Opportunities & barriers for recharge ponds in an urbanizing district of the Ramganga basin, as explored through transdisciplinary rural-urban linkages
Agenda

1. What
2. Where
3. Why
4. Key findings
5. What’s next
What is the research?

My background:
• MSc. In NL
• Sustainable urban development
• AMS Institute, Amsterdam

My research emphasis:
• planning for groundwater sustainability = rural+urban
• Opportunities for urban MAR
• Urbanization needs till 2035
Where is the study region?
Where is the study region?

Data from: UP state government
Growing city, growing agriculture, 2\textsuperscript{nd} tier cities interesting from a development perspective.
Visualizing key R-U linkages

Four pathways of R-U linkages studied:

1. Biophysical environment
2. Community
3. Spatial planning
   1. Institutional frameworks
   2. Design
Community
The linkage

group's connection to water
therefore, water ownership
resulting concerns for the future
Community
Barriers & opportunities

Rural DS:
• Fear floods, flee to city: need solutions now, ponds not immediate help
• Have GW issue concern & awareness for crops

Urban center:
• Disconnected from planning, implementation more likely through municipality than community-maintained ponds
Spatial planning - policy

The (de)linkage

- National agendas
- Basin development

rural development

- Have space
- Agrarian land ownership
- MGNREGA, Panchayat system

urban development

- Space constraints
- Urban land ownership (private, public, govt. bldgs.)
- municipalities, dev. Authorities

Scale-up will require different cooperation modes on rural & urban. Peri-urban interesting middle zone
Spatial planning

Barriers & opportunities – WIP proposals

Initial #s (urban)
- GW demand today ~ 53,550 MLY, GW demand 2035 ~ 84,408 MLY
- Natural recharge ~same = 13,272MLY from 76,416.7MLY rain

Possibilities / concerns:
- Can recharge ponds cover all needed recharge with barriers of space and land-ownership?
- What combined options are available rural+ urban+ peri?
- Shift to conjunctive use of SW-GW, 60-40?
Thank you