

BUILDING UPON ADAPTIVE CAPACITY AND RESILIENCE IN PERI-URBAN INDIA

For sustainable water resource management in an uncertain world

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CONTEXT

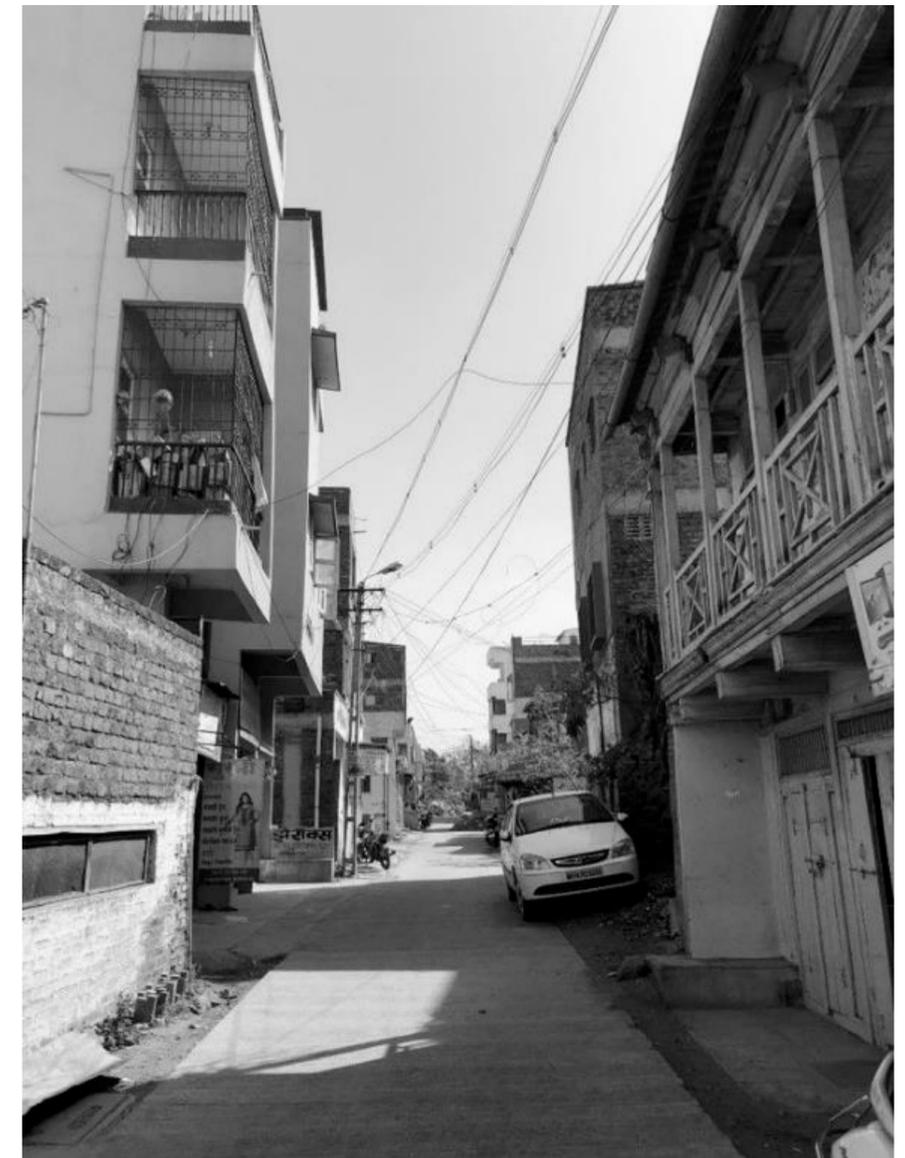
PERI-URBAN AREAS

Peri-urban

- Transition zone during urbanization
- Two way flow of goods, services, and population with the nearby urban center.

Contextual features

- Dynamic
- Heterogeneous social composition



PERI-URBAN INDIA

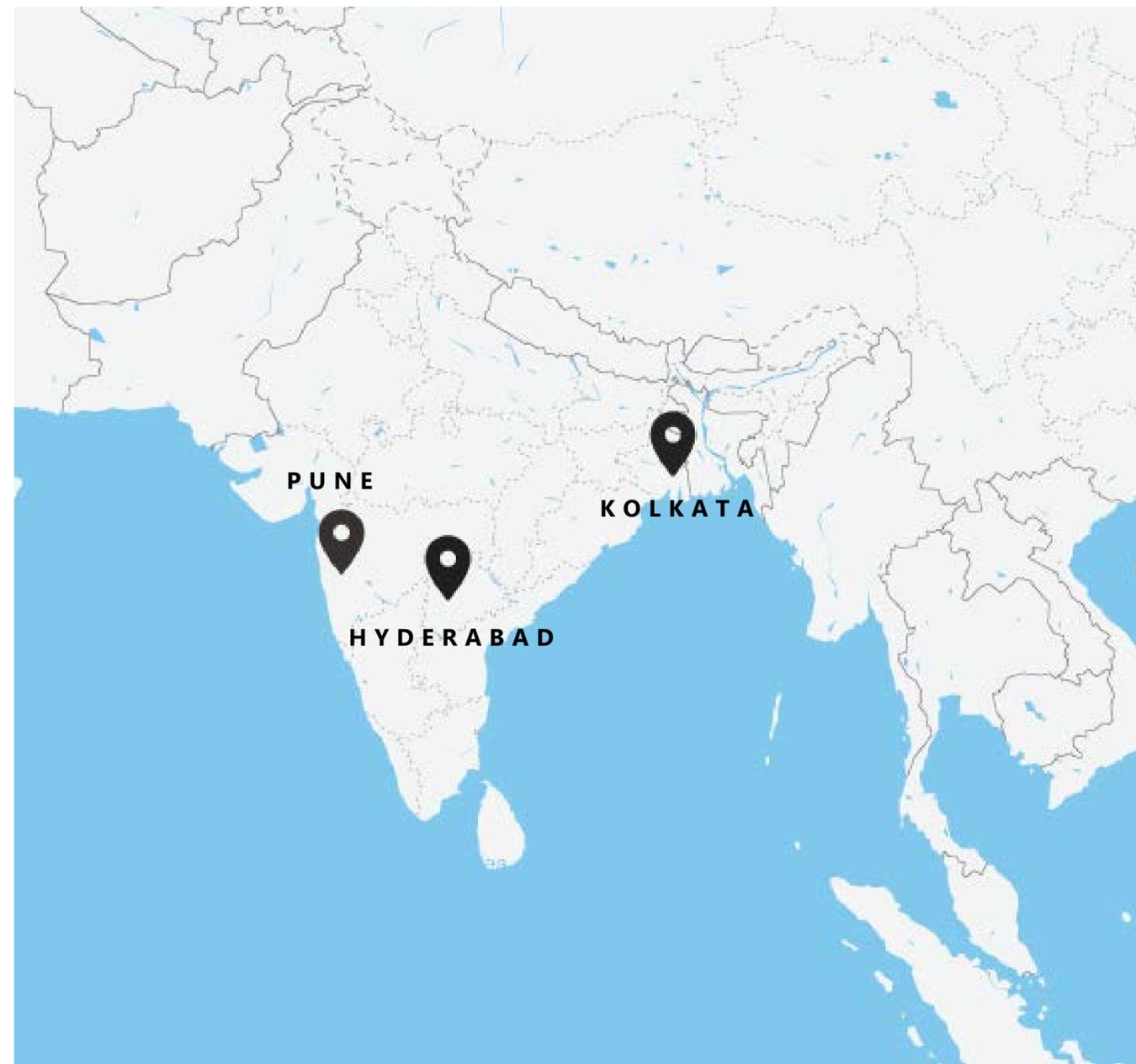
INSTITUTIONS FOR WATER MANAGEMENT

Institutions

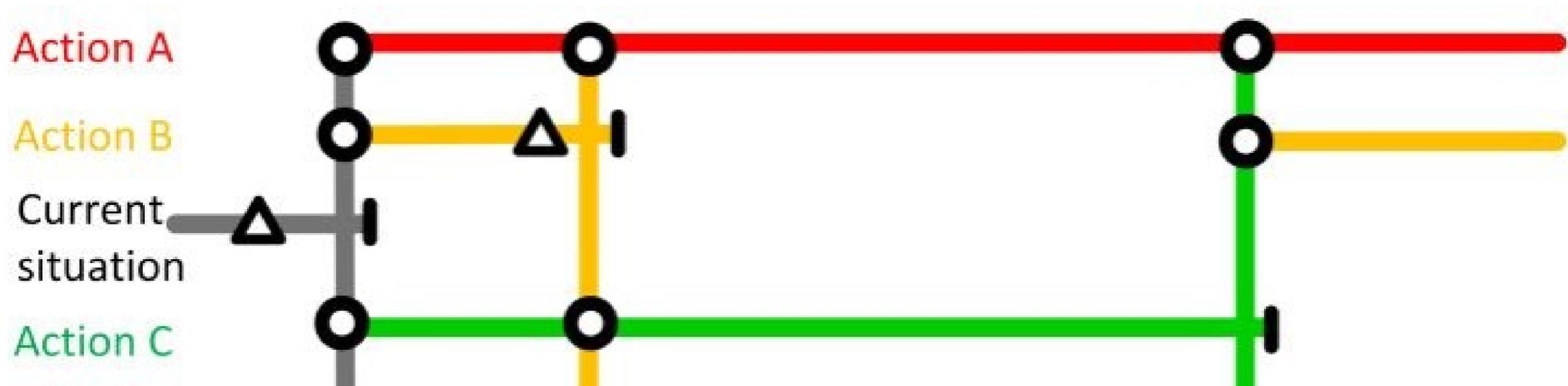
- Societal rules to guide decision-making and interactions
- Typically arranged along rural-urban boundaries
- Peri-urban institutional void
- Found in peri-urban areas of Pune, Hyderabad and Kolkata

Impact on peri-urban water resources

- Seasonal scarcity
- Competition for water access
- Deteriorating water quality



GEOGRAPHIC CONTEXT



PERI-URBAN AREAS

SUPPORT SUSTAINABLE WATER MANAGEMENT THROUGH ADAPTATION PATHWAYS

Current rural to urban transformations are not sustainable. The dynamic nature of peri-urban areas requires taking into consideration short and long term vulnerabilities. Adaptation pathways is a promising approach reported to help stakeholders and policymakers develop longer-term transformative plans (Butler et al., 2016a, Lawrence & Haasnoot 2017, Hermans et al 2017).

H2O-T2S PROJECT

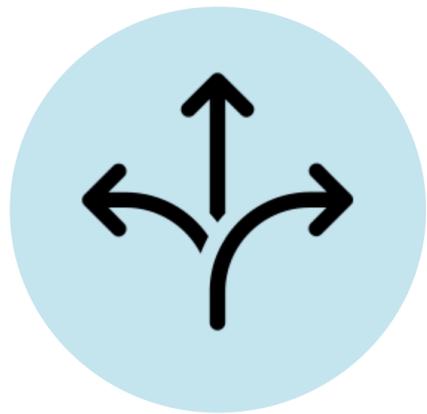
- Purpose: Pilot the use of Adaptation Pathways in peri-urban context to support sustainable water management
- How? Through a series of stakeholder workshops with
 - Government agencies
 - Local communities
 - Key scientific experts
- Expected to begin in December 2020 (dependent on Covid-19 situation in India)
- Purpose: Facilitate knowledge exchange & dialogue. And design transformative pathways for sustainable future development of peri-urban areas
- But how do peri-urban areas currently adapt and respond to water related vulnerabilities?

Current research examines the resilience and adaptive of peri-urban areas to water related vulnerabilities to be used as inputs in future Adaptation Pathways workshops.



FRAMEWORK

INDICATORS OF RESILIENCE



DIVERSITY

To cope with uncertainty & clear directions for adaptive actions



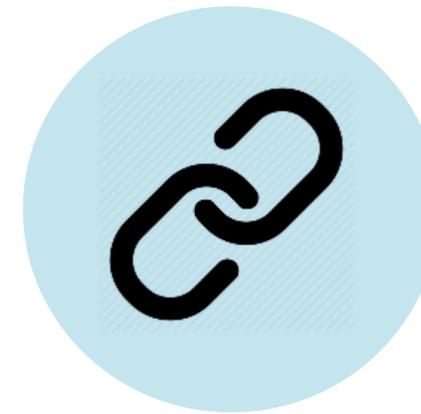
OPEN INSTITUTIONS

That incorporate learning & adaptation



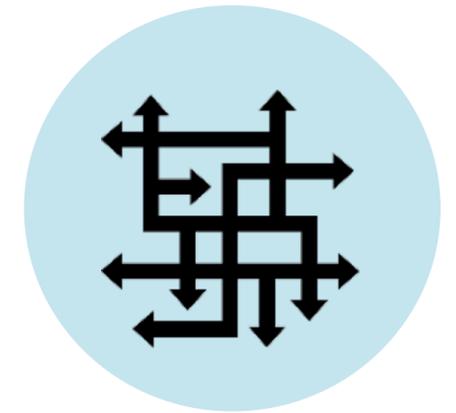
INNOVATION

In social and ecological system components (ecosystem friendly technology, economic incentives)



COUPLED SYSTEM

Recognises human-ecosystem coupling



COMPLEXITY

Interactions between human-natural systems



GOVERNANCE

Flexible multi-level governance



PLATFORMS

Action platforms for collaboration



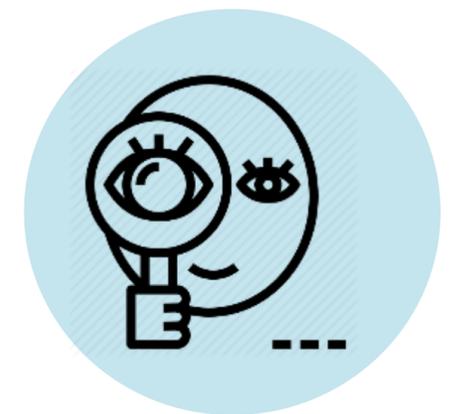
KNOWLEDGE UPTAKE

Participation of resource users & interest groups. Translate knowledge into institutions/governance



DYNAMICS

Indicators of gradual change & early warning signals

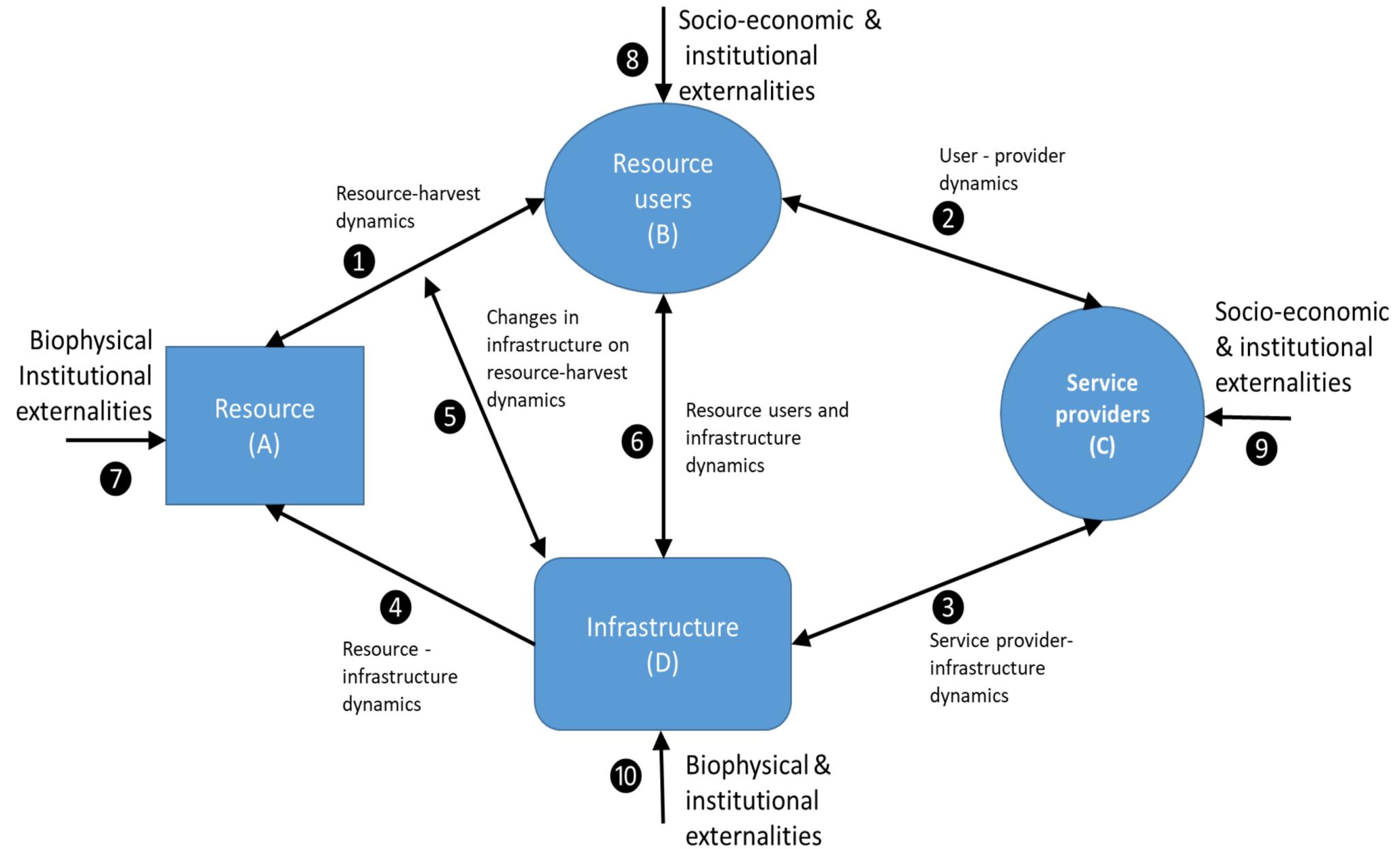


ECOSYSTEM

Monitor key ecosystem variables

FRAMEWORK

ADAPTIVE CAPACITY



Adapted from (Anderies et al., 2004)

KOLKATA

PERI-URBAN PROFILE

- Livelihoods in these two peri-urban villages face different water-related vulnerabilities.
- Adaptive capacity and resilience of water institutions in peri-urban Kolkata will be analyzed using the research frameworks.

- Hadia: Large fishing community that uses wastewater from Kolkata city. Village is in a RAMSAR protected wetland, so land use and development is restricted. Some farmers are part of a fishing cooperative that offers added benefits.



- Badai: numerous dyeing factories use large quantities of groundwater and pollute surface water bodies with effluents creating conflicts with local farmers.

SUMMARY

SUSTAINABLE WATER MANAGEMENT

- In urbanizing contexts
- Need to understand urban development trajectories & institutional capacity

ADAPTATION PATHWAYS

- Policy-planning approach
- Complex, uncertain futures

TRANSFORMATIVE CHANGE

- Start from the existing situation
- Resilience & adaptive capacity
- Then proceed to designing transformative pathways for the future

DISCUSSION

QUESTIONS FROM THE AUTHORS

1. How can the Adaptation Pathways approach build upon existing capacity in a given context?
2. What inputs from baseline studies do we integrate into the design of Adaptation Pathways workshops?
3. Given the added uncertainties caused by the Covid-19 crisis, how should we address it during pathways discussions on water with stakeholders?

THANK YOU

Please share your questions and feedback



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