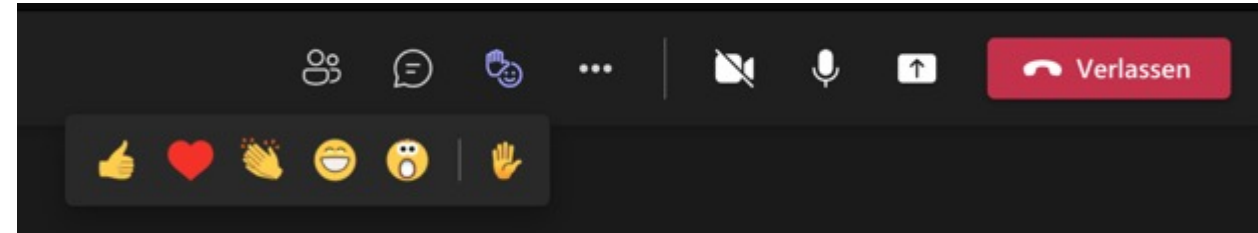


We will start soon!! Meanwhile, some housekeeping / technical points

1. Keep your microphone muted if you are not talking
2. If possible, turn on your camera while speaking
3. Use the chat function to pose questions and interact
4. Slides, materials will be made available afterwards
5. Last but not least: this meeting will be recorded to be made available via





Inclusive and climate-sensitive urban development

Exchange series to advise, network and jointly develop solutions to challenges in your municipality

#1 Blue Spaces - 15 July 2024

10.00 – 11.30 CET



About TUrbOliC

Goals: On-boarding and networking, knowledge management, including peer-learning among programs, regional and technical exchange with national and international partners, strengthening the technical and advisory capacities of GIZ staff and partner experts, and work on developing innovative products.

SNGA



Indira von Gierke
(LICA, Bangladesh)
WG Speaker



Charlotte Pusch
(Division
Governance and
Conflict)
Tandem-partner

TUEWAS



Dr. Teresa Kerber
(SUDSC II, India)
WG Speaker



Dr. Sandra Schuster
(Division Climate,
Rural Development
and Infrastructure)
Tandem-partner



About the Exchange Series

Who

- GIZ projects working on related topics, national implementation partners of GIZ projects, municipal practitioners from GIZ partner municipalities and cities, universities/research institutions cooperating with municipalities and civil society organisations cooperating with municipalities

What

- exchange series on **Inclusive and climate-sensitive urban development**
- Aiming to advise, network and jointly discuss solutions to challenges in your municipality

What

- Blue Spaces
- Urban Biodiversity
- Green Spaces
- Solid Waste Management
- Capacity Development
- Citizen Participation, Gender, Youth

Save the dates

- **August 14th** – Urban Biodiversity
- **September 12th** – Waste Management



Indira von Gierke



Luciana Maia



Franziska Loibl

Agenda

- Welcome & Orientation
- Participants short introduction in the chat

Block 1. Polycentric and Participatory Approaches to Water-sensitive Urban Design

- PolyUrbanWaters – **Ania Wilk-Pham** and **Tino Imsirovic**, Researchers at Technische Universität Berlin
- Sleman City – **Dona Saputra Ginting**, Head of Physical and Infrastructure Division at Bappeda

Block 2. Stormwater management in Bhubaneswar – Liju Mathew, Senior Advisor-Urban and Regional Development

- Joint discussion
- Wrap-up and closing



Heartfelt welcome and thanks to our special guests today



Dona Saputra
Ginting



Ania Wilk-Pham



Tino Imsirovic



Liju Mathew

Short intro of participants

1) Please let us know what best describes your position?
(thumbs up) -

GIZ staff

Partner at national level

Partner at subnational / local level

Academia

None of the above

2) Please let us know the city your are joining from - type in
the chat

Group picture



Polycentric and Participatory Approaches to Water-sensitive Urban Design

Experiences from PolyUrbanWaters
research project in Southeast Asia

Inclusive and
climate-sensitive
urban environmental
management as part
of the project
Liveable and
Inclusive Cities for
All (LICA)

July 15th, 2024

Tino Imsirovic
Anna Wilk-Pham

POLYURBAN

WATERS

Habitat Unit

I. Overview

I. Introduction

II. Frameworks

III. Methods and Tools

IV. Insights from case studies:

V. Learnings, Reflections and Takeaways

Habitat Unit

Habitat Unit (TU Berlin, Germany)

Main research themes:

- New approaches, expertise, and tools for global urbanisation and urban change.
- Inclusive and rights-based approach to urban policy, management, and planning.
- Comprehensive understanding of urban design with new models of participation, co-production, and urban governance.



PolyUrbanWaters (PUW)

PolyUrbanWaters is an **interdisciplinary, practice-oriented research** focusing on development of **Water-Sensitive Urban Visions** for neighborhoods in secondary cities in Indonesia, Laos and Cambodia.

PUW brings together **science, government, private enterprise and civil society**—enabling symbiotic engagement with the technical, financial, administrative, regulatory and strategic dimensions of creating water-wise, livable cities. The research is funded by the German Ministry of Research and Education (BMBF).

Project Consortium:

- BORDA e.V., - Bremen Overseas Research and Development Association
- ITT TH Cologne - Institute for Technology and Resources Management in the Tropics and Subtropics
- Habitat Unit, TU Berlin



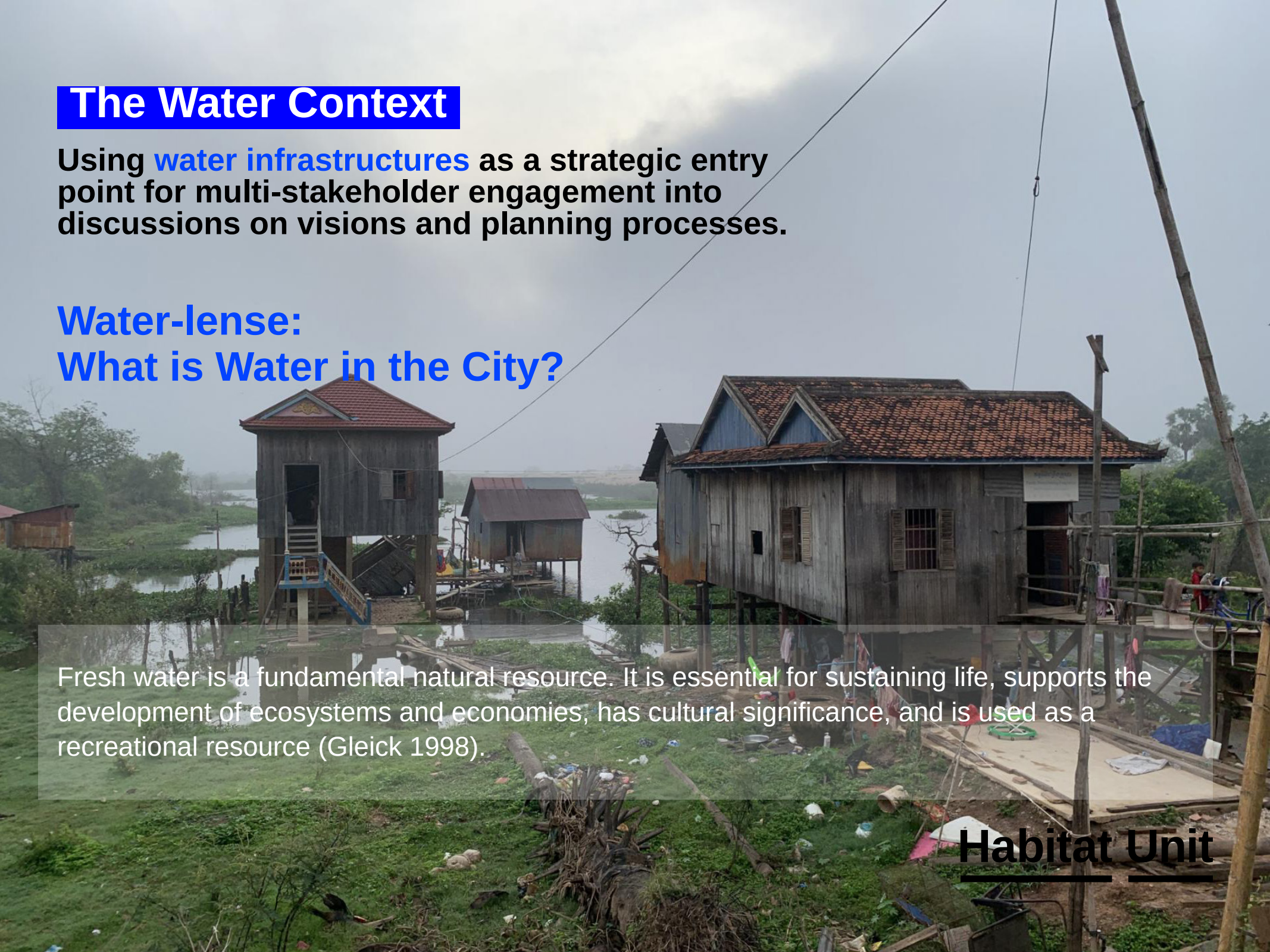
The Water Context

Using **water infrastructures** as a strategic entry point for multi-stakeholder engagement into discussions on visions and planning processes.

Water-lense:
What is Water in the City?

Fresh water is a fundamental natural resource. It is essential for sustaining life, supports the development of ecosystems and economies, has cultural significance, and is used as a recreational resource (Gleick 1998).

Habitat Unit



Three Pilot Cities in Southeast Asia



Habitat Unit

II. Frameworks

Habitat Unit

Real-World Laboratory Approach



Kratie, Cambodia



Sam Neua, Laos



Sleman, Indonesia

- Real-World Laboratories / Living Labs are research, innovation and learning environments that facilitate **solution-oriented research**.
- involves practical, on-the-ground research with **active participation from local stakeholders**.
- focuses on **co-producing solutions** with both government agencies and non-governmental stakeholders in the partner cities.
- integrating **diverse perspectives and forms of knowledge**.
- enriches research findings and ensures they are relevant and applicable to the **local context**

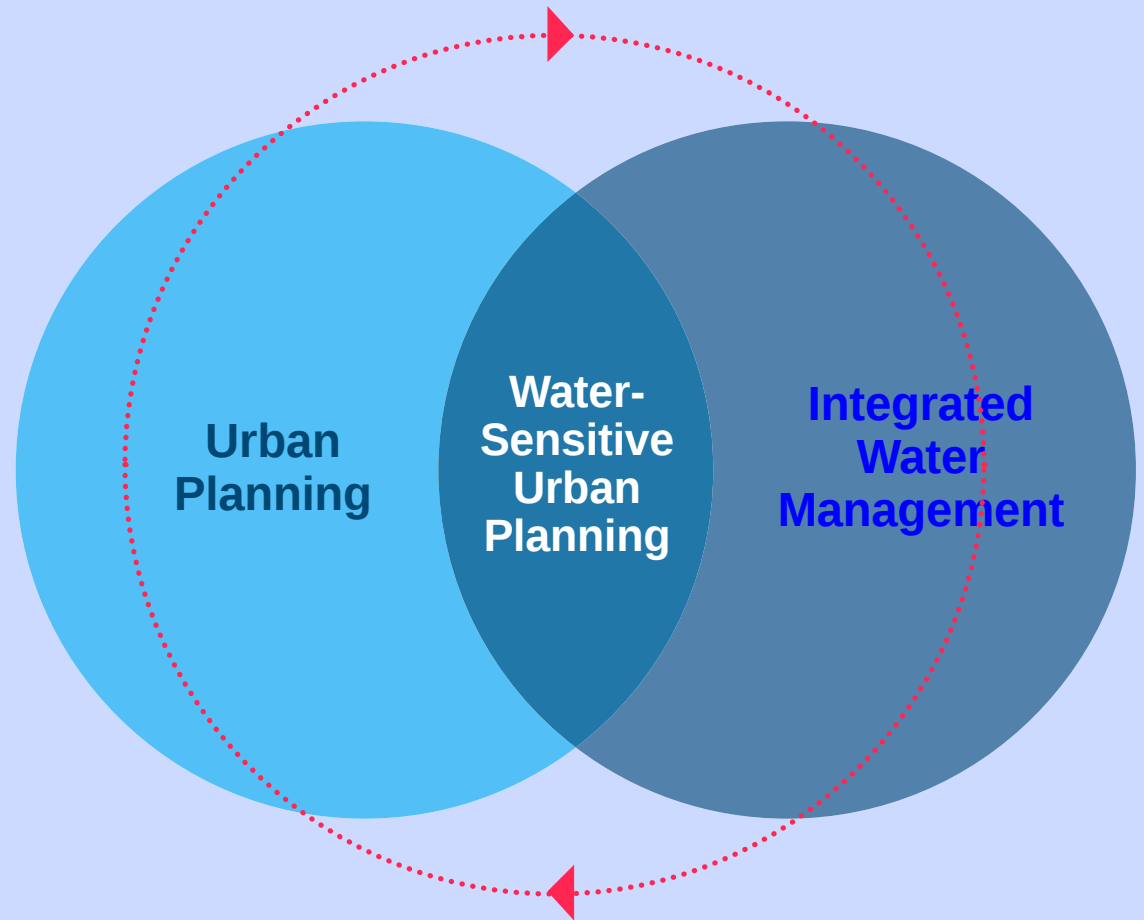
PolyUrbanWaters Interdisciplinary Approach

Needs to:

- Address **urban water challenges** like flooding, drought, and water quality
- Enhance **resilience to climate change impacts**
- Support **sustainable urban growth** and development
- Water as Key for Future-oriented Urban Transformation

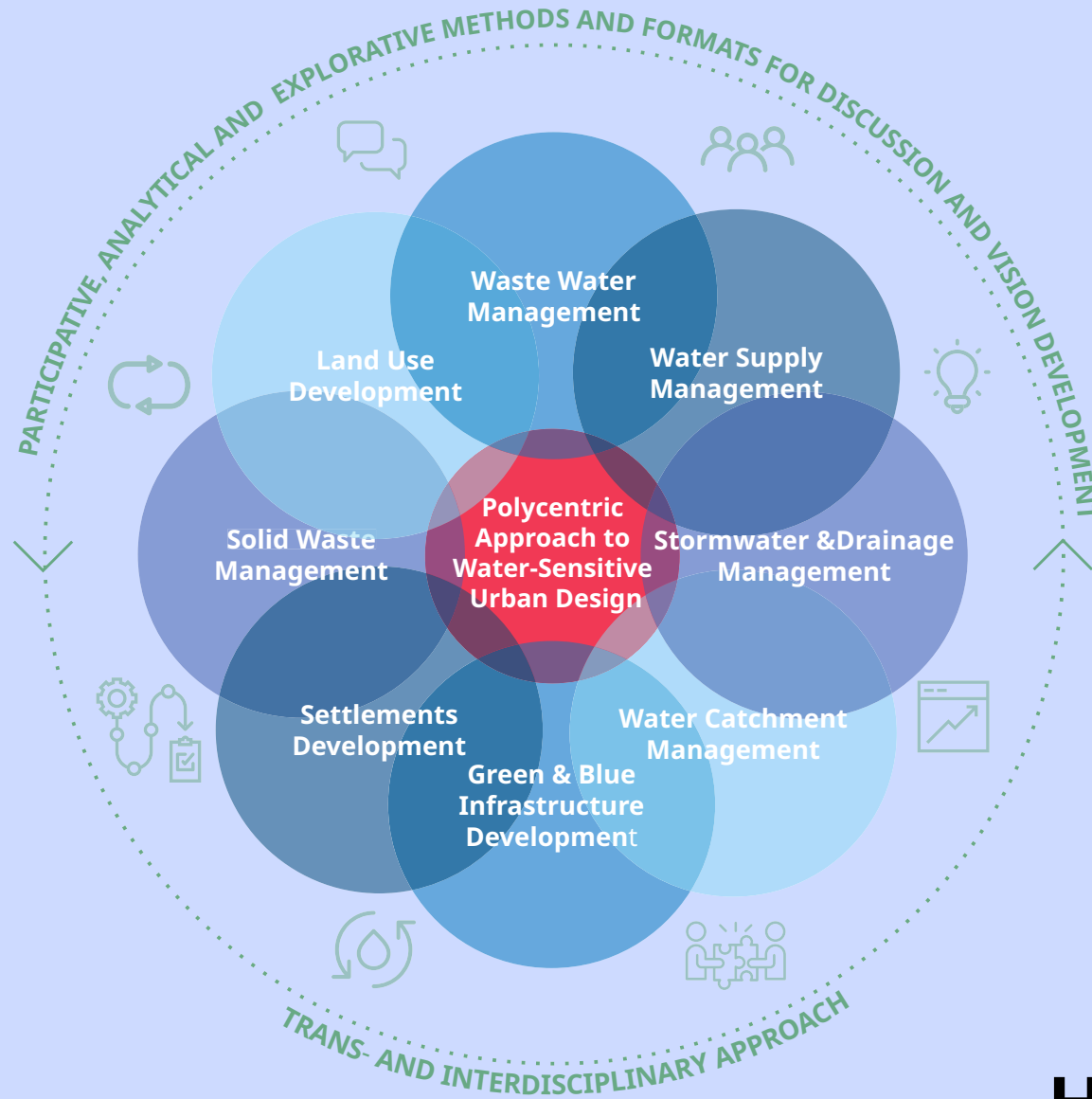
Interdisciplinary Approach Benefits:

- Holistic management of **urban water cycles**.
- **Reduces infrastructure costs** and increases efficiency.
- Enhances biodiversity and urban cooling through **green and blue spaces**.
- Fosters innovation and collaborative governance.



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Interdisciplinary Approach



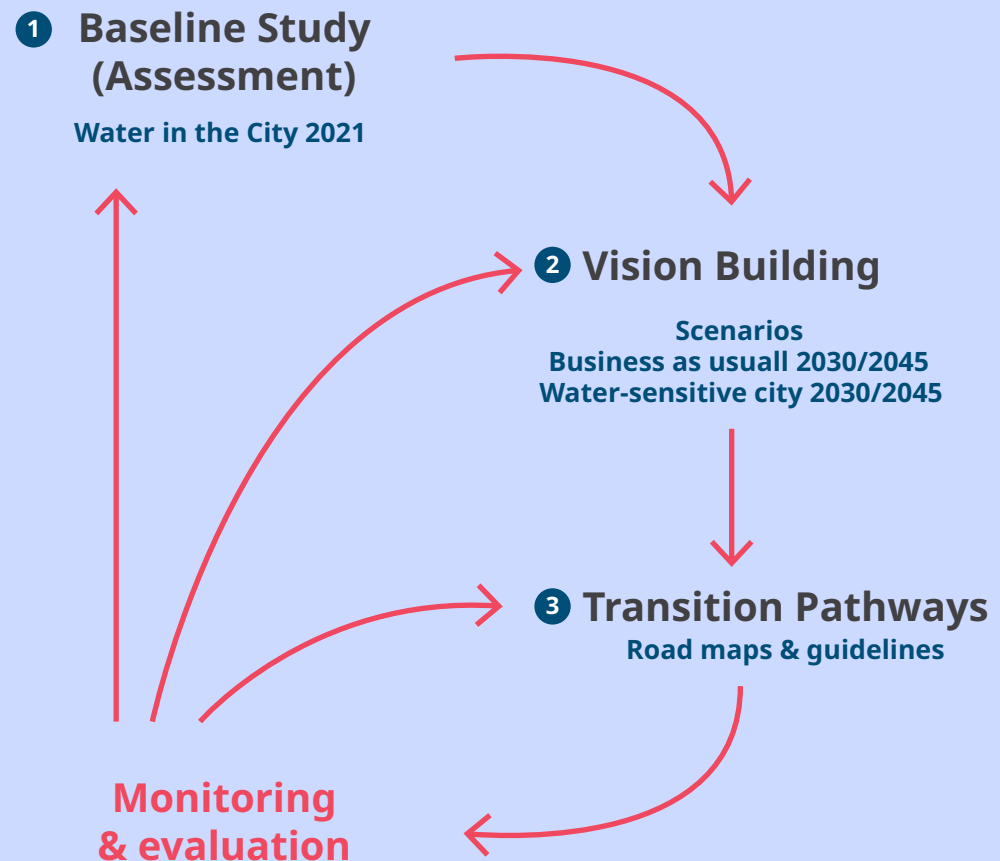
III. Methods and Tools

Habitat Unit

How to engage different stakeholders?

PolyUrbanWaters employs a case study specific toolbox that helps to:

- include **diverse perspectives** from different sectors and geographical locations
- enable **co-creation of ideas and planning strategies** that address local issues and promote sustainable development
- conceptualize multi-stakeholder **discussions as platforms to share knowledge** and collaborative activities
- foster **interdisciplinary networking** and partnerships



Toolbox Overview

Baseline Study & Vision Building

Stakeholder
Analysis Matrix

T1

Transect Walks

T2

Focus Group
Discussions

T3

Knowledge Quiz

T3.1

Energizer Exercise

T3.2

Manual Mapping

T3.3

Digital Participatory
Mapping

T3.4

Rapid Focus Area
Profile

T3.5

Spatial Visions and Scenario

Strategic Water
Sensitive Planning
Workshop

T4

Water-sensitive Area
Planning Matrix

T4.1

Concept Communica-
tion Aids

T5

Strategic transformation

Water Sensitive Ac-
tion Planning Matrix

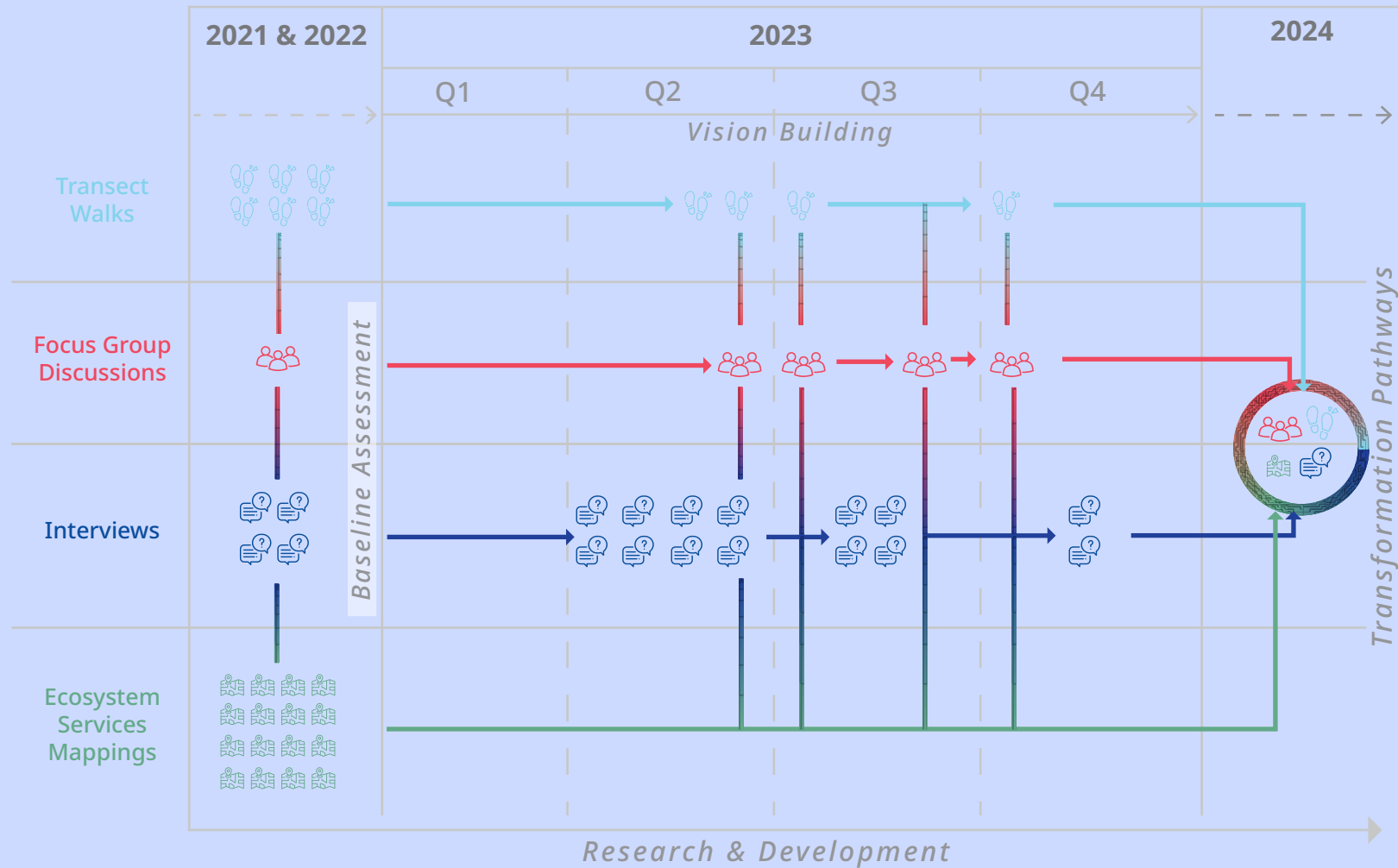
T6

Tool for Cross-Sec-
toral and Participa-
tory Plan Review and
Validation

T7

Tool #1 Process Design

PROCESS DESIGN



Process design in Sleman, Indonesia

Tool #2 Transect Walks



Assesing land use risks during transect walk in Sam Neua, Laos



Mapping of green-blue systems in Sleman, Indonesia



Walking along green-blue systems in Sleman, Indonesia

- walking along a **predefined route** with a cross-sectoral group
- **interviewing the local residents** to gain perceptions, needs, and preferences regarding water management and planning
- contributes to **building a on the ground knowledge** through first hand insights
- understanding **socio-spatial and environmental conditions** beyond plans and documents

Tool #3 Manual Mapping as a Collaborative Method



Localizing Nature-based Solutions in Sleman, Indonesia



Developing spatial strategies for water-sensitive development in Sleman



Mapping exercise in Sam Neua, Laos on land use and protection

Participatory method to **collectively visualize and analyze spatial information, relationships, and dynamics**. Participants create maps, diagrams, or charts that represent spatial features, resources, or issues relevant to the discussion.

- hands-on and interactive approach
- exploring spatial information collaboratively
- fostering engagement
- creativity and dialogue around complex spatial issues

IV. Insights

Sleman: Towards Water-Sensitive Vision Building

Challenges

- rapidly changing socio-economic structures
- urban (water) consumption patterns
- increasing water demand
- increasing waste water generation
- loss of blues green infrastructure
- increasing waste generation
- degradation of environmental and water resources



Sariharjo, Sleman, Indonesia

Vision

„Towards a Livable and Harmonious Peri-urban Community of Rejodani, Sleman, Indonesia“

Strategy 1: Ensuring Affordable, Healthy, and Environmentally Friendly Settlement

Strategy 2: Ensuring Affordable Water Safety

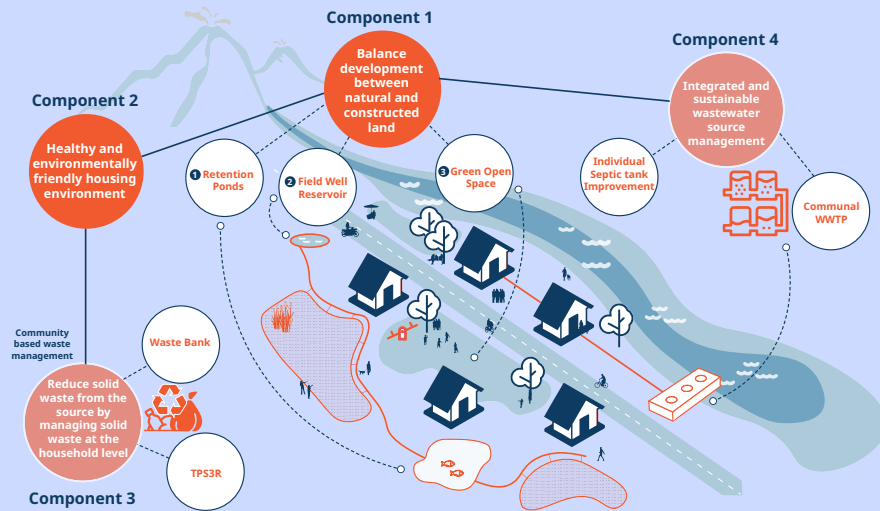
Strategy 3: Ensuring Water Conservation and Management

Habitat Unit



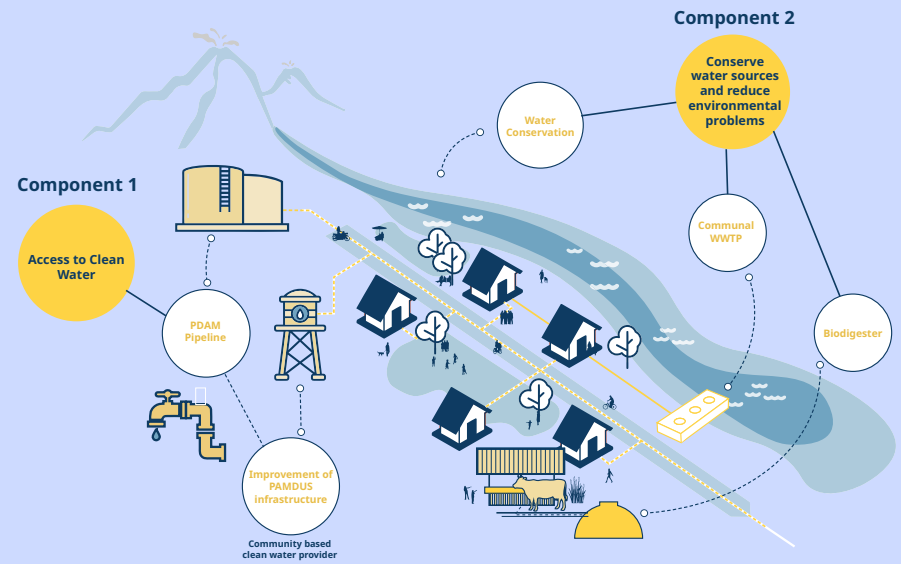
Strategy I

Ensuring affordable, healthy, and environmentally friendly settlement



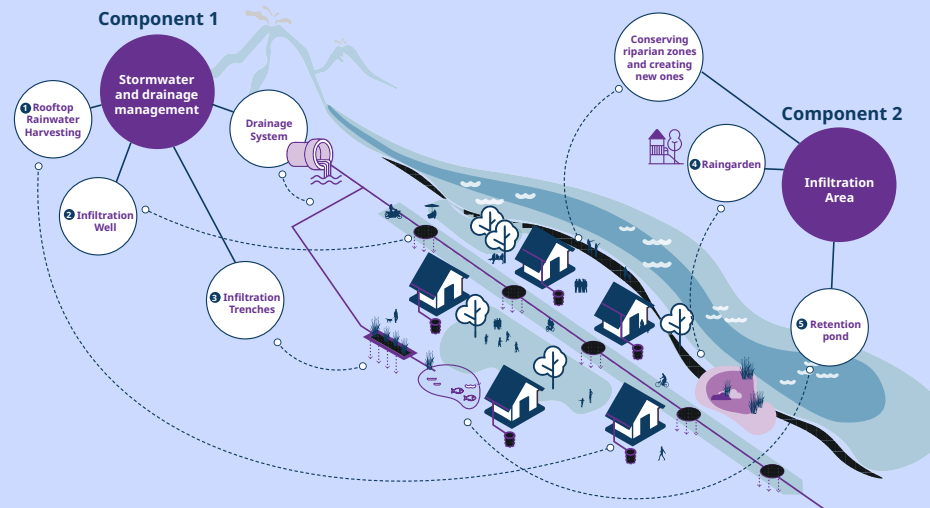
Strategy II

Ensuring Affordable Water Safety



Strategy III

Ensuring Water Conservation and Management



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List of tools

Stakeholder Analysis Matrix

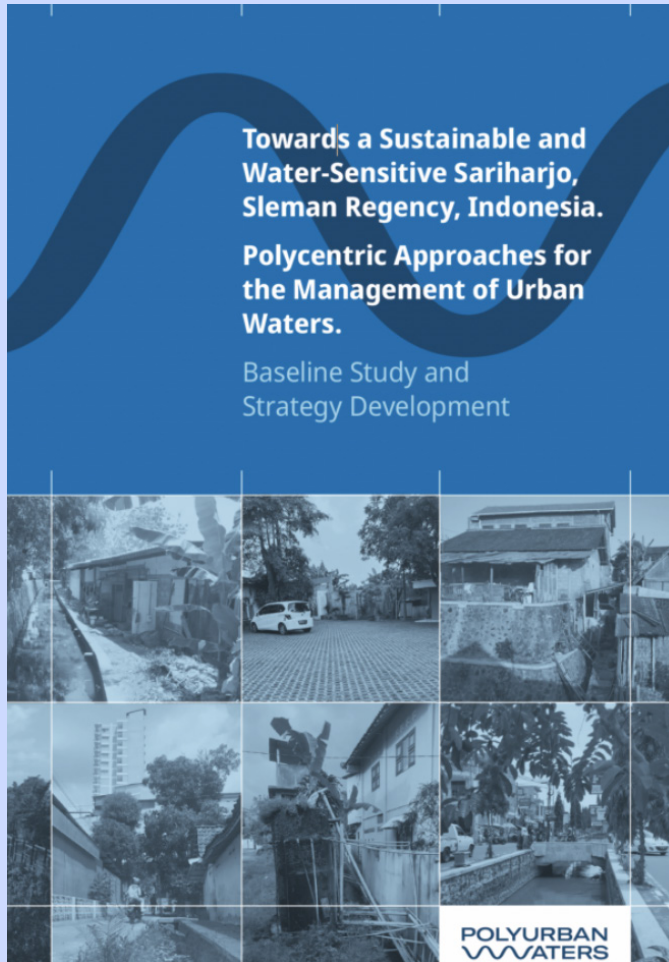
Transect Walks

Focus Group Discussions

Knowledge Quiz and Enrgizers

Manual Mapping Methods

Strategis Water-Sensitive Planning Workshops



Sariharjo, Sleman, Indonesia

Baseline Study (January 2023)

<https://polyurbanwaters.org/resources/>

Habitat Unit

Participatory Tools and Methods for Water-Sensitive Vision Building Process

Experiences from Indonesia and Laos
Action Toolbox: first draft (for further development)



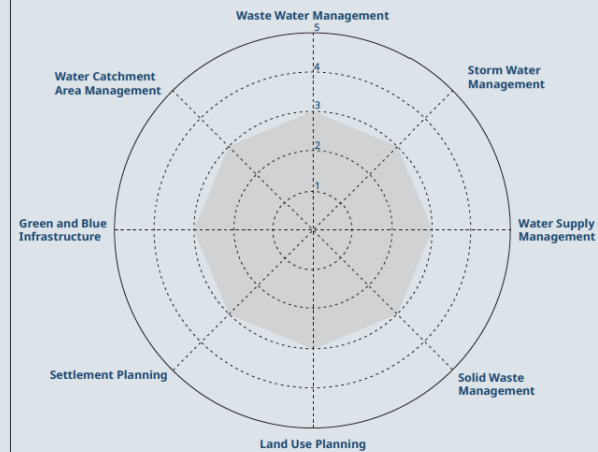
Habitat Unit **POLYURBAN WATERS**

FORMAT

Transect Walk XX Neighbourhood (Focus Area)

Title: [Focus Topic]
Focus Area: _____
Date: _____
Time: [Start Time] - [End Time]
Location: [Coordinates of starting and ending point]
Participants: [List of Participants, including names and roles]
Exemplary questions adressed to encounter:
Q1: Did you have any problems which water related?
Q2: Did flooding occurred in you neighborhood?
Q3: _____
...

Rapid General Assessment of Current Conditions Assessment Radar Chart



Instructions: Rate each category from 1 (Very Poor) to 5 (Excellent).

Toolbox with guidelines and examples

... will be available on the Habitat Unit/PolyUrbanWaters Website in December 2024

Habitat Unit

V. Learnings, Reflections and Takeaways

Takeaways from 6 years in PolyUrbanWaters...

- **Building long- standing relationships with partners is a key**
- **Embedding Knowledge in Local Structures beyond the project duration**
- **Embracing context and cultural sensitivity**
- **Securing Data availability/sharing information - if there is no available data starting create it on our own and share**
- **Utilizing concrete examples used as tools for inspiration or understanding, but explaining the need for context-specific tools**
- **Identifying and tackling problems through a integrated perspective/ focus topic (e.g. water-lense)**

Habitat Unit

Thank you!

Responding to urban water challenges in Southeast Asia.
Introducing polycentric management approaches to create
resilient, water-sensitive cities (Dekker et. al. 2020)



Available on:

- <https://www.researchgate.net/publication/350188726>

or just contact us via email
a.wilk-pham@tu-berlin.de
t.imsirovic@tu-berlin.de

POLYURBAN
WATERS

Habitat Unit



Experiences of the PolyUrbanWaters From Government Perspective



**KOTA
KITA**
A CITY FOR ALL

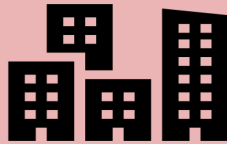


**Technology
Arts Sciences**
TH Köln

ITT
Institute for Technology and
Resources Management in
the Tropics and Subtropics



SPATIAL



RTRW

REGIONAL SPATIAL
PLANS

LR No 13/2021

PRIORITIES

SECTORAL PROGRAMS

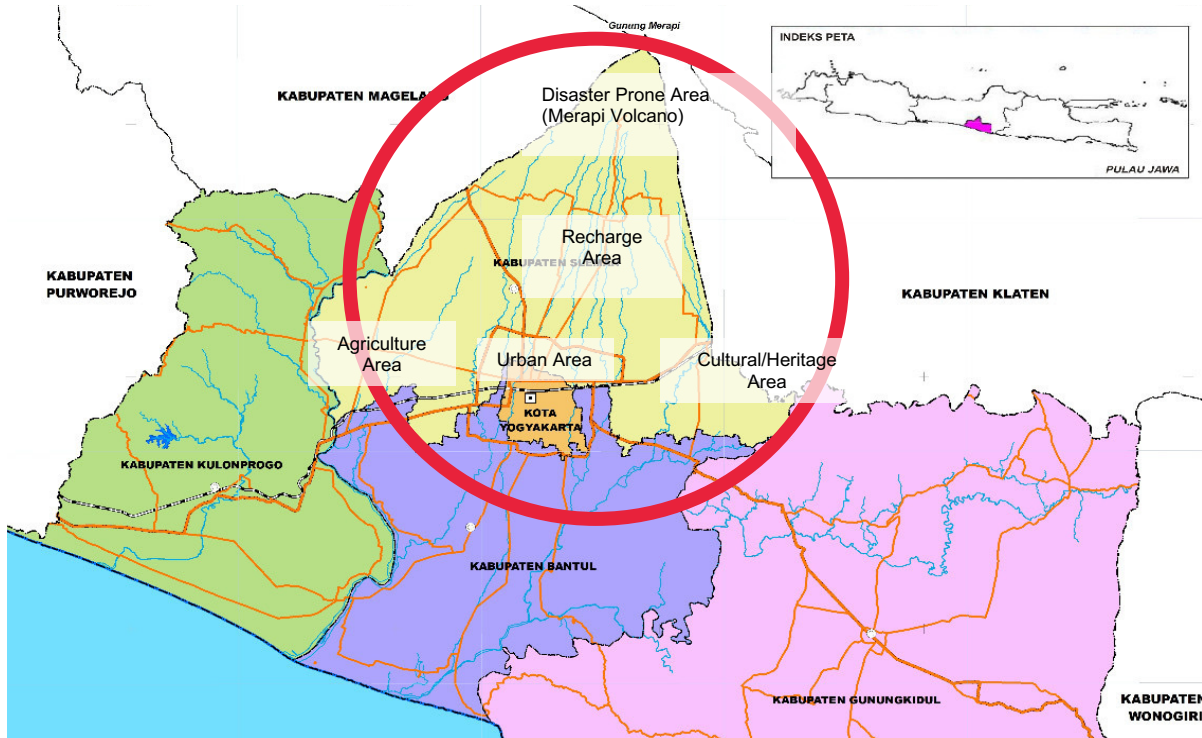


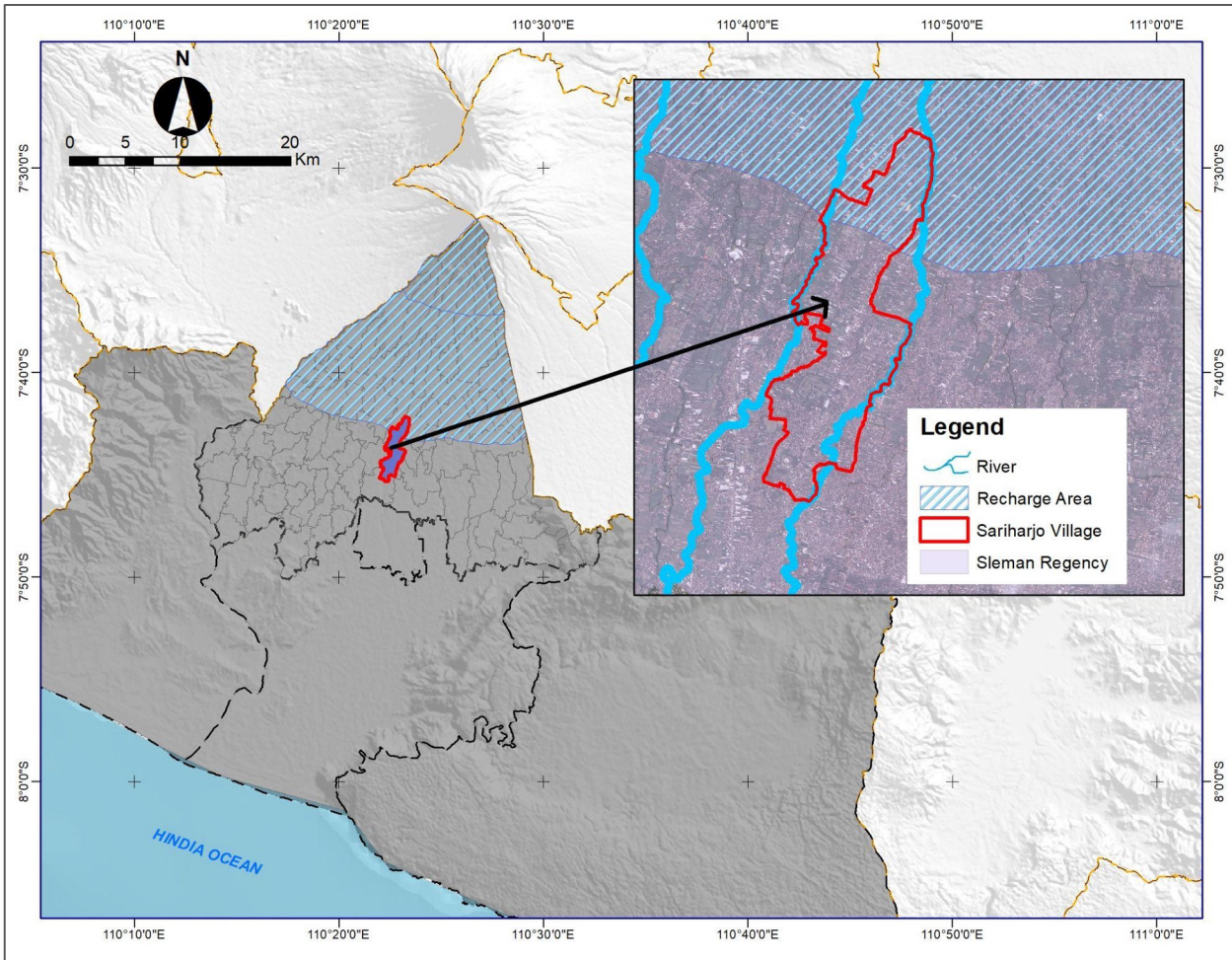
RPJMD

REGIONAL MEDIUM TERM
DEVELOPMENT PLAN

LR No 3/2021

realizing regional space that is **resilient, developing and sustainable** by achieving spatial planning to encourage the development of a green and creative economy, realizing the use of space to direct smart growth, and achieving increased capacity for security resilience and adaptation to the impacts of climate change and disasters





The Map of Sariharjo Village

The Realization of Sleman as **Mutual Home** which **Smart, Prosperous, Competitive, Respecting Difference, and Having a Spirit of Mutual Connection**



Mission 1
Create **good governance** with the support of technology to improve the quality of service to the community



Mission 2
Improve the **quality of human resources** through quality and affordable education and **health services**



Mission 3
Build a **creative and innovative economy** to improve prosperity



Mission 4
Increase **community resilience** in the face of various threats and disasters



Mission 5
Build **adequate facilities and infrastructure** to support the realization of smart regency



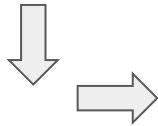
Mission 6
Strengthen the **culture of a community** that respects each other and have a spirit of **mutual cooperation**

The Realization of Sleman as **Mutual Home** which **Smart, Prosperous, Competitive, Respecting Difference, and Having a Spirit of Mutual Connection**



Mission 5

Build adequate facilities and infrastructure to support the realization of smart regency



Objective of Mission 5

The realization of **improving the quality of infrastructure and integrated regional facilities and a sustainable environment**

Increased literacy skills of the community

The realization of harmony's development between sectors in the framework of sustainable development



Indicator

Regional infrastructure development index



Operational Definition

1. **Scope of infrastructure and regional facilities** development,
2. Road Traffic and Transport Performance Index
3. **Environmental quality index** which includes :

- **Water Quality Index,**
- Air quality index,
- Land Cover Quality Index

Government Commitment to Support “Water Sensitive Community”

- To support the community-based institution in establishing drinking water villages for the people through **SPAMDES** (Village community-based institution) facilitating project
- Establishing a **Working Group and Forum on Housing and Residential Areas** which has concerns about the availability of clean water
- The Sleman government recognizes and supports the **involvement of other parties**, including communities, NGOs, the private sector, and academia, to collaborate on realizing Water Friendly Sleman
- **Concepts, tools, pilot projects, and capacity building** are needed to ensure the development of a Water-Sensitive Sleman
- PolyUrbanWaters **approach with case studies** at the village and hamlet level can be a media and pilot to answer water problems and realize Water Friendly in Sleman Regency
- Sleman is committed to making the case in Sariharjo Village and in the sub-village to be replicated and scaled up for wider interests

Village Government's vision on **Water Sensitive Community**

- Sariharjo village has its **potential and at the same time various water-related problems** are existence in the village. In last two decades, the village experiences extraordinary challenges and pressures, especially with the massive development of commercial activities
- Although the Law 6/2014 on Village mandated the **full authority and autonomy of village to manage its territory and community**, without the support from the higher authorities, **the village unable to adequately respond to the challenges and pressures that arise**
- The existence of PolyUrbanWaters project in Sariharjo Village is a '**blessing**' that encourages a shared spirit to do the best for Sariharjo village
- Water-friendly Village approach is a must in Sariharjo. In 2022, the village government have agreed on the development of a vision for a water-friendly village, with the slogan "**Water for Children and Grandchildren**".
- Implementation and piloting at the sub-village level can **provide a real example** for realizing this vision
- Community involvement is "**a must**"

THANK YOU

Urban ACT: Integrated Urban Climate Action for Low-Carbon & Resilient Cities

Stormwater Management in Bhubaneswar

Turboclic Event Series #1

15/07/2024

Supported by:



on the basis of a decision
by the German Bundestag



About UrbanAct Project

Funding institutions:

Federal Ministry for Economic Affairs and Climate Action (BMWK)

International Climate Initiative (IKI)

Implementing Partners:

Political Partner: Ministry of Housing and Urban Affairs (MoHUA)

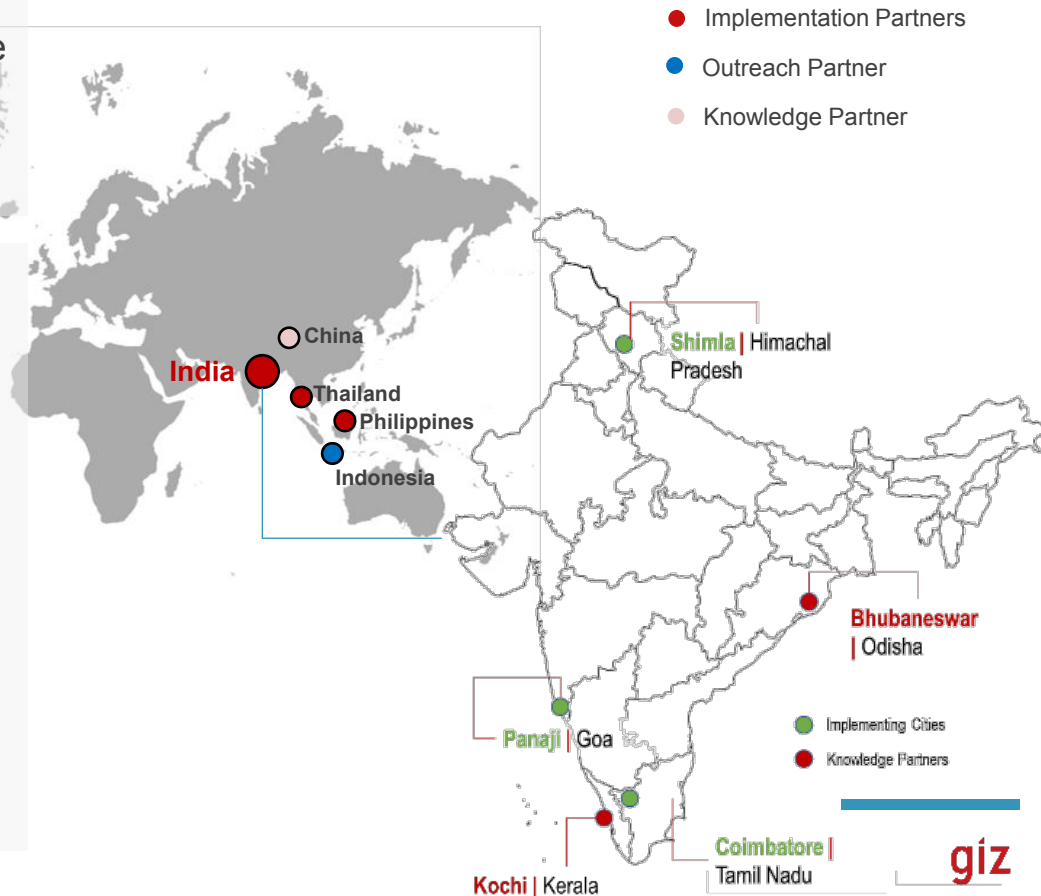
Regional Implementing Partners:



India Implementing Partners:



Timeframe: 4 years (Q4/2022 – Q4/2026)



Project Location



Issues

- Severe situation of stormwater drainage in Bhubaneswar
- runoff water from streets and highways is adding much pressure on the drainage network
- the loss of rainwater infiltration due to an increasing concretization of surfaces in both public and private spaces
- the increasing loss of wetlands due to mostly illegal constructions on the flood plains and wetlands are substantially reducing the capacity of upstream areas to hold water in place.
- An hourlong heavy rain during the year 2018 caused waterlogging in various parts of the Bhubaneswar City.

Challenge

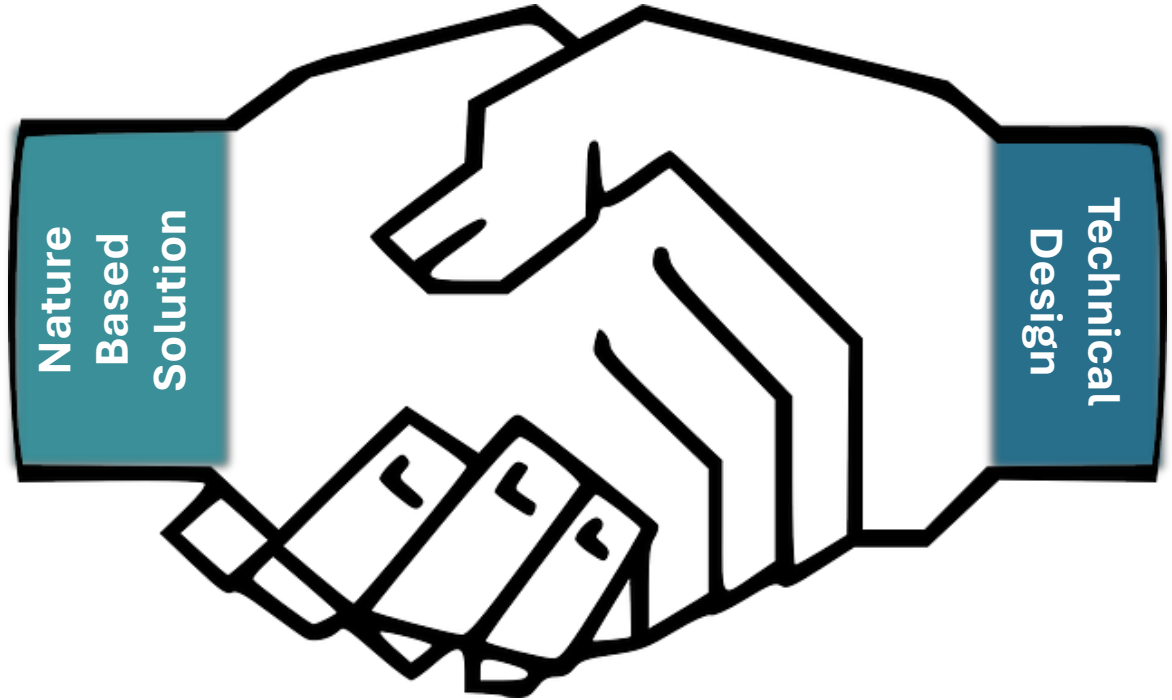
- causing water logging in places where the waterflow is blocked by physical barriers
- increasing the amount of water that is running to downstream zones of Drain No. 10

Existing Situation

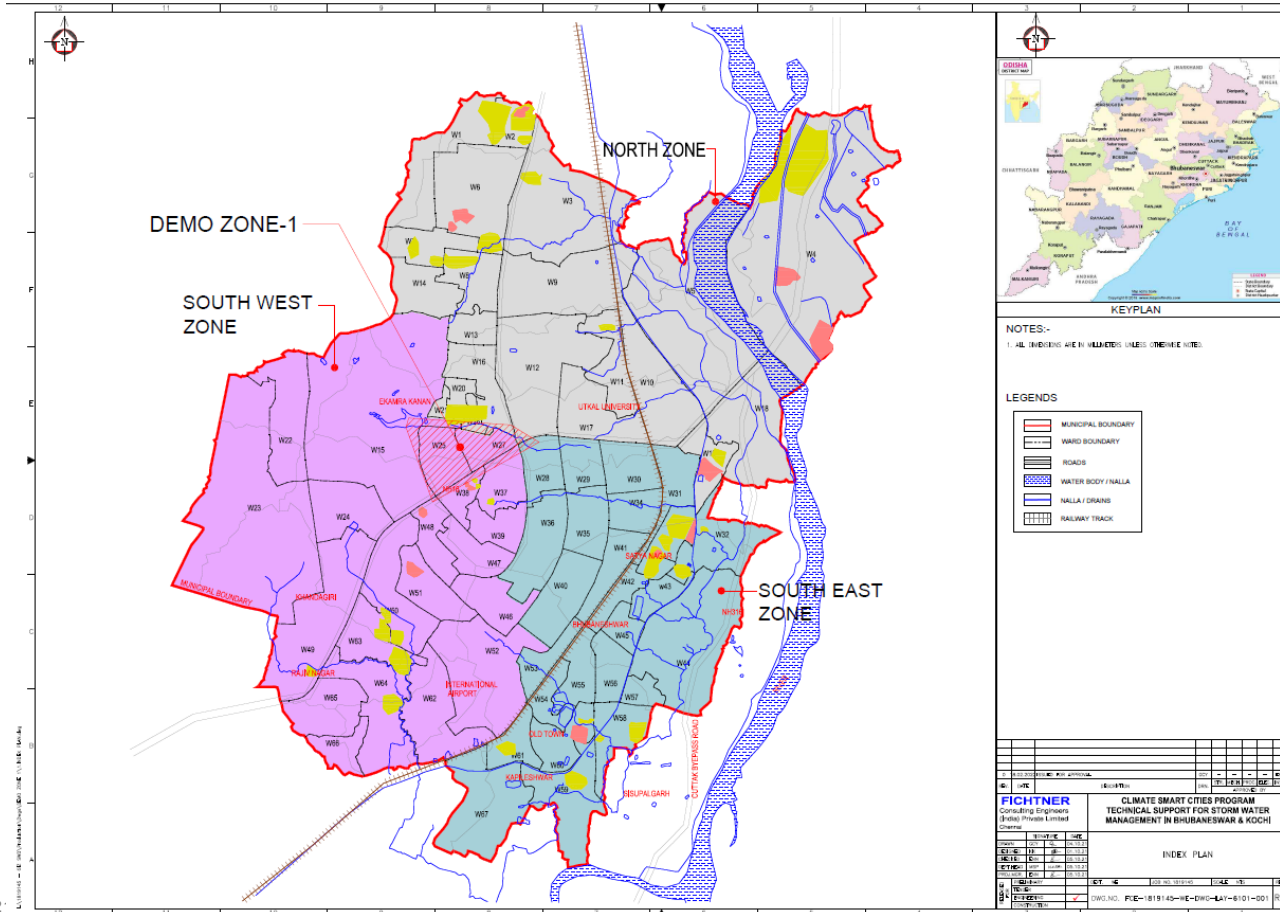


Most of the drains are already filled with sewage / sullage and also solid waste wherever the drains are open

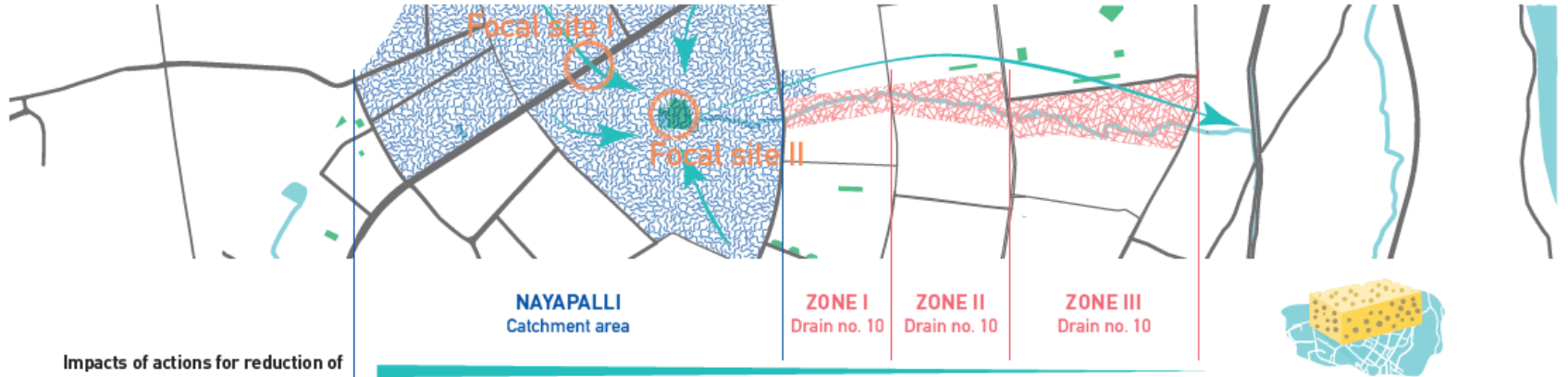
Solution



Project Location



The challenge



Impacts of actions for reduction of rain water quantity in drain No. 10

Fields of action

Urban planning & design

- Retention zones in open spaces (incl. street design)
- Restoration of wetlands
- Rainwater harvesting & management

Infrastructure

- Expansion and retrofitting of drainage system
- Overcoming barriers
- Prevention of intrusion of sewage water

Side topics

- Solid waste collection & management

Urban planning & design

Infrastructure

- Retrofitting of drainage system
- Removal of drain clogging

Side topics

- Reduction of the effects of encroachments

To develop the catchment area to a role model of a 'sponge city' improves the situation in Nayapalli during rains and creates leverage effects for the development of Zone I-III of Drain No. 10.

Urban Design Thinking exercise

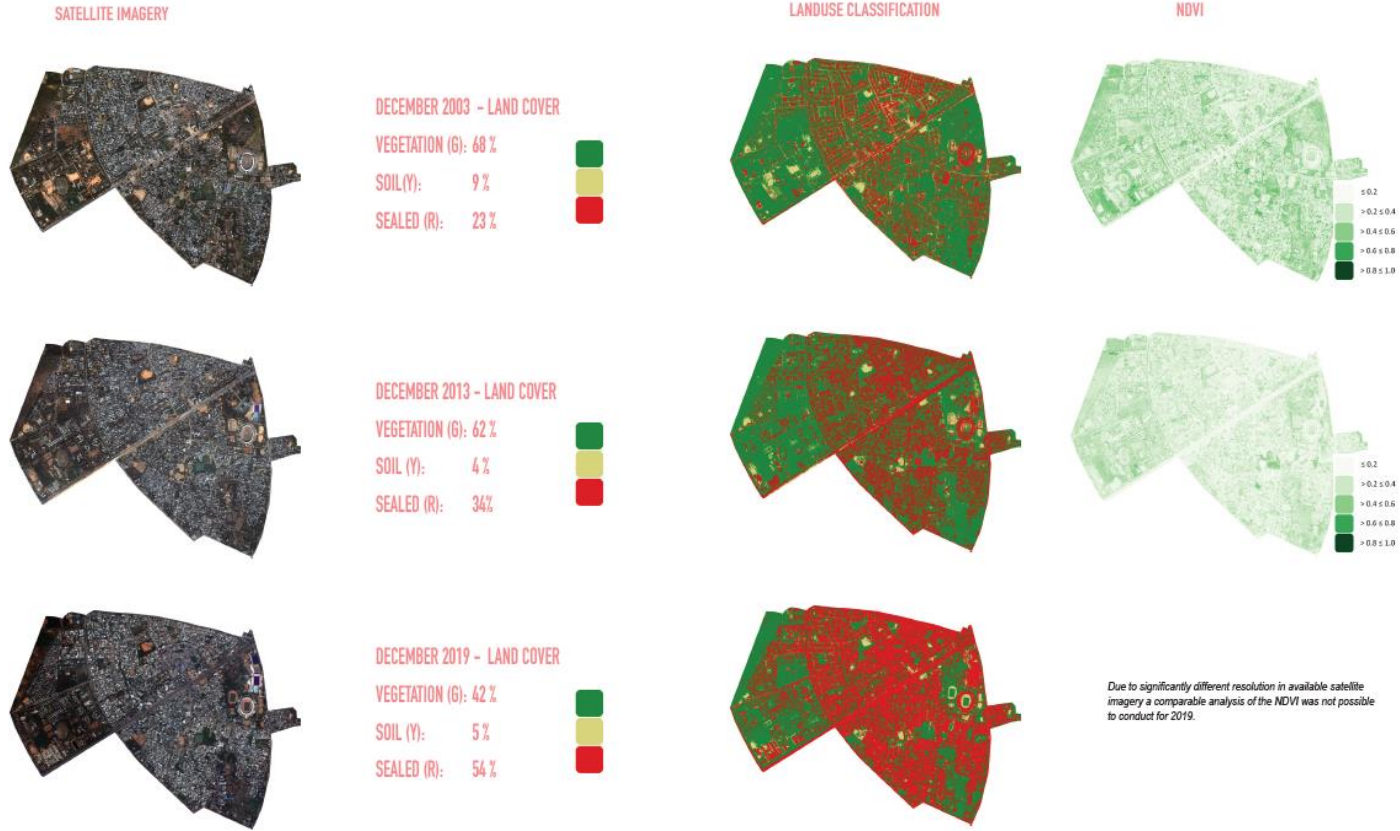


Participants from different organizational and professional backgrounds were invited to the two-days workshop in Bhubaneswar to find solutions for the stormwater management in Nayapalli.

Urban Design Thinking exercise



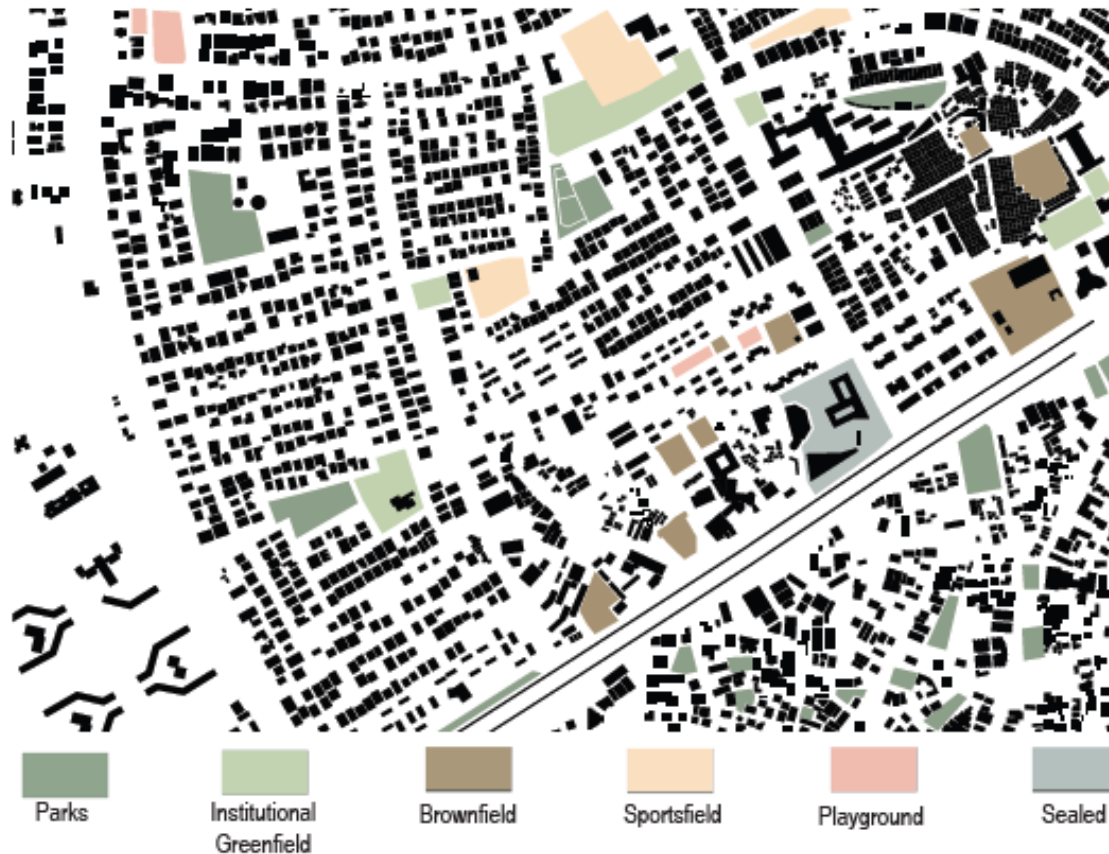
Landuse and landuse change study



* The area of the spatial analysis has been chosen with regard to Ward boundaries of Nayapalli (W23, W27, W37, W38, W39) and neighbouring areas in Ward 15 with high relevance to the hydrologic system of the catchment area of Nayapalli.

Fig. 9: Spatial change from 2007 to 2021: Reduction of urban green due to dynamic development of the area | Analysis, TU Berlin, based on data from WorldView-3 operated by DigitalGlobe preprocessing by Land Info Worldwide Mapping, LLC 2021

Openspace typology analysis



Open Spaces with potential to be activated within a sponge city concept



Rameswaram Temple Brownfield



BMC Children's Park



N1 Park



BDA Cricket Ground



Green Streets

- green streets are acting as supportive elements to green spaces.
- reduce water runoff to make use of rainwater in situ.
- As other green spaces, green streets will directly contribute to secondary effects: reduction of heat islands and the improvement of local microclimates, the improvement of air quality, maintenance of green spaces, groundwater recharge, and an increased awareness for blue-green infrastructures as measures to achieve sustainability on a neighbourhood level.
- Additionally, the implementation of green elements in streets will directly contribute to the image of neighbourhoods and the improvement of the quality of life and wellbeing of local residents.



Street Design

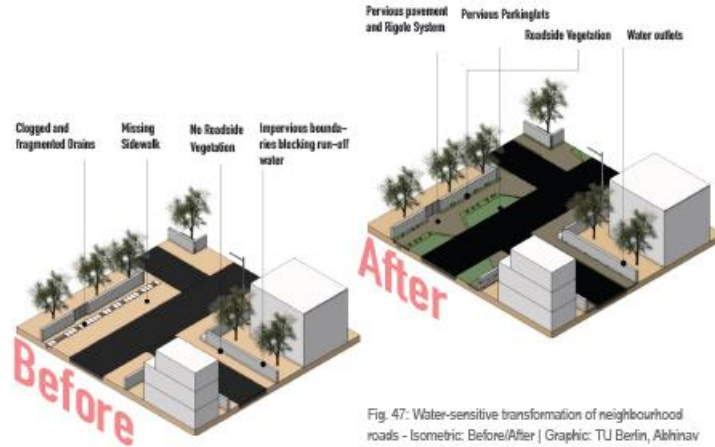
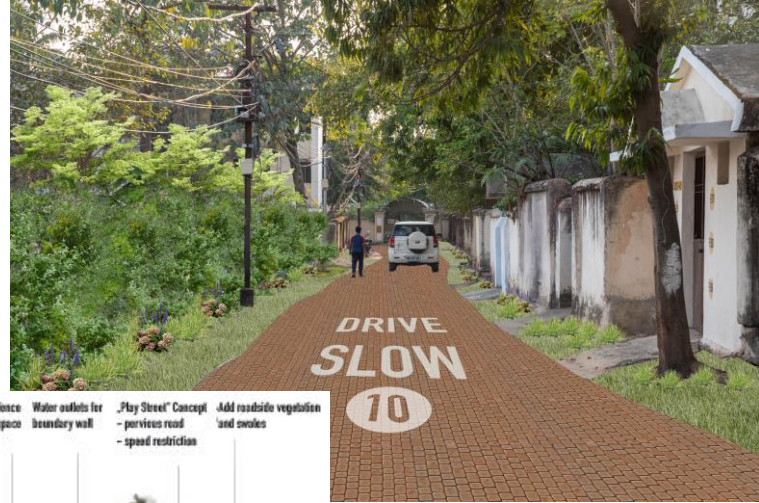


Fig. 47: Water-sensitive transformation of neighbourhood roads - Isometric: Before/After | Graphic: TU Berlin, Albinav Thakar, Based on Photograph, Marcus Jevtner, 2020

Street Design

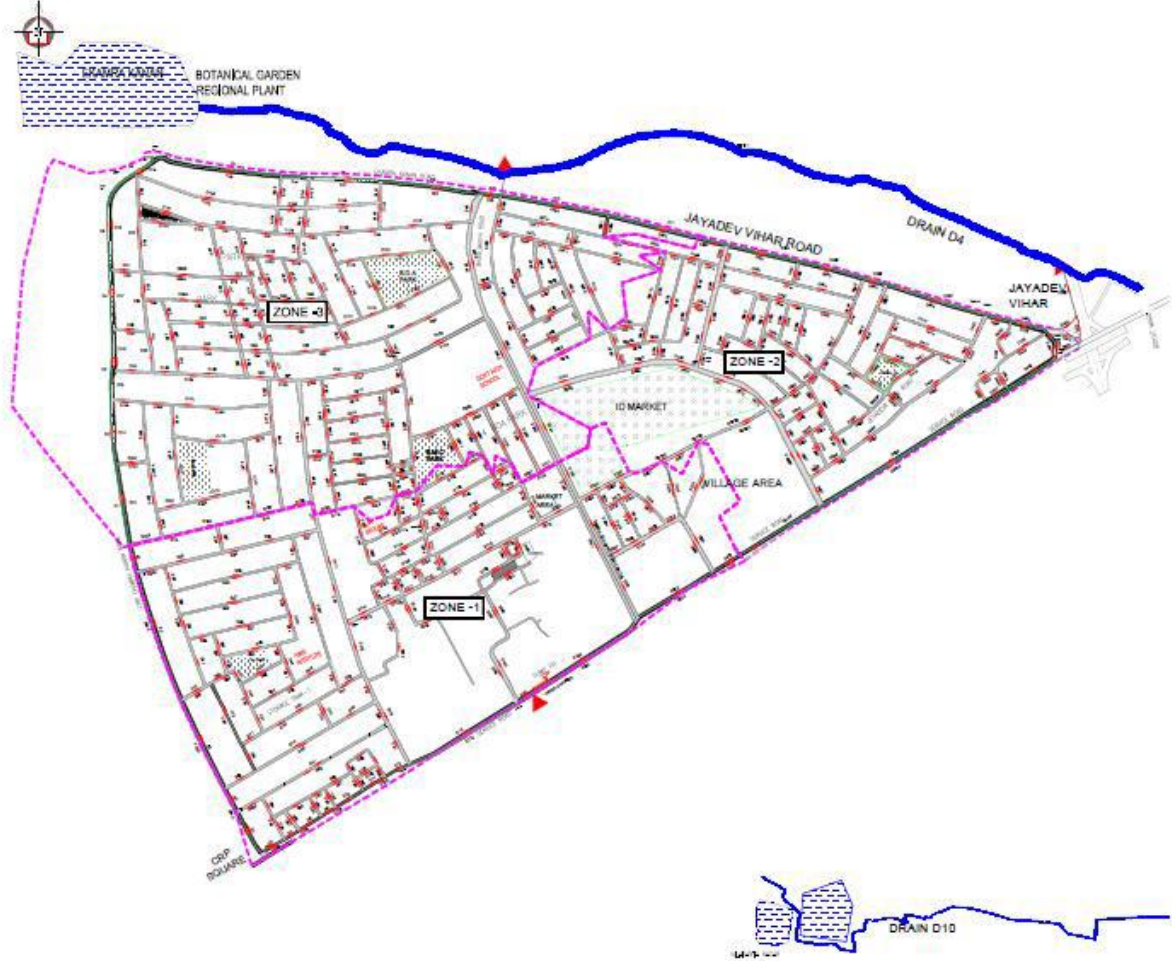


- Implement biotope next to public space
- Water outlets for boundary wall
- „Play Street“ Concept
 - pervious road
 - speed restriction
- Add roadside vegetation
 - and swales

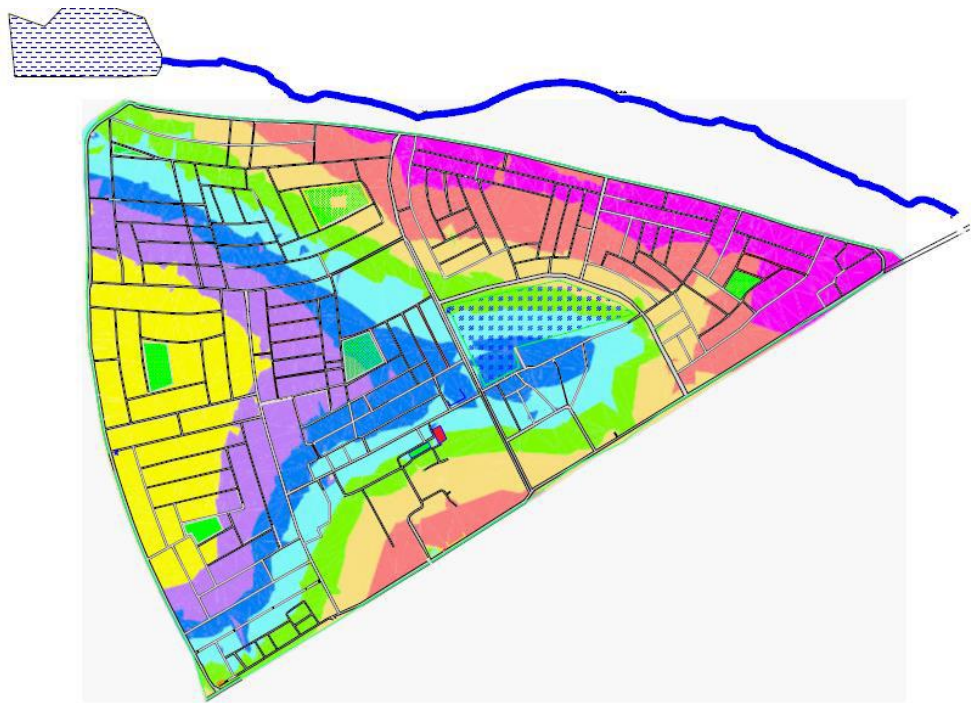


Fig. 50: Water-sensitive transformation of neighbourhood roads - Isometric: Before/After | Graphic: TU Berlin, Abhinav Thakur, Based on Photograph, Marcus Jostner, 2020

Existing Stormwater Drain in the pilot area

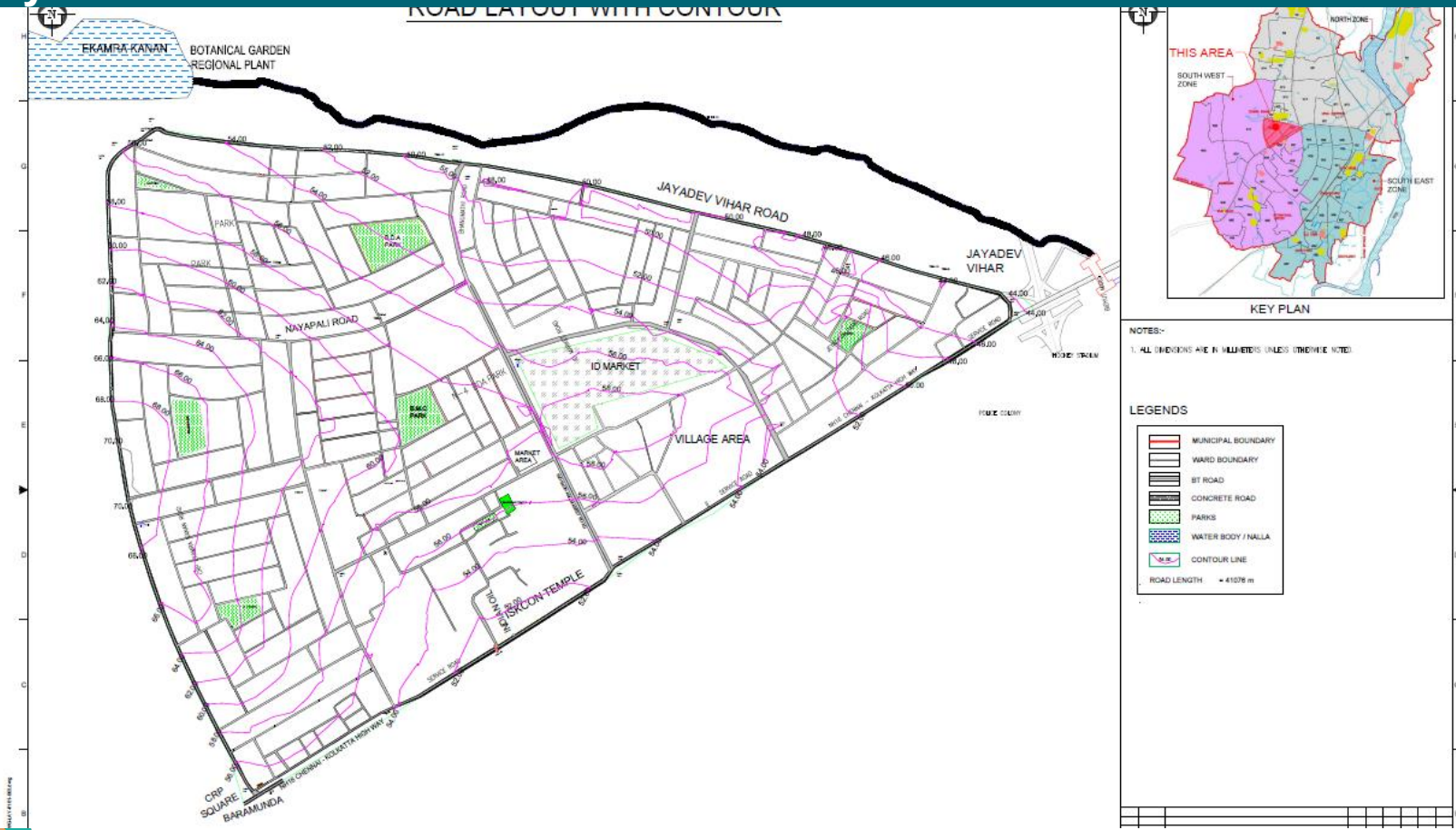


Topography analysis

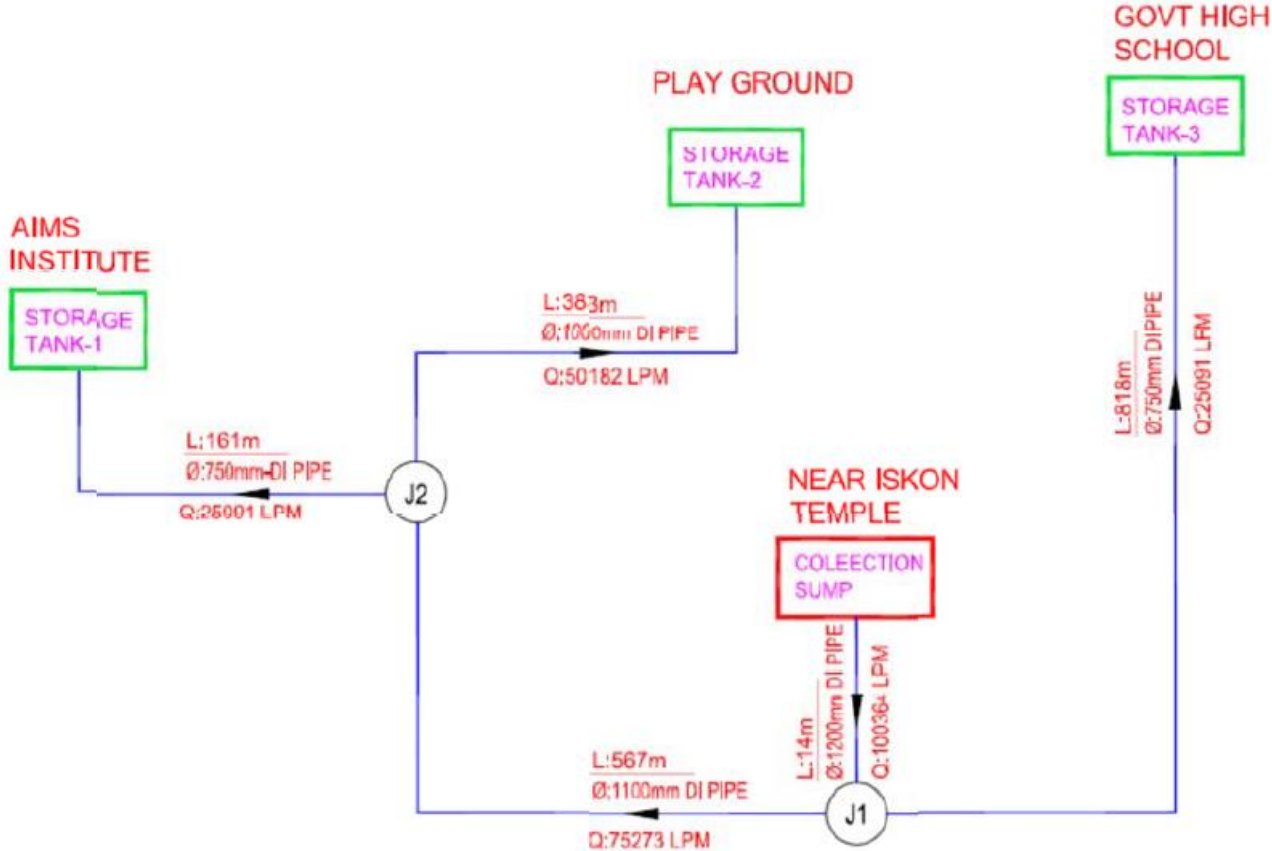


Elevations Table			
Number	Minimum Elevation	Maximum Elevation	Color
1	43.596	50.261	Magenta
2	50.261	52.990	Red
3	52.990	54.764	Orange
4	54.764	56.376	Yellow
5	56.376	58.094	Light Green
6	58.094	59.577	Cyan
7	59.577	62.575	Blue
8	62.575	72.262	Purple

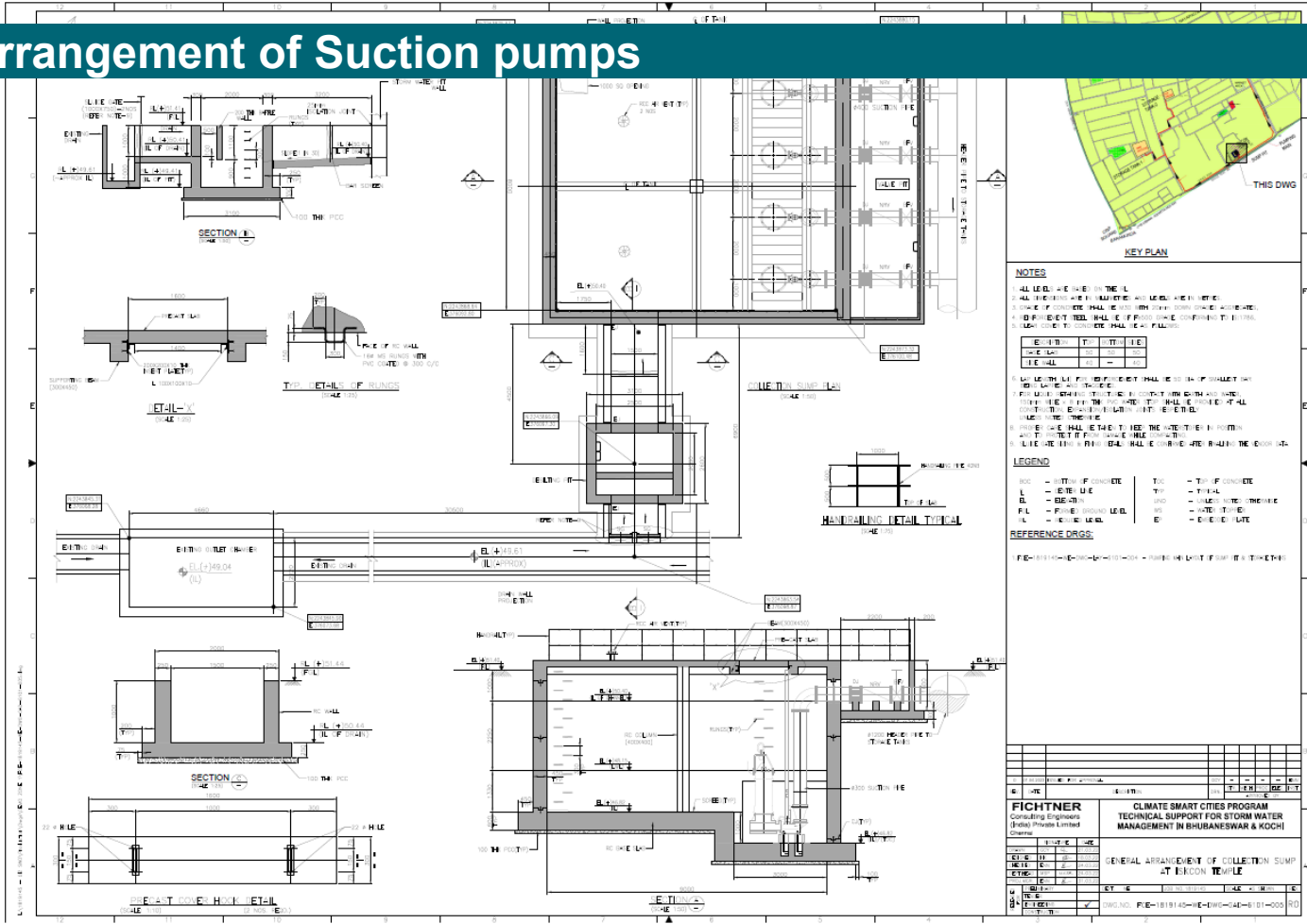
Road Layout with Contour



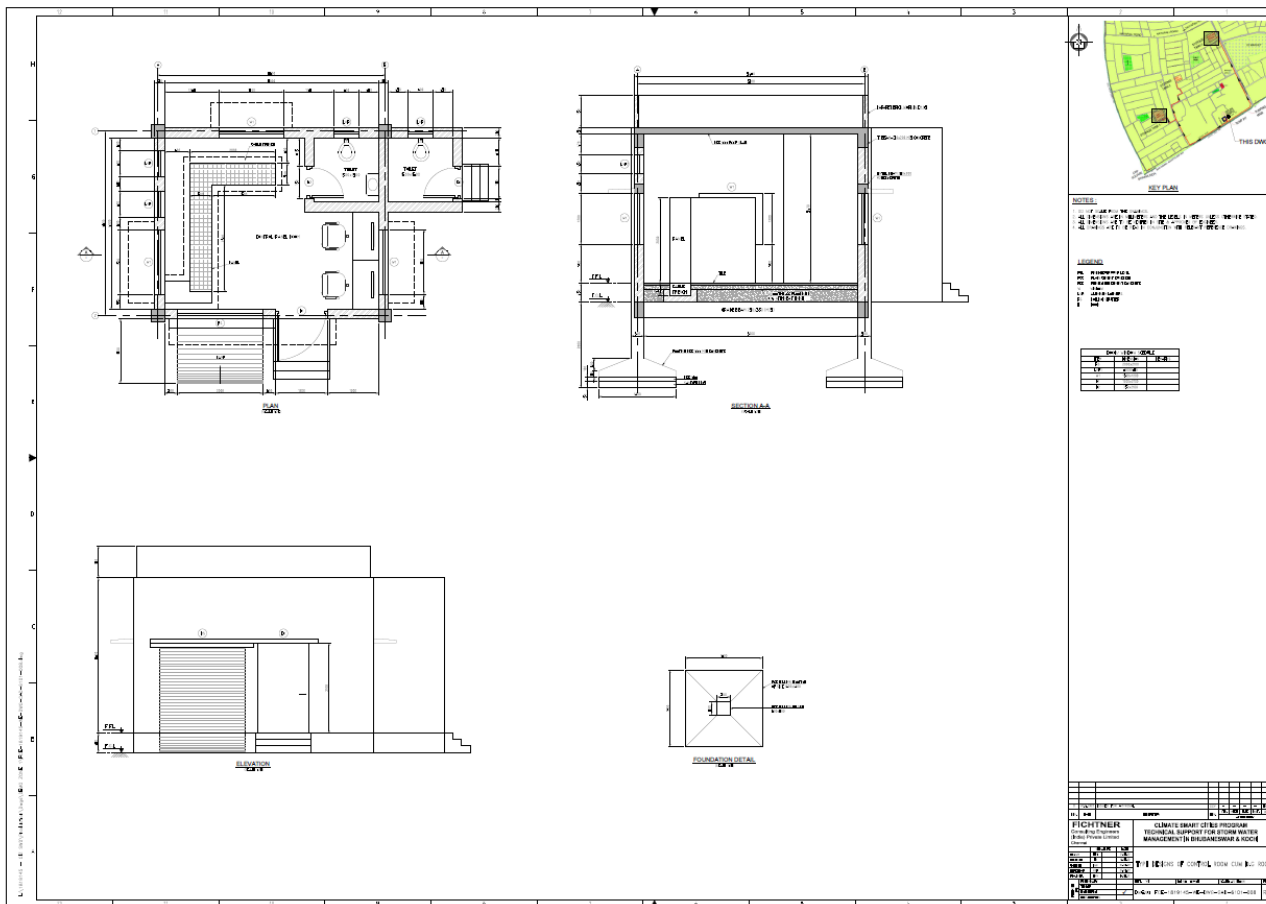
Schematic diagram of Stormwater management



General arrangement of Suction pumps



Pump room and DG layout







Liju Mathew

Urban and Regional Development Advisor

New Delhi, India

Liju.mathew@giz.de



www.giz.de



https://twitter.com/giz_gmbh



<https://www.linkedin.com/company/gizgmbh>