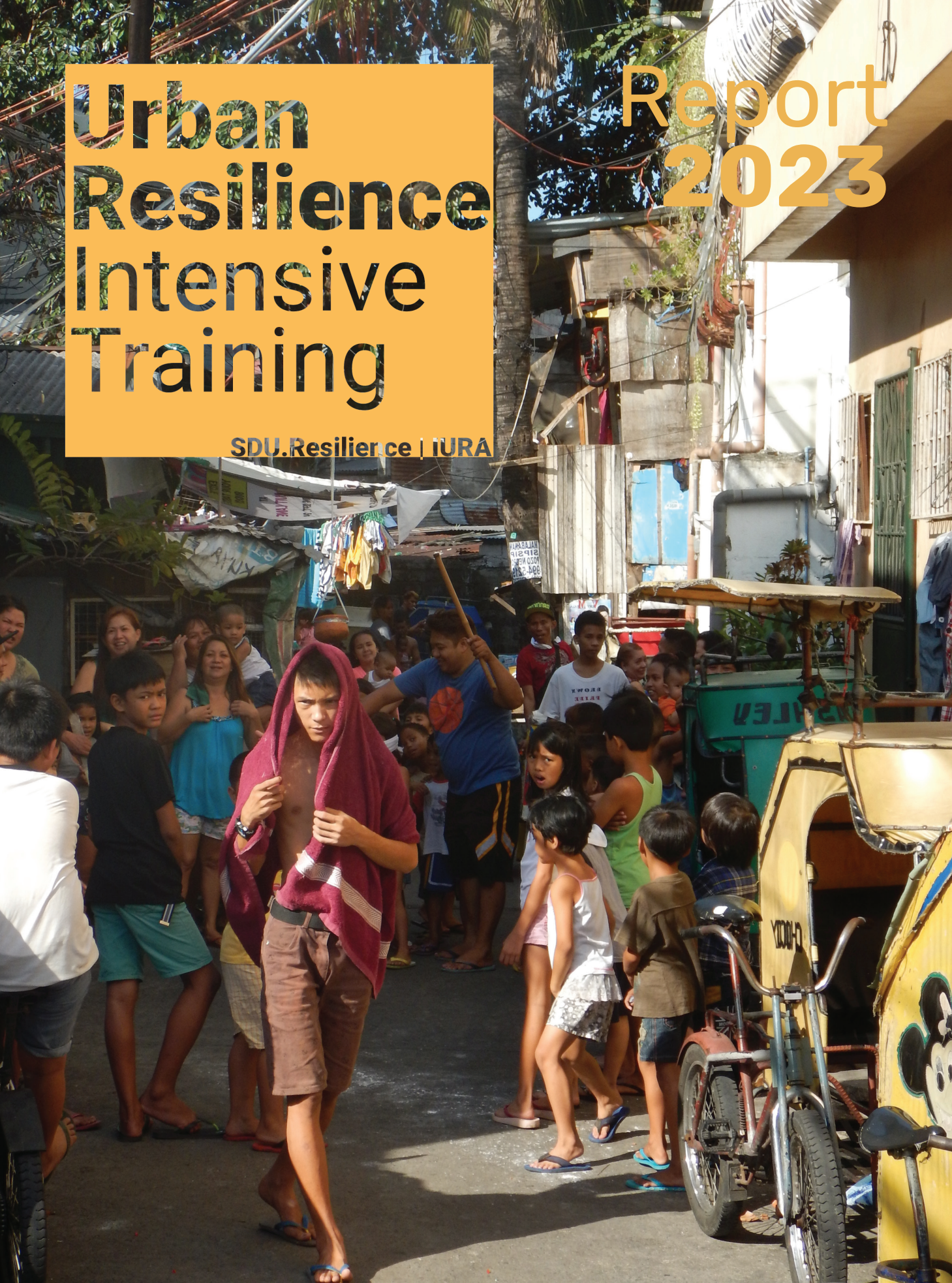


# Urban Resilience Intensive Training

SDU.Resilience | IURA

# Report 2023









The SDU.Resilience Research Group would like to express its gratitude to all Partners, organizations and individuals that participated in the Urban Resilience Intensive Training 2023. 24 organizations and more than 30 experts, practitioners and researchers contributed to the training.

SDU.Resilience is grateful for the valuable inputs received from the following organizations and institutions: United Nations Human Settlements Programme (UN-Habitat), United Nation Office for Disaster Risk Reduction (UNDRR), ICLEI – Local Governments for Sustainability, World Wild Fund (WWF), Recycling the City Network – RECNET, The Resilience Shift, Nordic Urban Resilience Institute (NURI), United Nations Educational, Scientific and Cultural Organization (UNESCO) – Intergovernmental Hydrological Programme, Aalborg University, BUILD Department of the Build Environment, Bloxhub, Càtedra UNESCO de Sostenibilitat (Universitat Politècnica de Catalunya), International Centre for Climate Change and Development (ICCCAD), Climate Service Center Germany – GERICS, UN Climate Technology Centre & Network (CTCN), IUAV University of Venice, Responsible Risk Resilience Centre (R3C) Politecnico di Torino, Adapt Chile, TU Delft University, ARUP, Asian Disaster Preparedness Center (ADPC), International Organization of Migration (IOM), African Development Bank (AFDB), Urban and Municipal Development Fund, Global Green Growth Institute (GGGI), Resallience, United Nations University – Institute for Environment and Human Security (UNU-EHS).

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# Acknowledgement







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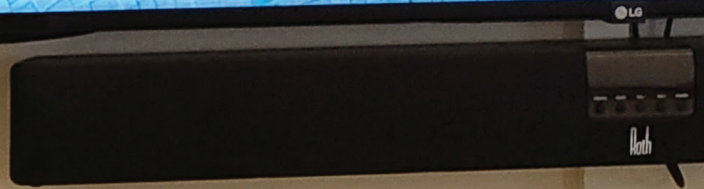
**Partners**







Movement in Cities: Shanghai, China  
Shanghai City  
China





# Lecturers & Lectures

day  
1



**Nicola Tollin**

Professor wsr in Urban Resilience  
UNESCO Chair on Urban Resilience  
University of Southern Denmark (SDU)

**Lecture**

Urban resilience and process design for urban resilient transition



**Chinthaka Ganepola**

Asian Disaster Preparedness Center  
(ADPC)

**Lecture**

Climate and Disaster Risk Management in Urban Areas. Terminologies and Case Study.



**Cristóbal Reveco Umaña**

Climate Service Center (GERICS)  
Adapt-Chile

**Lecture**

Systems thinking

day  
2



**Jacob Rasmussen**

Roskilde University (RUC)

**Lecture**

Wicked problems and Urban Resilience.



**Sebastian Mernild**

University of Southern Denmark (SDU)

**Lecture**

IPCC Update: Selected Assessments. Human-caused climate change is already affecting extremes, in every region.



**Fruzsina Straus**

United Nations Human Settlements  
Programme (UN-Habitat)

**Lecture**

Strengthening the Weakest Link – Building Urban Resilience in Informal Areas: Case studies from Africa



**Nicolla Tollin**

Professor wsr in Urban Resilience  
UNESCO Chair on Urban Resilience  
University of Southern Denmark (SDU)

**Lecture**

Urban Climate Action. The urban content of the NDCs: Global review 2022.



**Lecture**

Long-Term Strategies (LTS)

**Stelios Grafakos**

Global Green Growth Institute (GGGI)



day  
4

**Lecture**

Nature-based solutions for building urban resilience

**Simone Sandholz**

United Nations University (UNU-EHS)



**Lecture**

Climate Change Multilevel Governance and  
Multilevel Action

**Maryke van Staden**

ICLEI - Local Governments for  
Sustainability



day  
5

**Lecture**

Urban Resilience in practice

**Pasquale Capizzi**

ARUP



day  
6

**Lecture**

Design for play, care and inclusivity – Social Value and  
Equity by Design

**Sara Candiracci**

ARUP









# Training design

*Rationale*

Today, over 50% of the world's population lives in urban areas, and cities account for 60-80% of global energy consumption and the same level of greenhouse gas emissions, producing 50% of global waste, consuming 75% of natural resources and producing 80% of global GDP.

Cities and their populations are vulnerable and increasingly exposed to rapid and slow on-setting climate and environmental disasters, whose frequency and intensity are growing exponentially. Yet, cities are also major centres of economic activity, social life and culture, innovation and knowledge-creation.

Urban resilience aims to increase the ability of urban systems to respond systemically and dynamically to present and future shocks and stresses related to major global challenges: unsustainable development patterns, rapid and unplanned urbanisation, climate change mitigation, and adaptation. Urban resilience is instrumental in addressing both causes and effects of these major global challenges, re-thinking how cities are designed, planned and managed, and fostering innovation. Scientific research on urban resilience has grown exponentially in the last decade. Parallely, many cities worldwide started developing resilience-related plans and actions, following the recommendations and prescriptions of national and international policies, such as the Sustainable Development Goals, the Paris Agreement, the New Urban Agenda and the Sendai Framework for Disaster Risk Reduction.

The key challenge for urban resilience is to co-develop and harmonise scientific and practice-led knowledge to support informed and science-based decisions and policymaking to enable our cities to evolve and innovate. Cities in the Global South and North will need to re-think how they are designed, planned, managed and lived. However, many lessons can already be distilled and can be used to strengthen the adaptive capacities of cities to face multiple and even concurrent global crises.



*Course  
description*

The training builds the core skills and competencies for urban resilient transition, including fundamentals of urban resilience in research, climate science, international and national policies, and resilience in action. The participants acquired core competencies in system thinking, system dynamics, transition theory and transformative strategies/actions.

The training adopted a process design methodology, through which the participants will learn about systems and stakeholders' analysis methods, future scenarios (forecasting, visioning and backcasting), and strategic and action planning.

The training was funded on problem-based learning. The participants, divided into small groups, responded to a specific challenge, applying particular tools and methods through a system thinking approach.

This year's challenge was focusing on just and green transition in the frame of climate change and how to enhance urban resilience through transformative strategies and actions.

The training also focused on key cross-sectoral issues: multi-level governance, nature-based solutions, finance, appropriate technology, participatory processes and stakeholder involvement, generation of co-benefits, urban metabolism and circular economy.

The highly interactive programme includes keynotes from international speakers, peer-to-peer sessions among participants, field visits to best practices in Copenhagen and group work on specific cities worldwide.

# *Goal and Objectives*



## **Goal**

The training aimed at expanding the participants' knowledge on policies, tools, strategic and action planning, responding to the need for systemic change in tackling global challenges, for a just and green transition, focusing on climate change. Thus, the training brought together transdisciplinary knowledge and perspectives on urban resilience from science, policy, and practice, building the necessary skills and competencies to respond to the need for a systemic transformation to tackle global challenges relevant to the Global South and North. Through a system thinking approach, the program focuses specifically on core topics such as resilience analysis and profiling, future scenarios, and strategic and action planning, as well as on specific issues such as ecosystem services, multi-level governance, nature-based solutions, stakeholders' analysis and participation.

### **The participants developed their knowledge on:**

- > The basis of urban resilience and global challenges science and the development of research in different disciplinary contexts
- > International policies (Sustainable Development Goals, Paris Agreement, New Urban Agenda and Sendai Framework for Disaster Risk Reduction)
- > Urban resilience practices with specific case studies from cities worldwide, including strategic plans, action plans, and technological solutions
- > Cross-sectorial and thematic issues

### **The participants developed competencies based on system thinking through a process design methodology for urban resilience, including:**

- > System mapping & stakeholders' analysis
- > Analyzing current and future urban trends and drivers at local and global level
- > Future scenarios methods: visioning and backcasting
- > Strategic and action planning

*Training  
structure*



## Training calendar

The training took place on-site at the SDU building in Copenhagen's city centre.



## Type of activities

The training primarily has four types of activities: lectures, peer-to-peer learning, group work, and field trips. The lectures are both done from SDU.Resilience Researchers and Professors and external experts and Professors.

The peer-to-peer learning format is short presentations of projects or work activities of the participants. The peer-to-peer learning sessions are meant to enhance through sharing experiences and to create a network between the participants. The group work takes space in the seven-day training. It is where the participants, divided into groups, have to develop, through four phases, a resilience strategy and action plan for a city. The field trip is part of the educational tool to allow the participants to learn through seeing real solutions to boost a resilient city.







# Challenge + Case studies



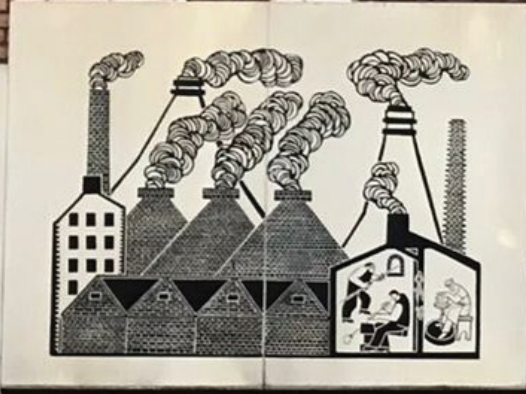


This year's challenge is focusing on just and green transition in the frame of climate change and how to enhance urban resilience through transformative strategies and actions.

The environmental resources crisis and the fragility of cities and urban communities manifest in various forms. These include a lack of multi-level governance, an increase in global and local inequalities, limitations in evidence-based and science-based decision-making, crises in the globalized economy, and issues within the system of production and consumption. Additionally, there is a lack of preparedness in emergency response and planning, mainly when concurrent disasters occur.

The resources available globally to boost a green transition are a unique opportunity to accelerate a resilient transition of cities based on social and environmental justice criteria, re-thinking radically how we conceive, plan, design, manage, and live our cities in the face of multiple crises and global challenges.

We will need to explore trade-offs and co-benefits of systemic and integrated strategies and action, addressing both the causes and effects of the current urban multi-crisis and defining concrete opportunities to make our cities more resilient, livable and just by supporting local policies and actions that are evidence-based, inclusive and participatory.



# Process design



## Process design | scheme

### Diagnosis

- > Identify the case study;
- > Define the system based on the challenge;
- > Understand the elements and trends that make up the system, their relationships;
- > Define the stakeholder's involvement.

### Trends and Drivers

- > Understand worldwide trends and drivers;
- > Analyze and understand which trends and drivers are affecting your system;
- > Interpret the different elements' role and weight in your system.

## Visioning and Backcasting

## Strategy and Action planning

Define the vision of the realistic future and the vision of the (un)desirable future;  
Define the target future vision;  
Defining the milestones and key actions to reach the target future vision.

- > Identify the strategy and actions to achieve your final target future vision;
- > Defining the type of action, the stakeholders involved, the duration and some financial measures;
- > Draw the strategy map.







# Participants + group work

34

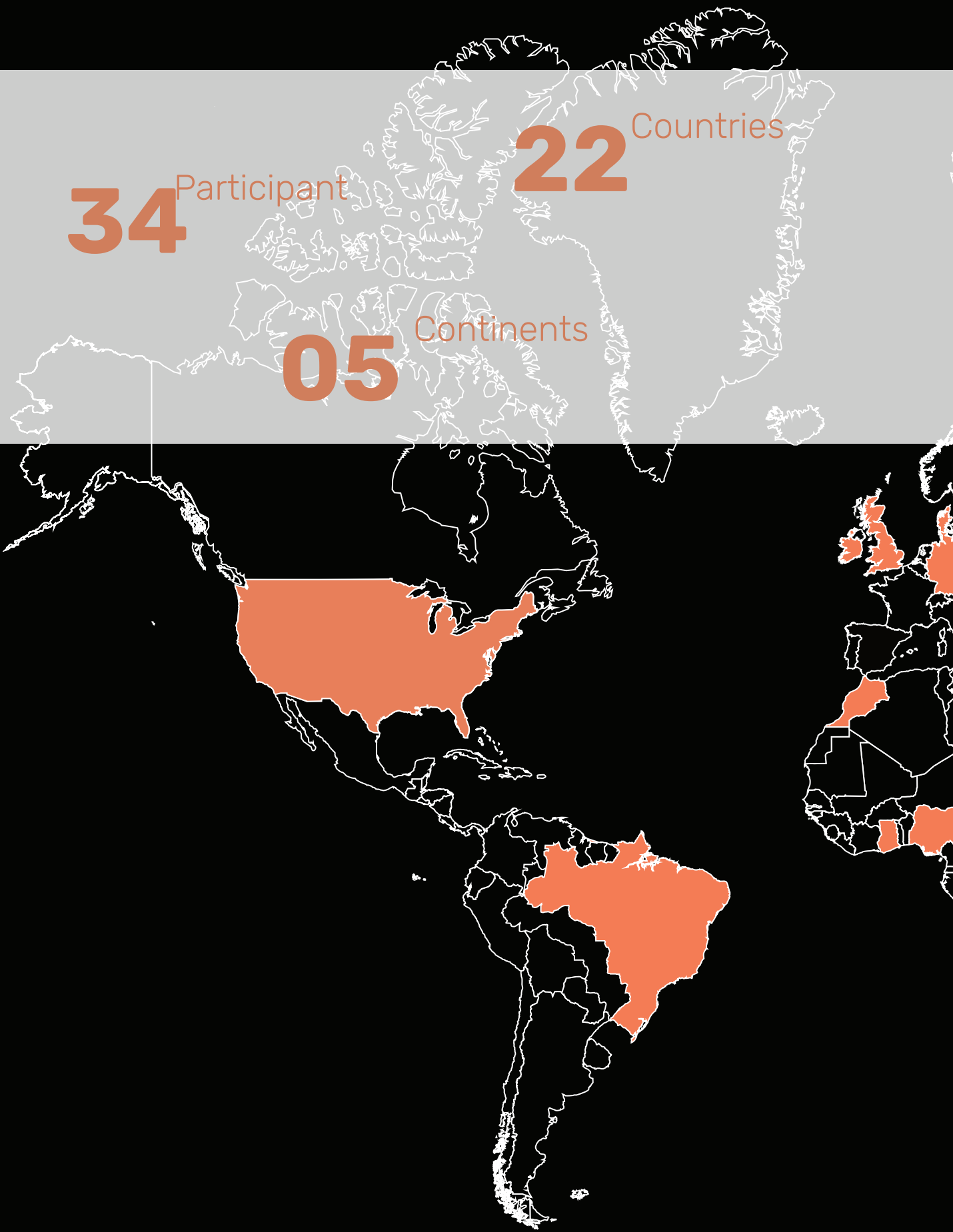
Participant

22

Countries

05

Continents





# Sao Paulo

Brazil

23°33'01"S 46°38'02"W



**22,020,000 inh.**

*Population*

**8,005.25 inh./km<sup>2</sup>**

*Density*



# Group 1

**Alexandra Cordo  
Pedro**  
*Policy maker*



**Ibrahim Salau**  
*Practitioner*



**Manfred Corado  
Lopez**  
*Practitioner*



**Larissa Bueno  
Mendonca**  
*Policy maker*



**Sobia Kapadia**  
*Researcher*



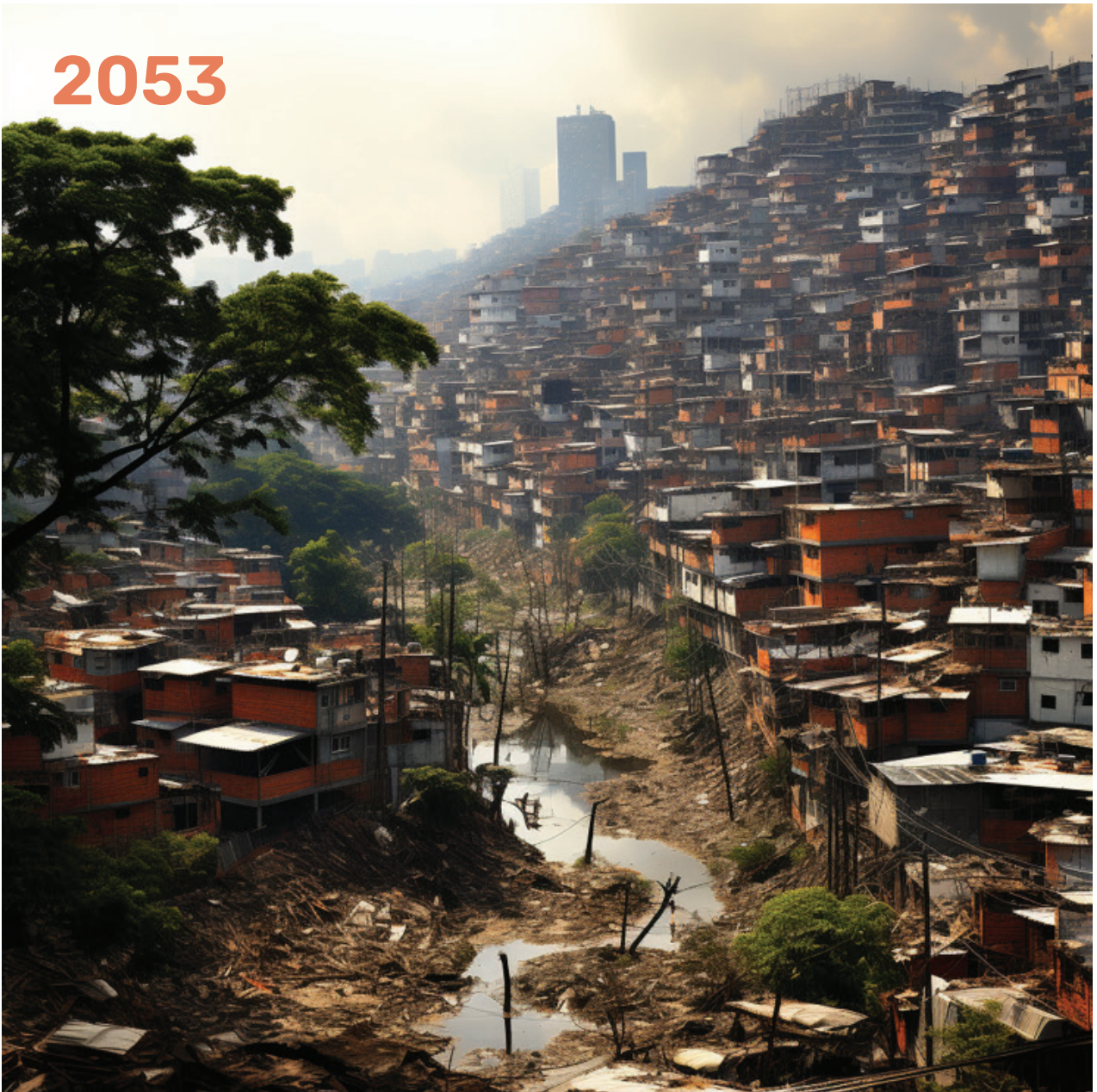
**Lou Perpes**  
*Practitioner*



# Sao Paulo

## Floresta Urbana

# 2053



*By 2053, with current trends, in the district councils of Perus and Jaraguá, the declared ecological corridors will be replaced by (in) formal settlements. As a result, biodiversity will severely be impacted, deteriorating the air/ water quality, increased hazards and impact of Climate Change will be enhanced. Poverty is the main drivers for these loss of protected areas.*

## Forecasting

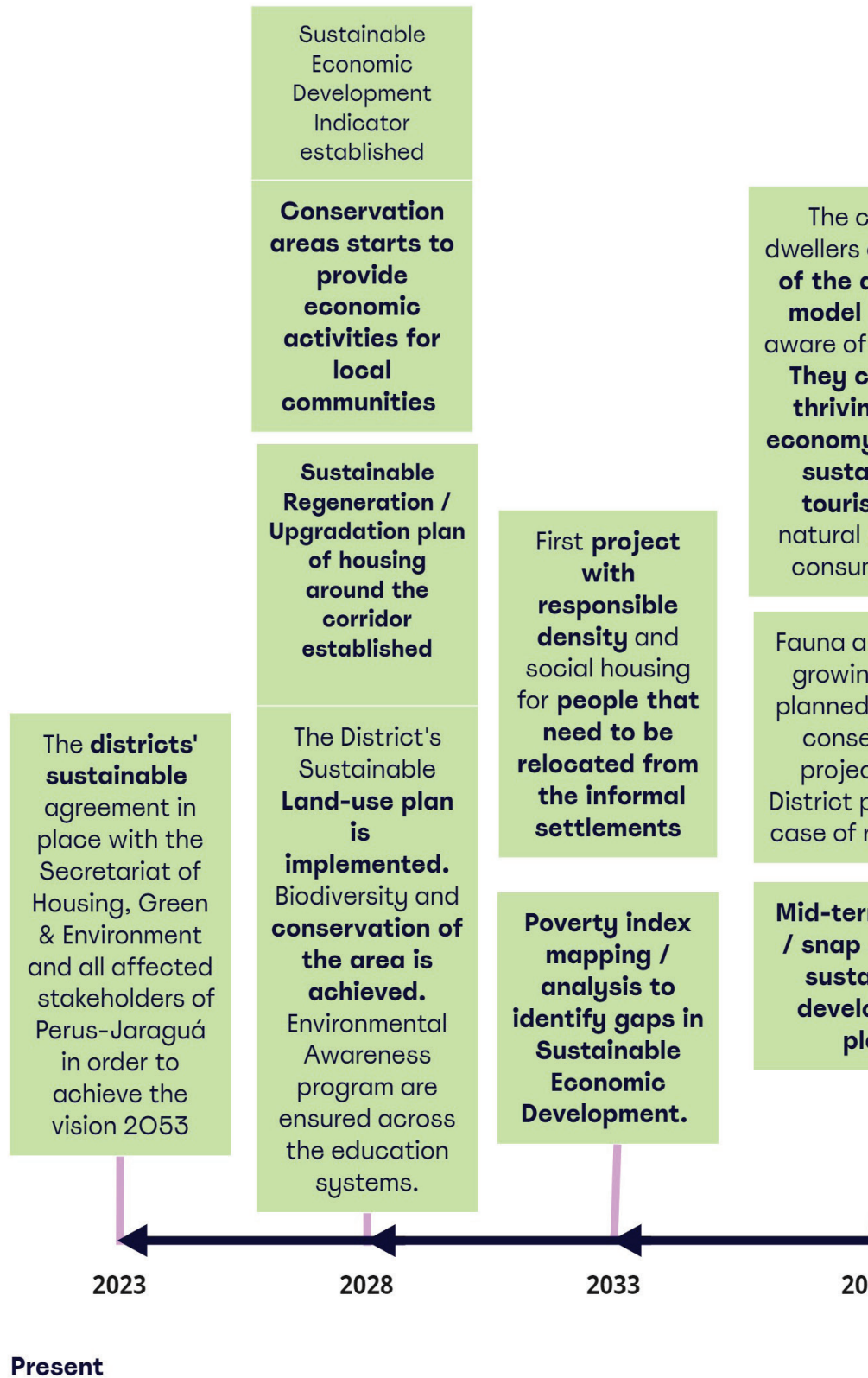




*By 2053, nature and city life coexist harmoniously in the district councils of Perus and Jaraguá, supporting the delivery of sustainable ecosystem services to all council dwellers.*

# Visioning





Councils are proud of their districts' and are taking on their role. They will create a strong local economy through sustainable development and resource management.

and flora is being protected as the Pilot Conservation Area. The Pilot Conservation Area is providing a replication of the corridors.

They will review the progress of sustainable development plans.

The equilibrium nature and urban resilience established

housing projects around the corridors are affordable and have improved quality of life

The Project is recognised as a good practice at a National level

Socio economic Development Index shows improvement on quality of life

The corridors have a rich biodiversity, providing sustainable ecological services to the district dwellers

The district councils of Perus and Jaraguá are the leading examples of nature-urban balance in the Global South

2038

2043

2048

2053

Future (target)

# Backcasting

**STRATEGY 1: Resilient Affordable Housing**

Providing sustainable upgrading settlements of Perus-Jaraguá will improve citizens' quality of life and lessen the pression in the borders of the ecological corridor

Establish a partnership with the Housing Ministry to commit to treating this area as a priority

Development of Housing specific indexes to identify gaps in Sustainable Economic Development

Upgrade of the existing informal settlements with basic services, decent homes and infrastructure

Provide social housing for people that do not have access to informal settlements

**STRATEGY 2: Enhancing biodiversity**

By conserving the biodiversity of the corridor and strengthening the ecosystem-based services, the city will strengthen its resilient to the adverse impacts of climate change.

Develop new protected areas and green spaces to allow for the circulation of the wild animals and plants of Perus and Jaraguá

Raise awareness on ecosystems services and encourage commitments from district dwellers to protect the corridor

Replant native vegetation to replace lost species and recover the original biodiversity

**STRATEGY 3: Sustainable & Economic Development**

Providing economic opportunities for the inhabitants of Perus-Jaraguá

Development of systems and tools to manage the district throughout the year

Development of projects that employ local people as much as possible

Generation of new economic activities based on services for the district



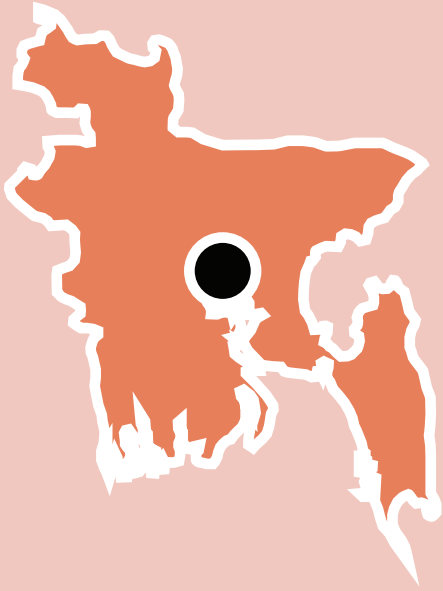
	Type of action (physical or governance/management)	Duration
Planning Secretariat in which they area as a priority	Governance	6 months
...; mapping/analysis to identify omic Development.	Management	2 years and subsequently updated as necessary
...ements to ensure access to all and public green spaces	Physical	Over 15 years
...need to be relocated from the ments	Physical	Over 10 years
...spaces to ensure connectivity and and people throughout the districts Paraguá	Governance	Over 30 years
...services benefits and secure through effective governance	Physical	Over 20 years
...e invasive/exotic species to nal biome	Governance	Throughout the project life every 5 years review
...ap the social-economic status of e 30 years phase	Management	5 -20 years
...icals from the districts, as much e.	Physical	15-30 years
...ased on tourism and ecosystem istrict dwellers		

# Strategies and Actions

# Khulna

## Bagladesh

22°49'12.00"N 89°33'0.0108"E



**9,55,000 inh.**  
*Population*

**537 inh./km<sup>2</sup>**  
*Density*

# Group 2

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*Practitioner /  
Researcher*



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Gheorghiu**  
*Practitioner*



**Farhana Afroz**  
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Azmon**  
*Practitioner*



**Micaela Arthur**  
*Practitioner*



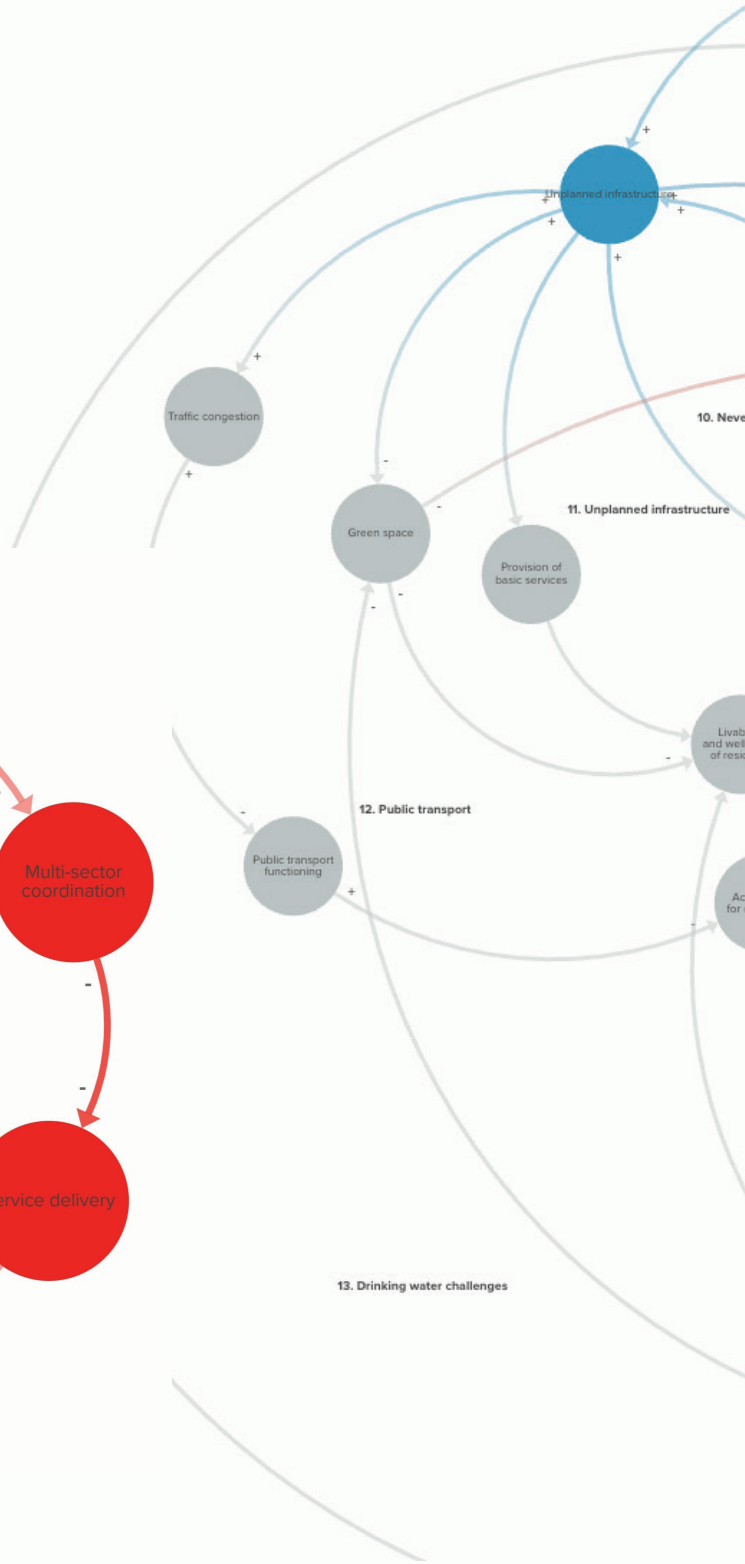
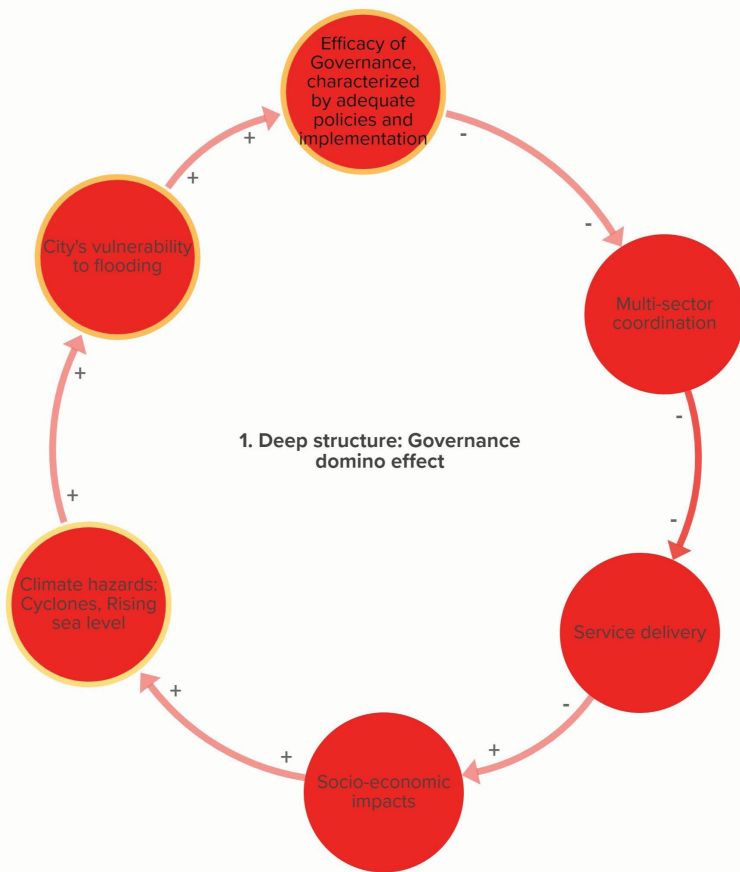
**Poppy Ismalina**  
*Practitioner /  
Researcher*

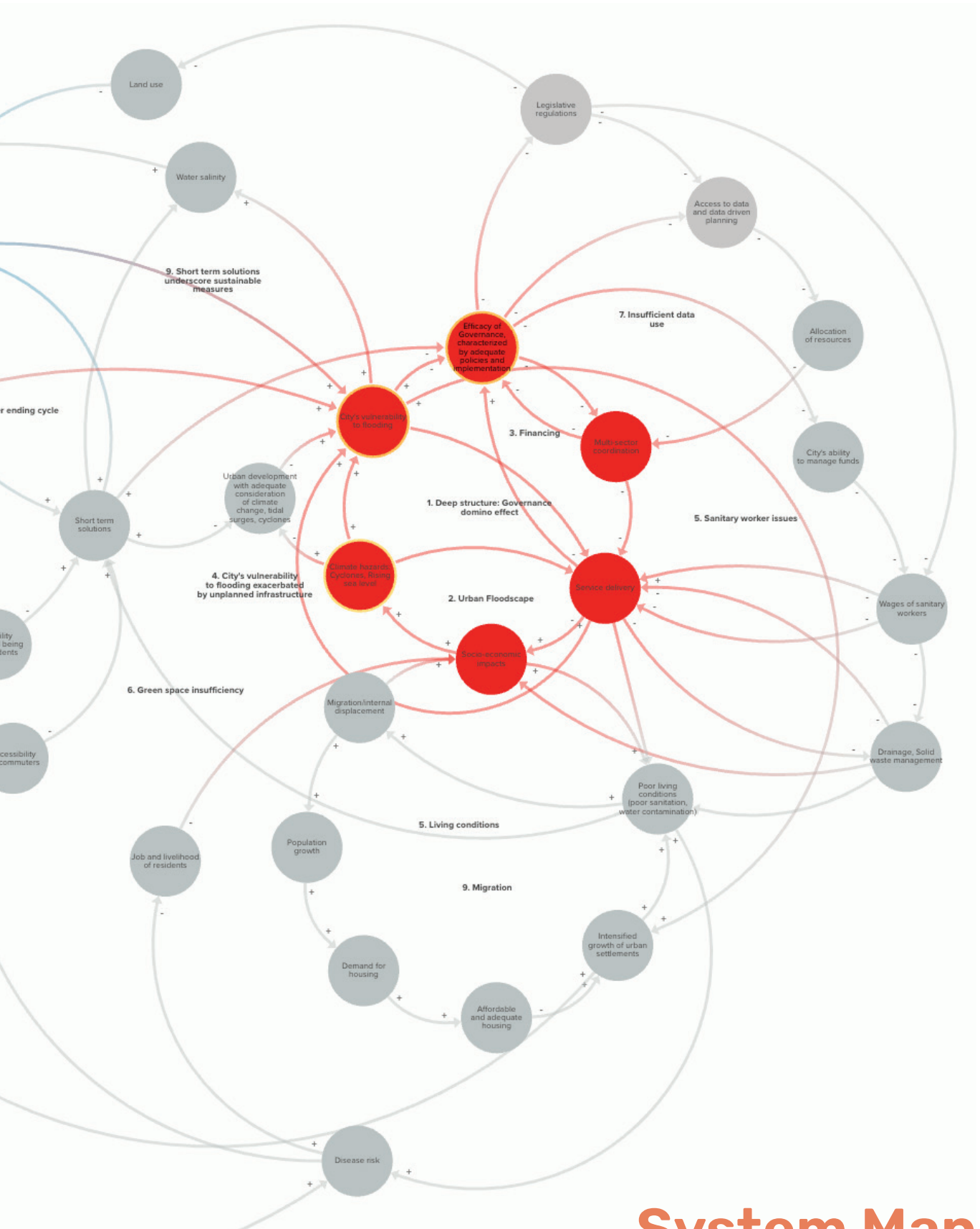


# Khulna

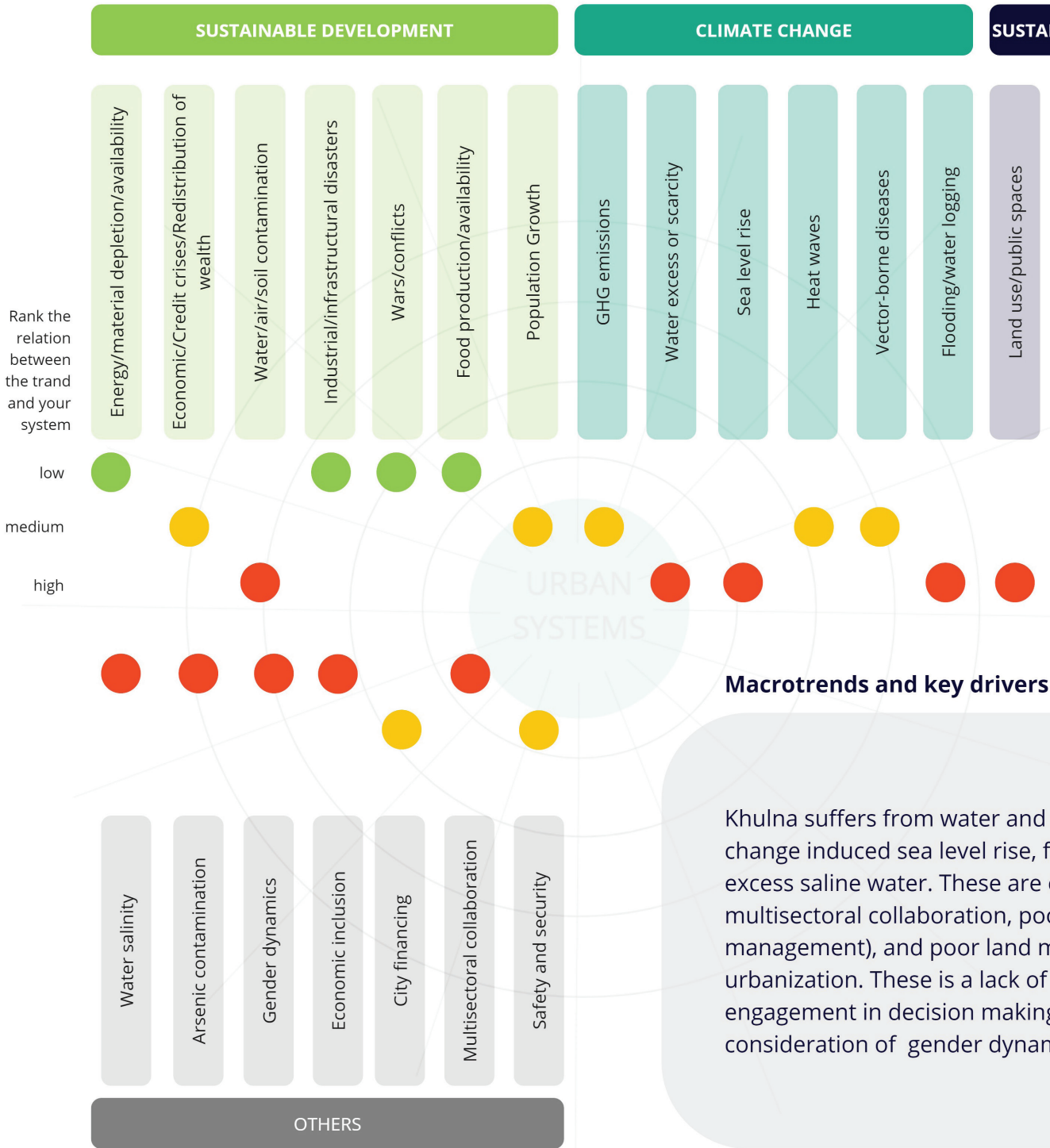
A Resilient,  
Diverse and Citizen's  
empowering city







# System Map



## SUSTAINABLE URBAN DEVELOPMENT

## GOVERNANCE

un-planned urbanization

Housing right and quality

Gentrification/segregation

Waste management

Data collection and use

Access to services

Community engagement

Social safety nets



soil contamination as a result of climate  
flooding, scarcity of potable water, and  
exacerbated by poor governance, a lack of  
or municipal services (specifically waste  
management that has led to unplanned  
data collection and use and community  
g. Additionally, there is a lack of  
technics or economic inclusion.



### Tidal surges inundate low-lying areas in Khulna, embankment collapses



Photo: UNB

# Forecasting





## **Vision for Khulna 2053**

A diverse city that is optimized for a changing climate, socially empowered, environmentally sustainable, and economically vibrant, with access to good quality services.

### **Milestone #1 - Goal for the first 5 years**

Khulna City will reduce water logging affecting vulnerable areas in low lying areas within five years to encourage economic stability, and better able to absorb impacts from climate change.



ng climate, where all residents are  
mically secure, and have uninterrupted

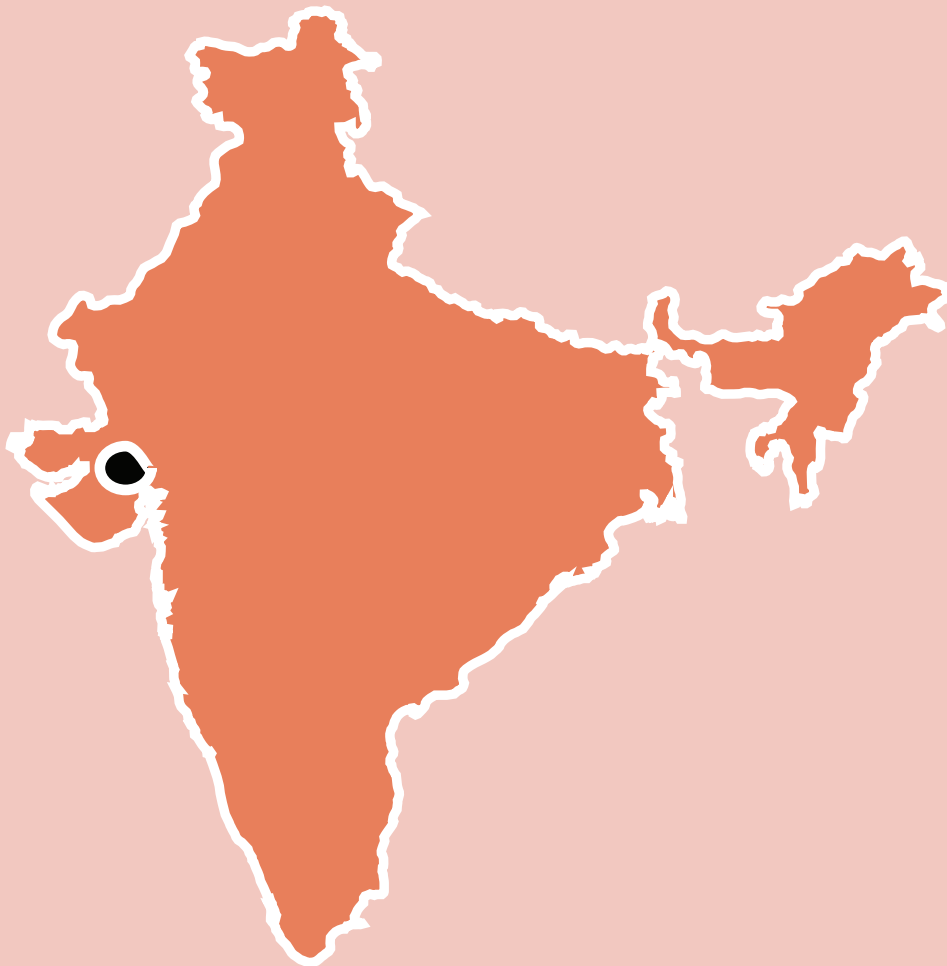
vulnerable groups living in informal settlements  
sustainable urban growth, social and economic  
climate events.

**Visioning**

# Rajkot

India

22°17'29.80"N 70°47'35.59"E



**2.000.000 inh.**

*Population*

(2023)

**12.000 inh./km2**

*Density*

# Group 3

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*Policy maker &  
Practitioner*



**Anish Joshi**  
*Practitioner*



**Wolfgang  
Friedrich**  
*Practitioner*



**Mohammad  
Firoz  
Challappurath**  
*Researcher*



**Jahnavi Bhatt**  
*Practitioner*



**Amanda  
Pomeroy**  
*Practitioner*



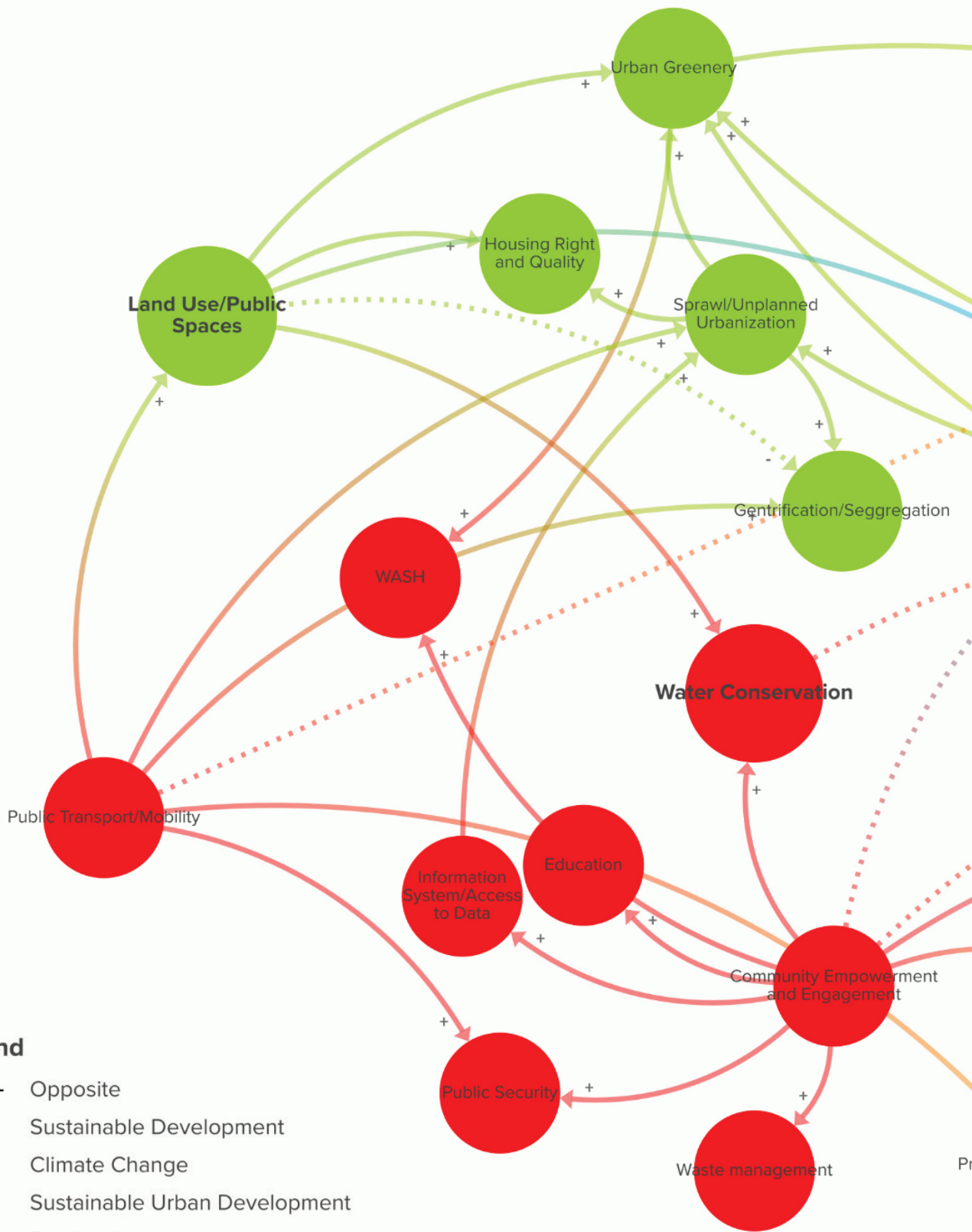
**Damodar  
Bachani**  
*Policy Maker*



# Rajkot

A Healthy and  
Liveable City





**Legend**

- Opposite
- Sustainable Development
- Climate Change
- Sustainable Urban Development
- Pandemic
- Others



# System Map

## VISION

In 2053, Rajkot will be a city where quality of life inspires innovation and entrepreneurship within a strong and vibrant economy.

We aim to move to sustainable adaptation of industrial and manufacturing sectors, reducing pressure on ecological systems to revive green-blue networks and its management to create liveable urban environments for all. Thus making Rajkot a Healthy Liveable City.

### STRATEGY 1

Promoting green spaces and water conservation & management practices to reduce heat & water stress

### STRATEGY 2

Reducing (industrial) GHG emissions to significantly reduce heat stress

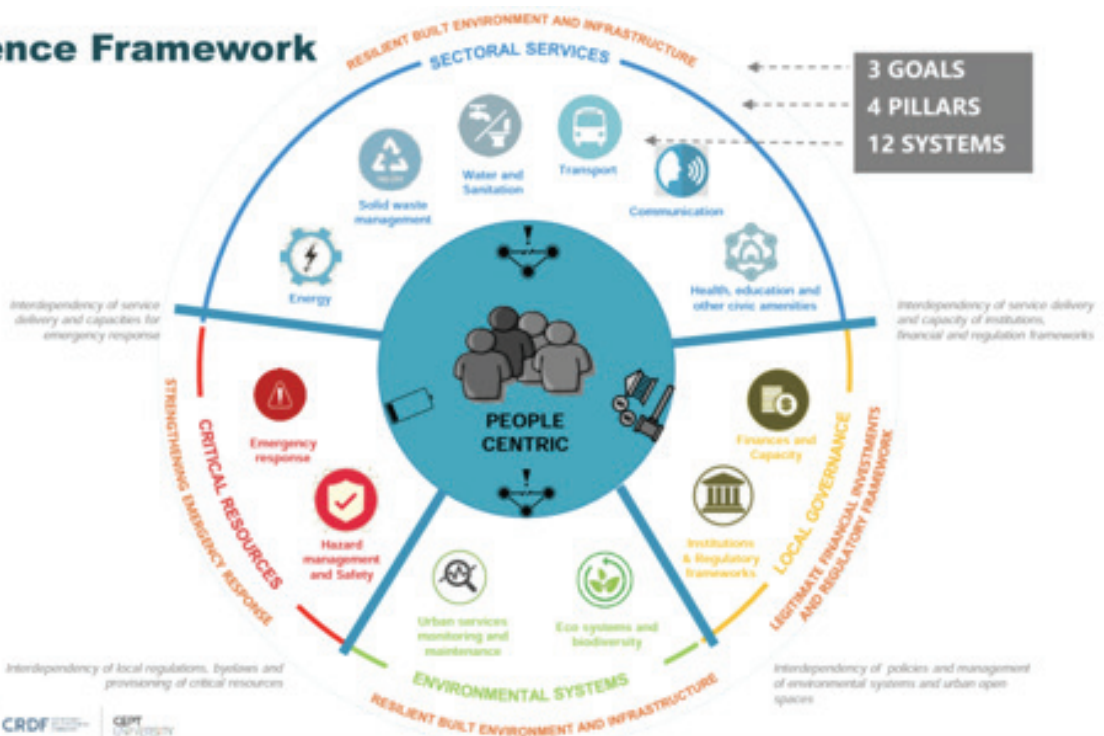
### STRATEGY 3

Inclusive Society, Healthy Environments, Green Jobs

### STRATEGY 4

Enhancing governance capacity for resilient development

## Resilience Framework



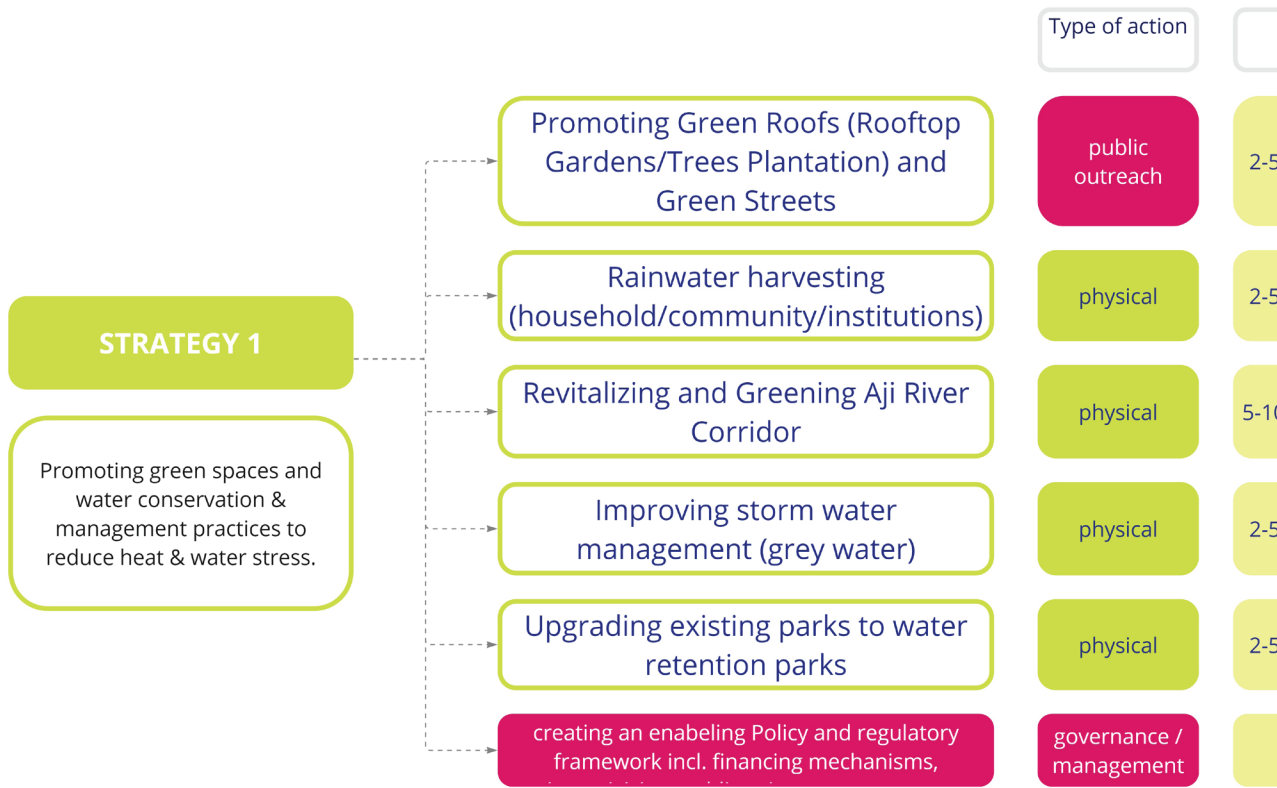
### City Resilience Framework for small and medium towns of India - An user guide, 2020

## Guiding principles for the strategy

- \* **Community participation & ownership**
- \* **Build within existing frameworks, policies, guidelines**
- \* **“Fit-for-purpose” innovation & technology**

# Vision and Strategies





Duration

5 years starting asap

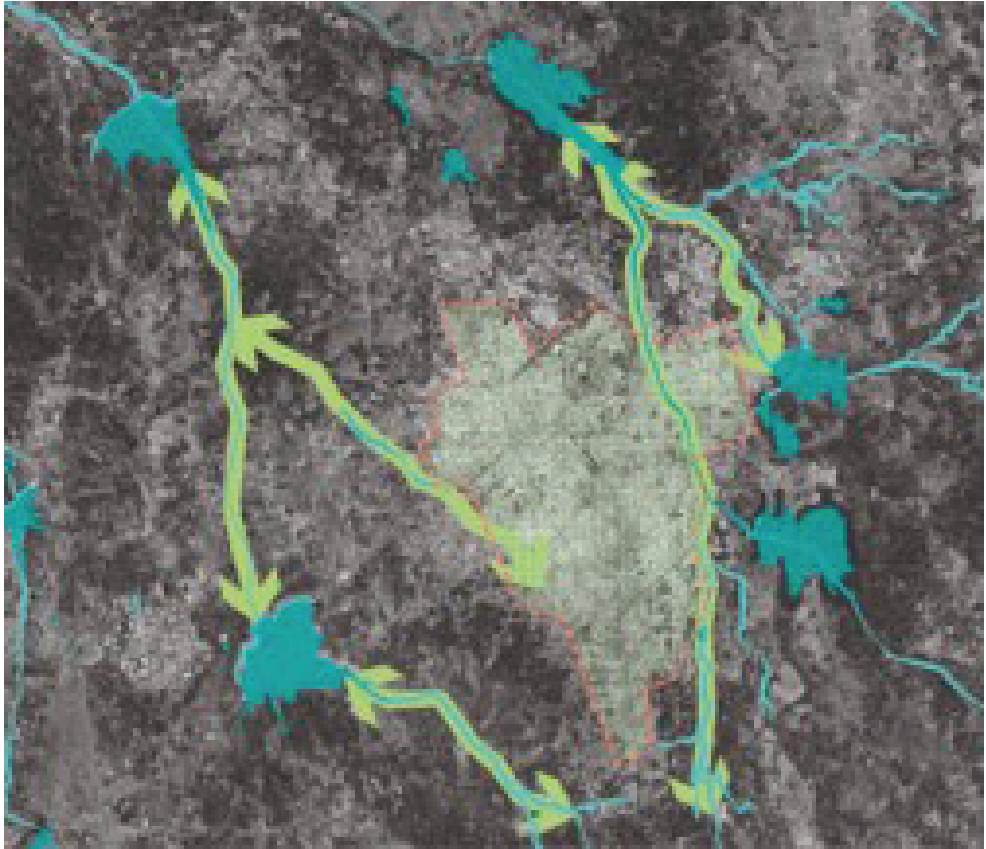
5 years starting asap

10 years starting 2028

5 years starting asap

5 years starting asap

asap

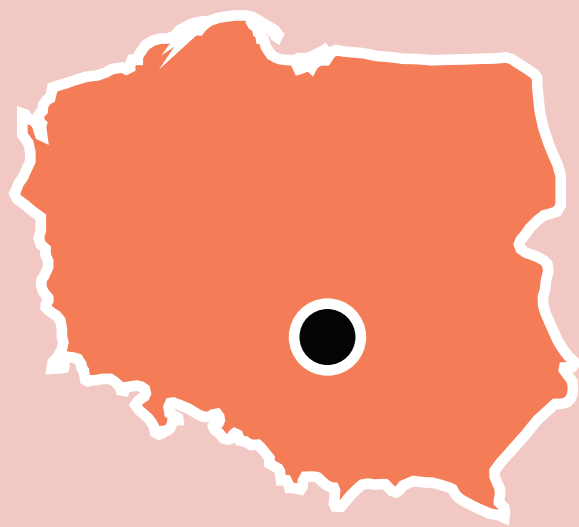


# Strategies

# Poznan

## Poland

52°24'34.3368"N 16°55'55.1712"E



**41,026,067 inh.**  
*Population*

**537 inh./km2**  
*Density*

# Group 4

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Baumann**  
*Practitioner*



**Jule Rumpel**  
*Practitioner*



**Agnieszka  
Wilkaniec**  
*Researcher*



**Anna Galecka**  
*Researcher*



**Magdalena  
Szczepanska**  
*Researcher*



**Bruna  
Pincegher**  
*Researcher*



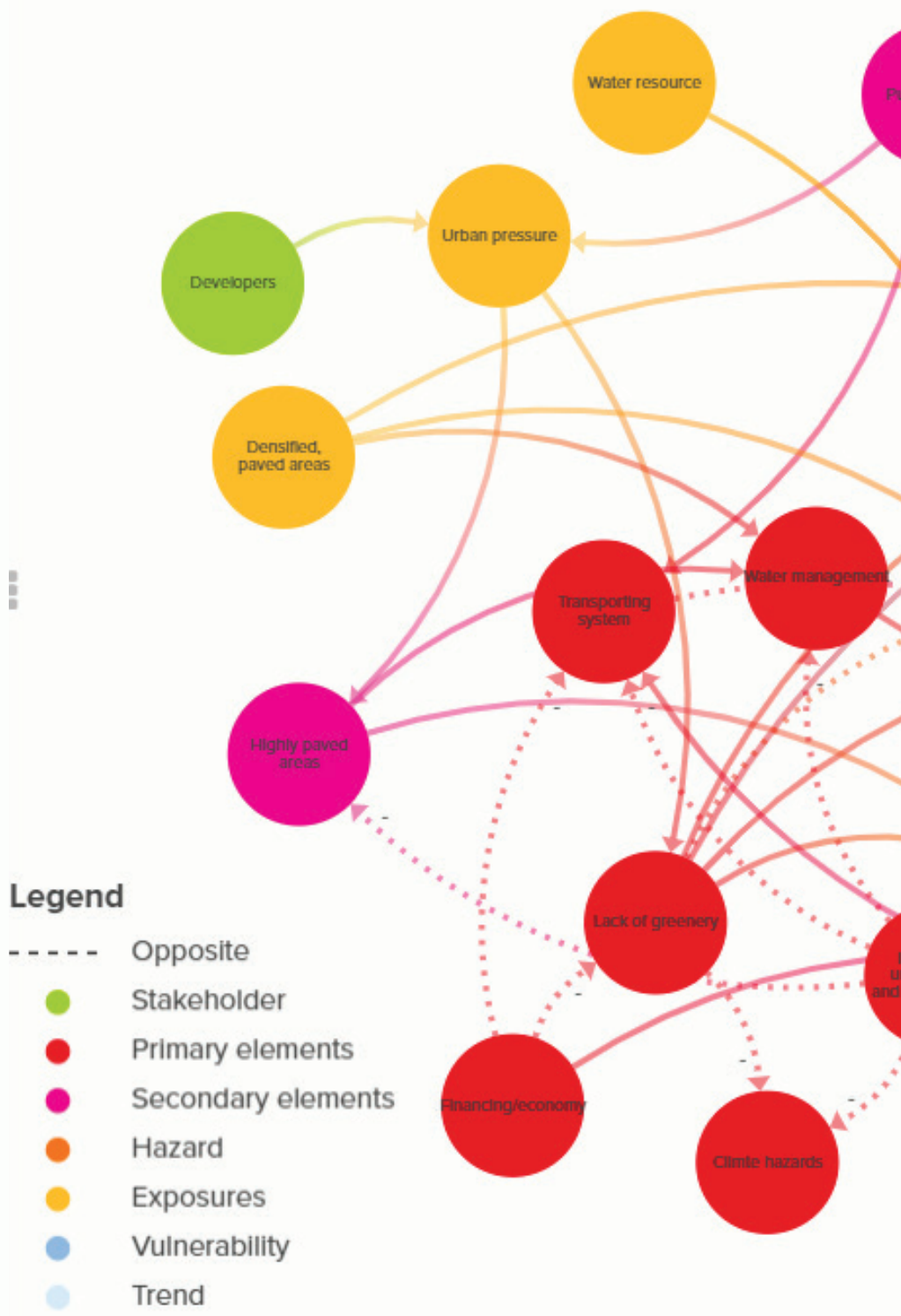
**Sophie Blomeke**  
*Practitioner &  
Researcher*



# Poznan

## A Resilient and Green 2053







# System Map

### Coherent blue-green infrastructure



Poznań 2053 will be green and blue city. The combination of all green areas with informal green areas (wild, natural, synanthropic, ruderal - 4th nature concept) enables one to move around the city through green corridors. Multi-functional use of green areas with retention water system and urban agriculture.

### Develop an effective, affordable and inclusive city-wide mobility concept to enhance connectivity



Poznań 2053 will be a pioneer for a well connected city based on affordable public transport and bicycle infrastructure. Through awareness raising, governance and built infrastructure. Involving NGO's, Poznan municipality, especially mobility segment, public and private schools, private sector.

### Centralized, Compact urban development



aim: city centre as accelerator for diverse, liveable, inclusive, mixed use public and private spaces

revival of the historical city centre

the centre becomes a intergenerational, cultural and socio-economic meeting point

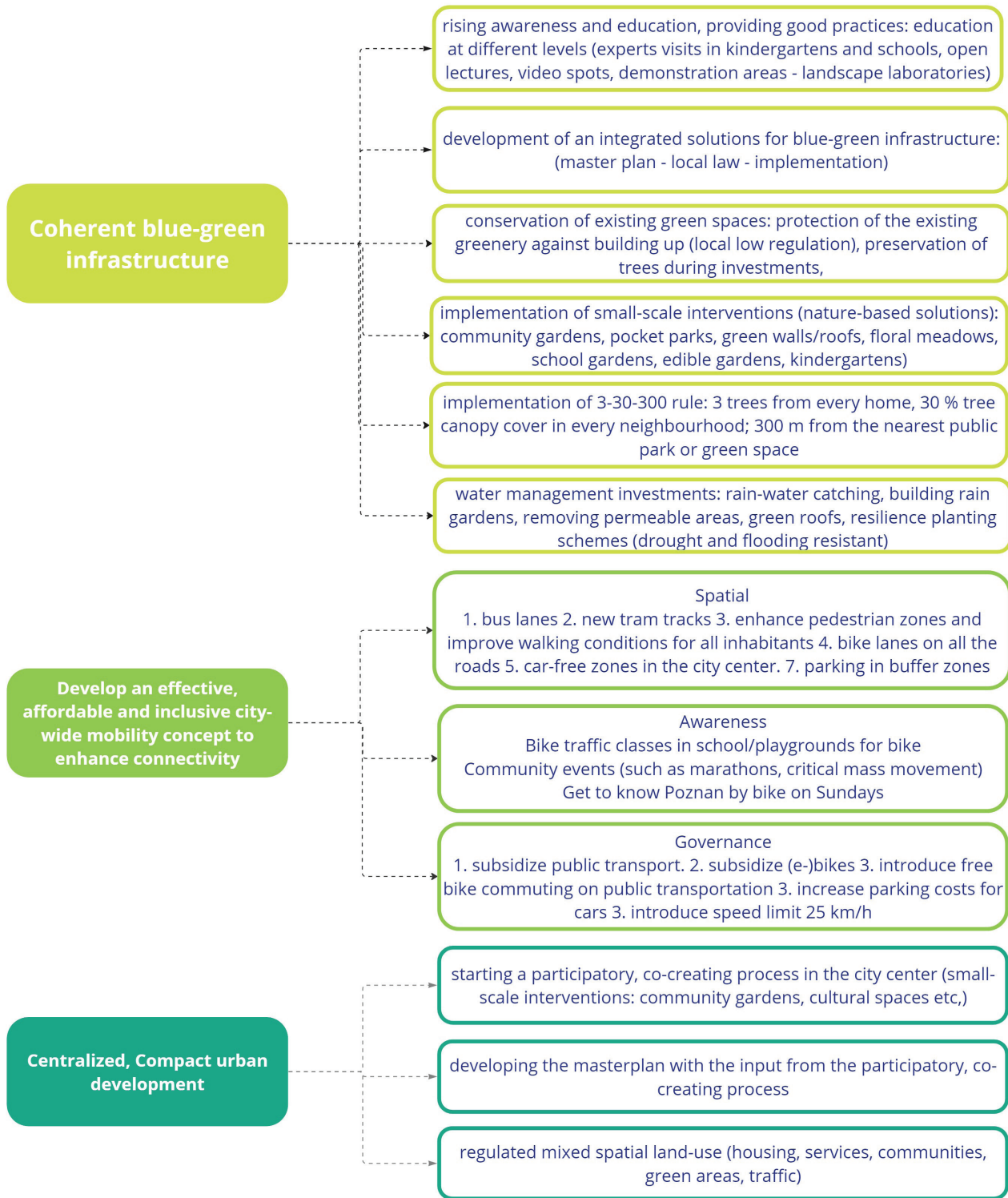
Poznan will be a vibrant and resilient city where the centre is efficiently connected with its surroundings through coherent blue-green infrastructure and an effective and inclusive mobility transformation



Conceptual maps

# Strategies





Type of action (physical or governance/management)	Duration	Stakeholders
Social	2 years	NGO, dwellers, municipality
governance/management	10 years	Municipality, developers, dwellers, urban planners
Natural	2 years	developers / dwellers
Natural	5 years	Private sector, dwellers, municipality, NGO
Natural	25 years	private and public sectors, developers, city dwellers
Built infr.	15 years	Aquanet S.A. (water management office)
Built infr.	15 years	Municipality, developers, private sector, NGO's
Social	1 year	Schools, community, municipality
governance/management	5 years	Municipality, private sector
Social	1 year	
governance/management	5 years	municipality, urban planners, privat sector, public sector, academia, citizens
	25 years	government

# Strategies + Actions





@picture: Magdalena Szczepanska

# Field trip Copenhagen









# Enghaveparken – Climate Park

@picture:Anna Galecka Drozda





Carlsberg Byen, Østen for humlen

@picture:Anish Joshi





## Calsberg Byen - Carlsberg

@picture: Magdalena Szczepanska





@picture:Anish Joshi

















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