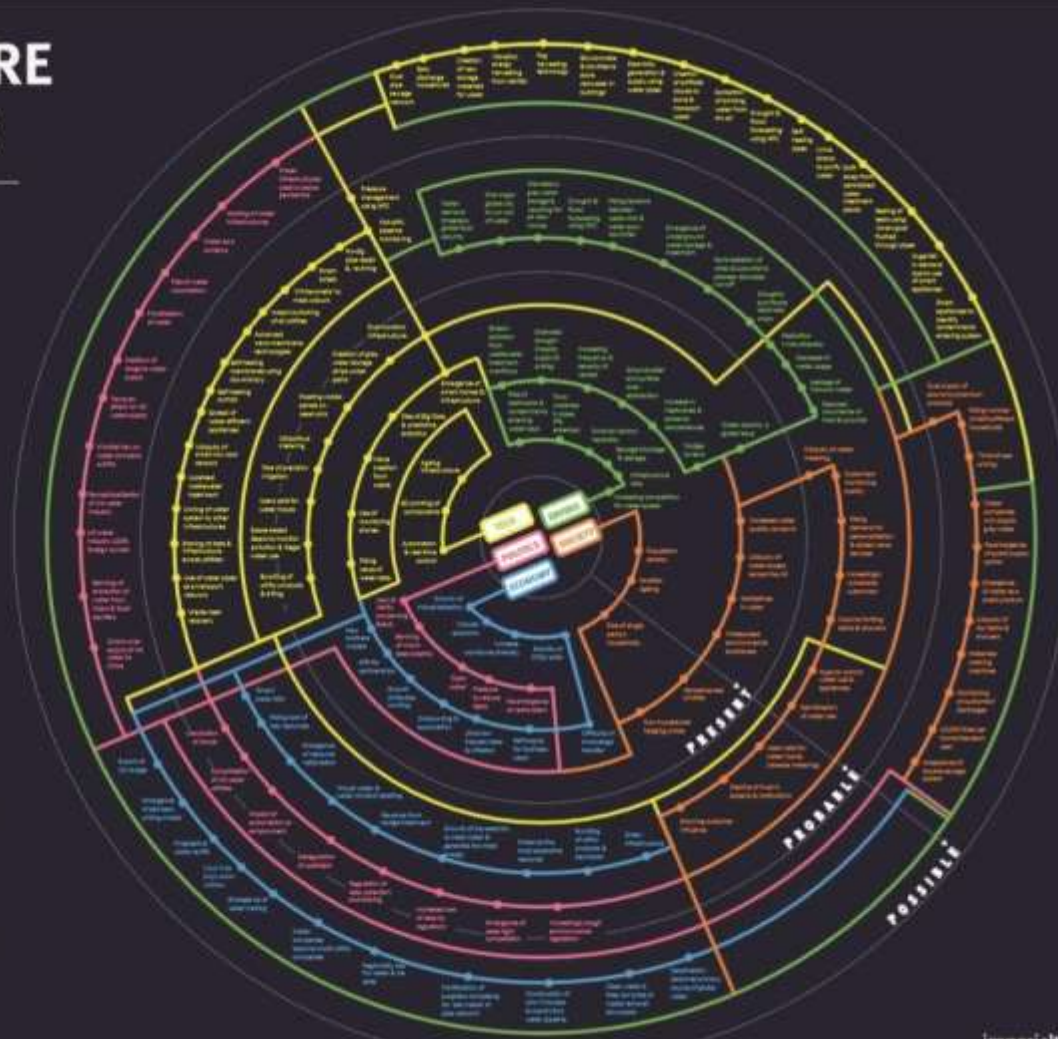


MASTER PLAN

THE FUTURE OF WATER

A TIMELINE FOR THE UK

- SOCIETY
- TECHNOLOGY
- POLITICS & REGULATION
- ECONOMY
- ENVIRONMENT



Developed in September 2012
by Imperial Tech Foresight with academic input
from Ana Mijic and Christoph Meier

Present
Defined as existing now or foreseeable
(by 2025)

Probable
Defined as occurring with a more than 50 per cent
probability by or before 2050.

Possible
Defined as potentially occurring (i.e. not impossible)
by or before 2100.



imperialtechforesight.com

Societal change and future foresight methods

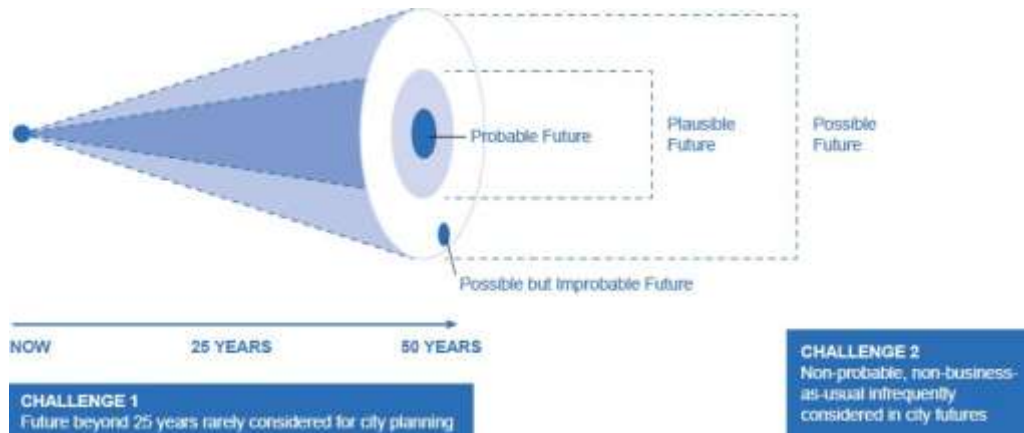
9 MURCS Students + Finnish Students

FUTURE FORSEIGHT IN GENERATING CITY VISION

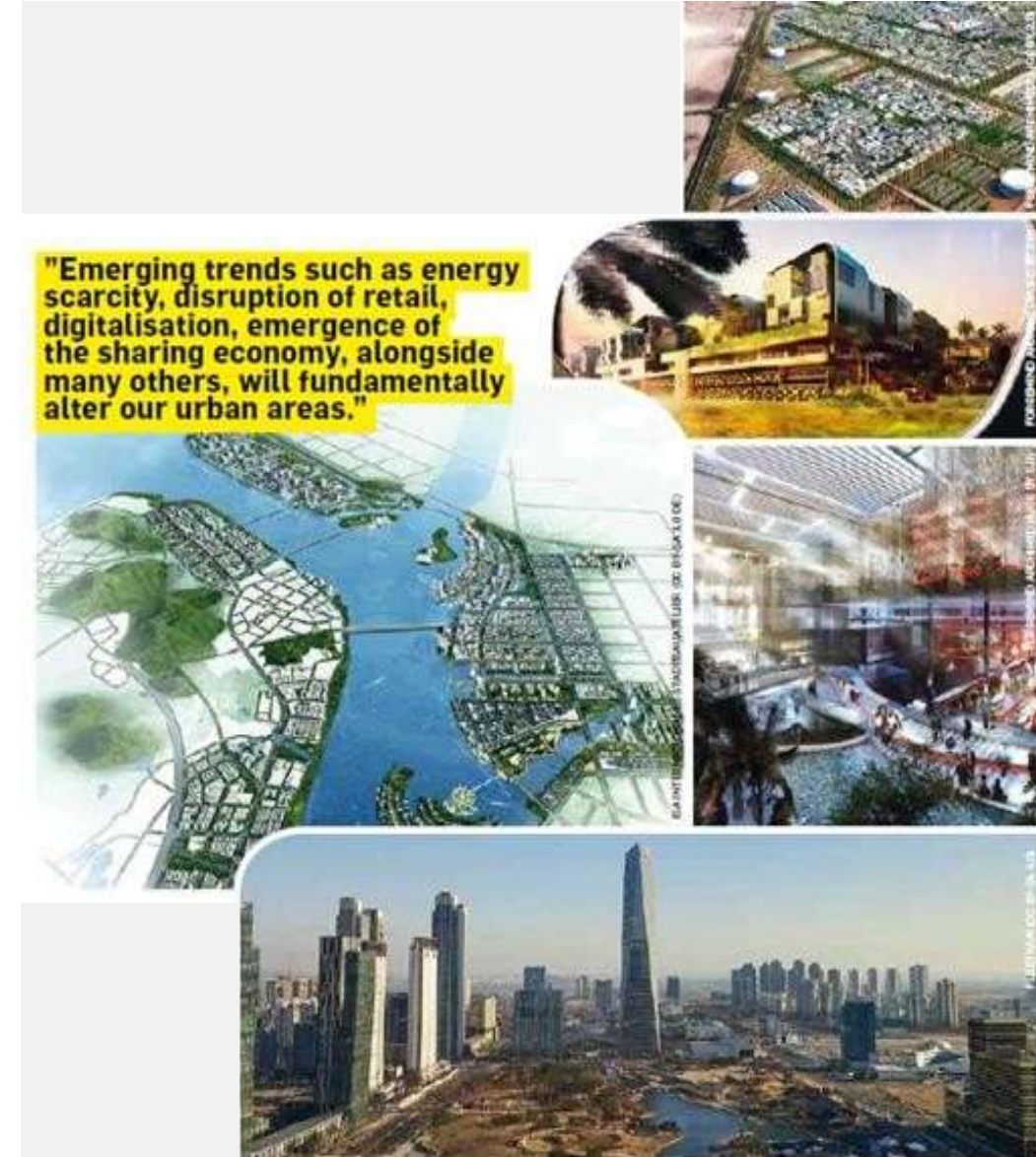
To design long-term solutions that ensure no one is left behind, it is necessary to consider the possible alternative futures that lie ahead. Strategic foresight, an approach to think systematically about the future, can support actors in development co-operation to engage with uncertainty and develop solutions that meet both existing and future needs. It allows them to sense and shape the future as it emerges, while building resilience, harnessing the potential of emerging technologies and other trends, and mitigating future risks.

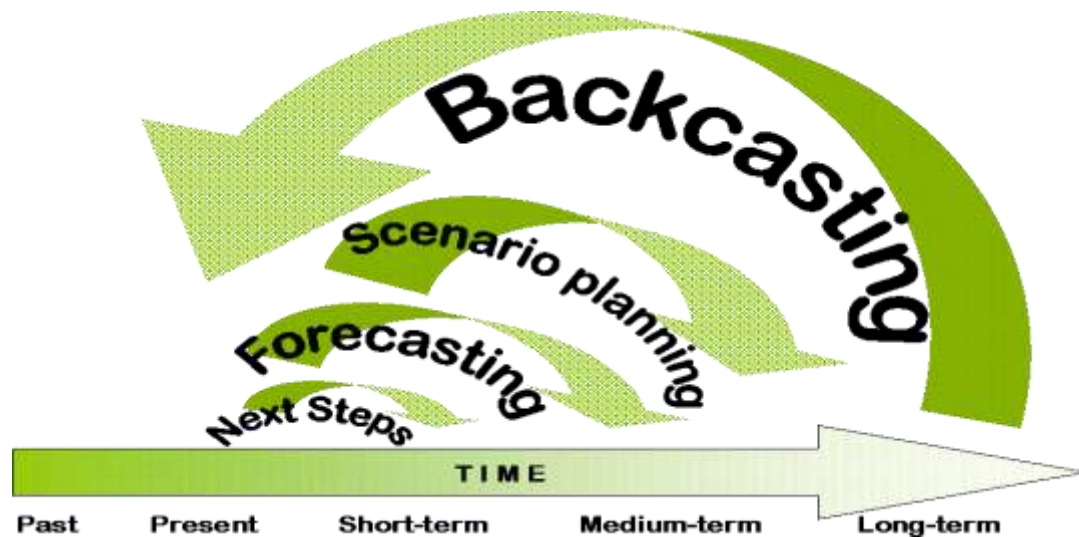
Source: Development Cooperation Report 2018

Challenges in long-term thinking about cities



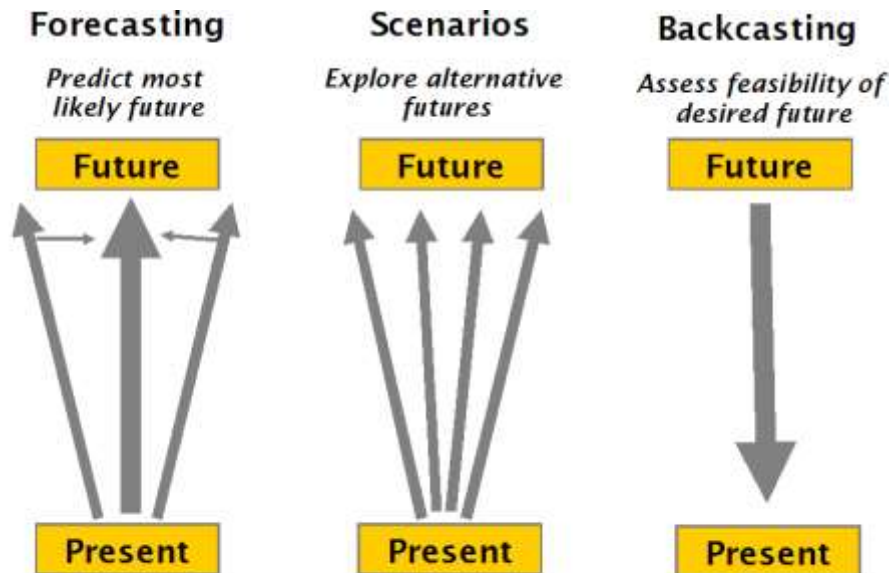
Source: Future of Cities: Foresight for Cities, www.gov.uk/go-science



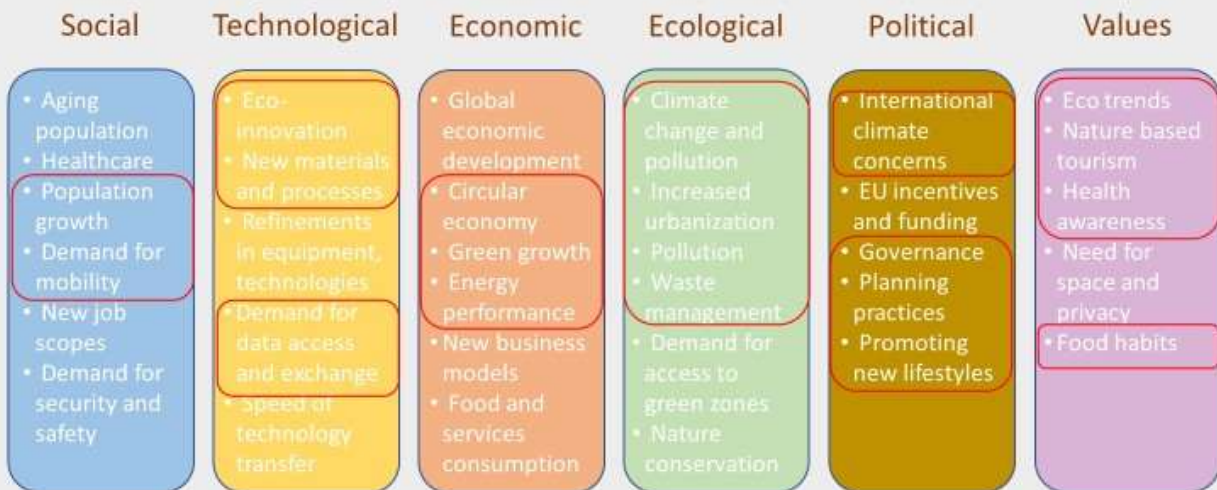


Benefits of future studies

Exposing local strengths	Creative exploration of long-term aspirations and policy options brings fresh perspectives on unique local assets, as well as the ways by which these can combine into a distinct future city brand and identity
Enhancing resilience	Collaborative sense checking of assumptions about future change leads to early identification of risk and builds relationships that enhance cities' capacities to cope with change and disruption
Strategy refinement	Increased clarity and alignment of place-specific aspirations, local assets, opportunities, and enhanced awareness of risks yield more robust strategic 'roadmaps' towards the future
Investor confidence	Active shaping by city leadership of future trajectories fosters external confidence in a city's management of its assets and risk. Compelling narratives about a city's long-term prospects further enhance its attractiveness to businesses and skilled workers
Strategic partnerships	Joint identification of future business and development opportunities across wider geographies builds coalitions and leads to greater data sharing and closer alignment of cities' policies
Tackling challenges	The future provides a safe space for engaging with persistent, politically charged challenges
Civic engagement	Creative engagement with public provides opportunities to demonstrate city leadership qualities and enhance civic pride



Drivers of Change for Sustainable Lahti: STEEP Framework



Scenario building

Characteristics	A (more than expected)	B (less than expected)	C (different than expected)
Economy	Green growth	Consumption economy	Bioeconomy
Energy performance	100 renewable energy for all sectors	Back to fossil fuels	New alternative energy sources
Population growth	Steady graduate increase	Unpredicted demographic situation (inc. migration)	Baby boom
Mobility	Active and green transportation Sharing approach	Slow change in transportation patterns, traditional vehicles	High quality carbon free mobility
Pollution	Zero emissions, zero waste	Poor air quality, water management	Emergence of new technologies
Healthy and safe environment	Priority of sustainable planning solutions Active community Health prevention	Urban sprawl, dense and active urban environment,	Alternative practices: urban gardening, municipal protected areas
Role of values and trends	Environmental awareness, eco-friendly lifestyle, smart consumption, carbon trading	Individualism, overconsumption Adaptation rather than mitigation	Lifestyles based on personal ecological footprint, no emissions from consumption

Sustainable Lahti: A scenario building exercise

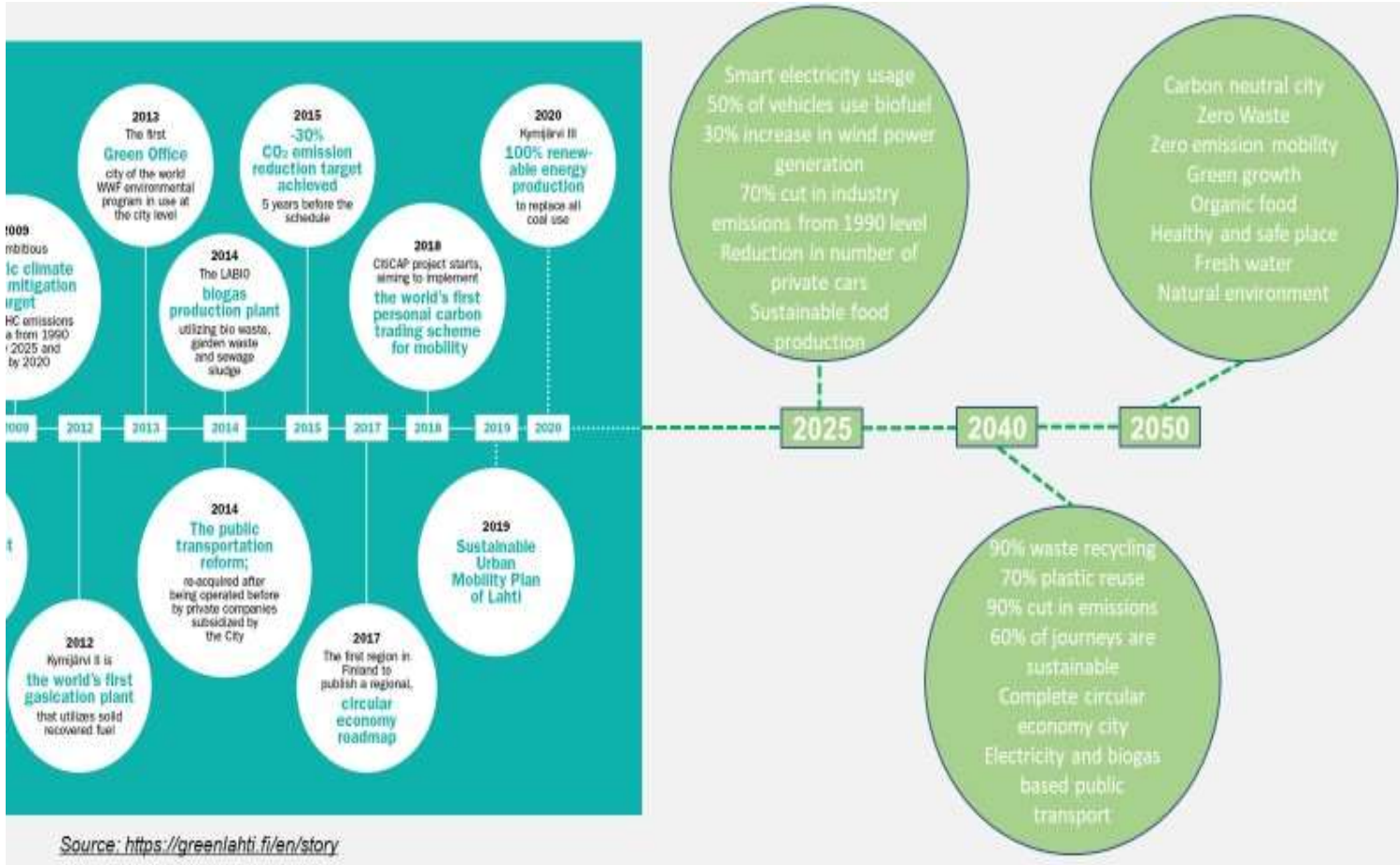
Scenario analysis : SWOT approach

Scenario	Strengths	Weaknesses	Opportunities	Threats
Scenario A	<ul style="list-style-type: none"> Municipality support and public participation Comfortable for living Attractive for tourists Healthy population Stable and balanced economy 	<ul style="list-style-type: none"> Dependence on policy priorities and global economy trends Promotion of the e-mobility could be complicated 	<ul style="list-style-type: none"> Further development and promotion of renewable energy Promotion of new mobility options New environmental technologies Enhanced energy efficiency in buildings Development of car sharing and social biking 	<ul style="list-style-type: none"> No willness to change commuting habits Return to coal in energy sector No public support of smart consumption
Scenario B	<ul style="list-style-type: none"> Stable GDP increase Economic growth More choices for consumers Diverse employment opportunities 	<ul style="list-style-type: none"> Environmental pollution Decrease in morbidity and mortality Dependence on nonrenewable resources Impact on climate 	<ul style="list-style-type: none"> Boosts creativity and innovation New technologies 	<ul style="list-style-type: none"> Social segregation Overpopulated cities Decrease in quality of life Environmental collapse Loss of moral values
Scenario C	<ul style="list-style-type: none"> Innovative low emission economy High standards of living Clean and safe environment Independence from fossil fuels Climate mitigation 	<ul style="list-style-type: none"> Dependence on policy priorities and global economy trends Reliance on active public participation Reliance on technology 	<ul style="list-style-type: none"> Cross discipline research and innovation New scope of jobs New mobility patterns Enhancements in technologies New lifestyles and values Carbon free food production 	<ul style="list-style-type: none"> Rapid population growth Aging society Global political crisis

Sustainable Lahti Scenario 2050

Features	A + C (more than expected) +(different than expected)
Economy	Green growth and bioeconomy, new consumption models, carbon trading market
Energy performance	Carbon neutral energy production (biogas + geothermal energy)
Population growth	Steady graduate increase
Mobility	High quality carbon free mobility Sharing approach
Pollution	Zero emissions, zero waste, 80% of plastic recycled, successful stormwater management
Healthy and safe environment	Smart growth Active community participation Health prevention Dense but high-quality urban environment Protected blue and green infrastructure
Role of values and trends	Smart consumption Global social responsibility Predominance of vegetarian lifestyle

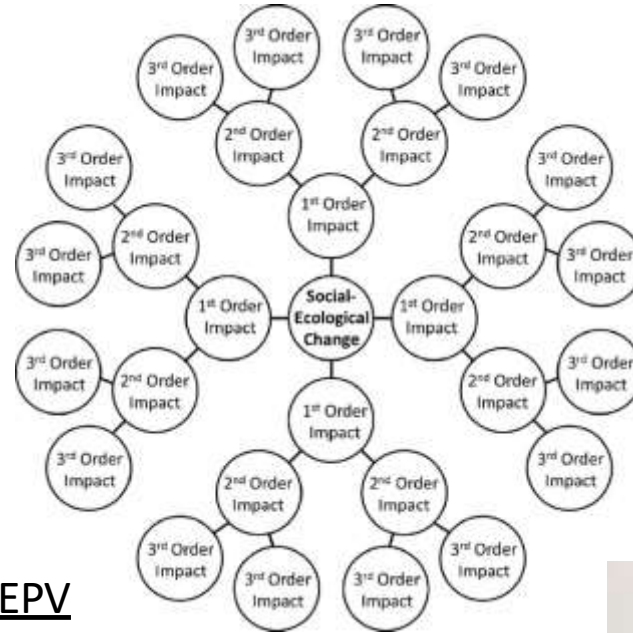
Sustainable Lahti: short- and long-term priorities



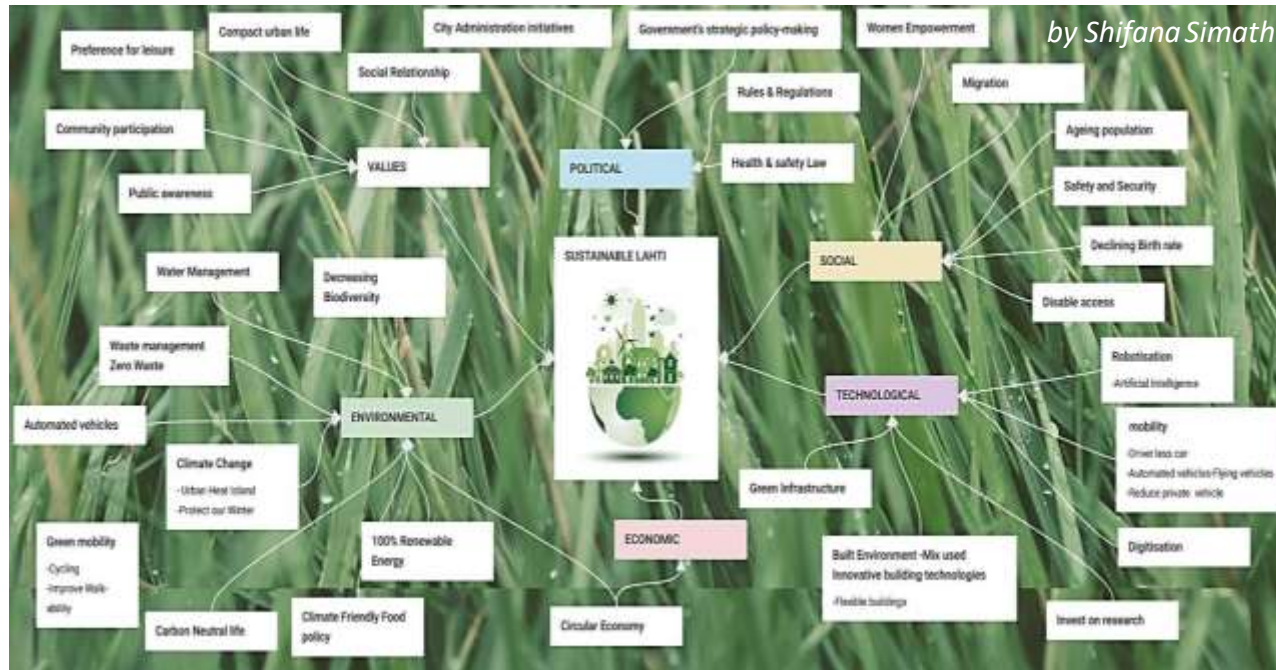
PESTEL



Future wheel



STEEPv



by Shifana Simath

Megatrends and drivers of change



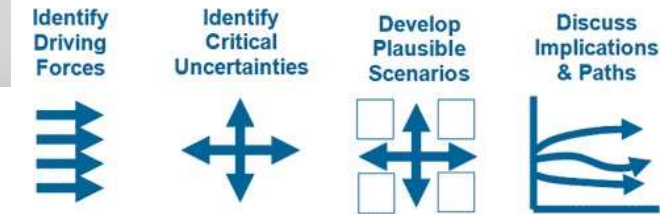
by Melis Sucher

<https://www.smartlahti.fi/>

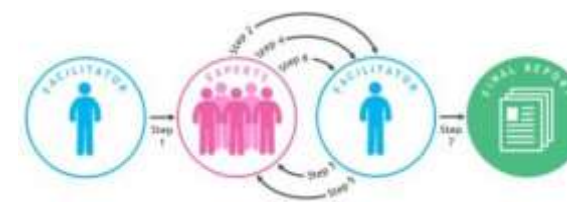
Weak signals



Scenario development process



Delphi method



Art-based methods





Thank you