Adapting to Periurban Water Insecurity Induced by Urbanization and Climate Change: Insights from South Asia

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Research Locations in South Asia

Partners:
- SaciWATERs, India
- BUET, Bangladesh
- NEC, Nepal
- MDI, India
Periurban Research Locations

• **Khulna**, Bangladesh: tropical monsoon climate, coastal tide-influenced area, susceptible to sea level rise, cyclone, storm surge, rainfall flooding, water logging and salinity intrusion.

• **Kathmandu**, Nepal: predominantly sub-tropical cool temperate climate.

• **Gurgaon**, India: semi-arid climate, low humidity, hot summer and cold winter.

• **Hyderabad**, India: semi-arid Deccan plateau, predominantly tropical wet and dry climate.

• Represent diversity in physiographic and climatic patterns as well as similarities in periurban issues and processes across South Asia.
Key Concepts

• Periurban:
  - Transient spatial urban diffusion to the rural,
  - Rural-urban continuum,
  - A contested space in transition,
  - Unique processes and contexts,
  - Ignored in urban development planning,
  - Lack in governance and institutions.

• Water Security:
  - Uncertainty attached to the availability of water,
  - Chronic day-to-day phenomenon vs. Ensuring future demands only.
Vulnerability Contexts: Urbanization and Climate Change

- **Changes** in the periurban **biophysical and socio-economic domains**.
- **Urbanization Effects**:
  - land entitlements
  - water access and rights
  - contestation for resources creates conflicts and weakens resilience - increases vulnerability
  - periurban biophysical systems and processes
  - **Examples**: Urban land development projects, Urban elites taking control over periurban water resources, Urban wastes and wastewater flows to the periurban areas, Urban heat island effects spill over to the periurban areas and change the local environment and **micro-climate**.

Khulna
Hyderabad
Gurgaon
Vulnerability Contexts: Urbanization and Climate Change

- **Climate Change Effects:**
  - Add to the urbanization effects
  - **Examples:** Reduced rainfall reduces groundwater recharge, Intense rainfall causes flooding, Excessive groundwater withdrawal for urban water supply reduces local availability.

- **Urban communities** are more resilient (high-functioning urban service delivery systems, stronger actors, defined institutions and governance).
Dimensions of Water Insecurity and Vulnerability

- New demands and claims on water
- Acquisition of village common property land and water resources
- Rural-urban water flows: water transfer, wastewater flow
- Links between land tenure and water security
- Potential for conflict among rural-urban water users
- Caste, class and gender: Upper class men, lower class women in India collect water
Evolving Adaptation Practices

• Planned Adaptation
  - Climate resilient infrastructure (drainage, building code)
  - **Supply augmentation** (water transfer, impounding reservoirs, WTP)

• Autonomous Adaptation
  - **Technological** (RWH, submersible pumps, sprinkler irrigation)
  - **Institutional** (new forms of collective institutions – tubewells, ponds, rotational water collection system, reliance on social capital, buying water from water tankers, selling water from land to tanker companies)
  - **Changes in livelihood strategies** (shift in cropping pattern, salinity tolerant crop, switching to culture fisheries, non-agricultural livelihoods, migration)
Research-Policy Linkages

- **Involvement of Communities** and Decision makers in the research process
- **Exposure** of Service Providers to the ground realities
- Multi-stakeholder platforms
- **Campaign**: ‘Save the Mayur’ (Khulna), ‘Save Our Urban Lakes’ (Hyderabad), ‘Lubhu Conservation’ (Kathmandu)
- Contribution of **Research Outcome** to Urban Policy and Programs (Draft Urban Area Strategy in Bangladesh)
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