

# Building and Using Water Demand Models Based on the WEAP Approach

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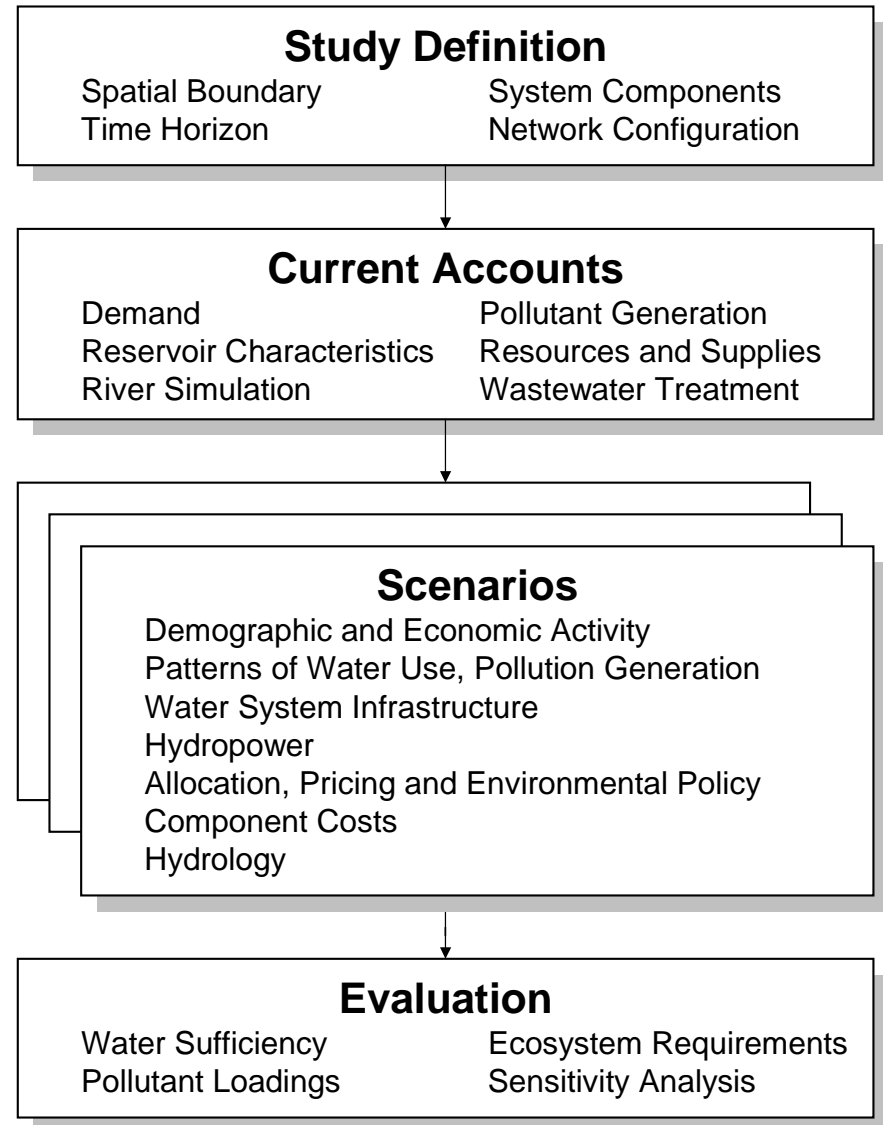
# Background

## Objectives:

- ...to develop and test a dynamic model for water demand...
- ...to apply the model for the various scenarios and interventions developed in co-operation with the stakeholders.

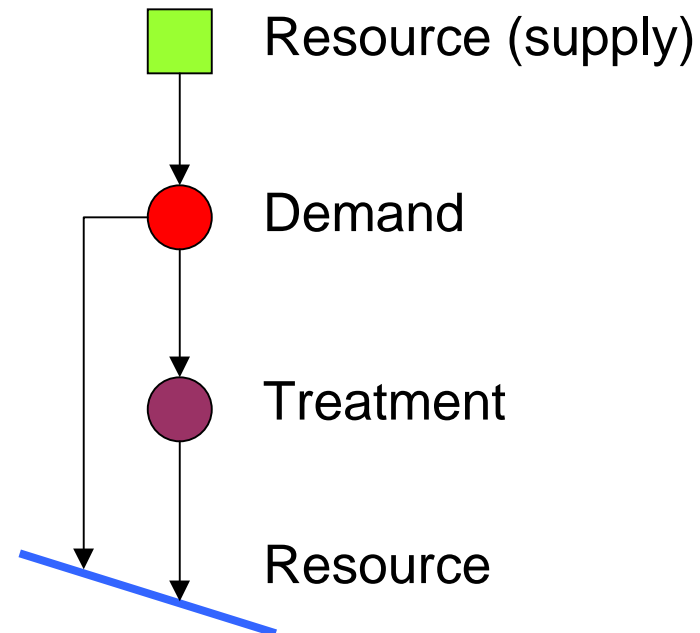
Modeling tool: SEI Water Evaluation and Planning System – WEAP

# WEAP capacities

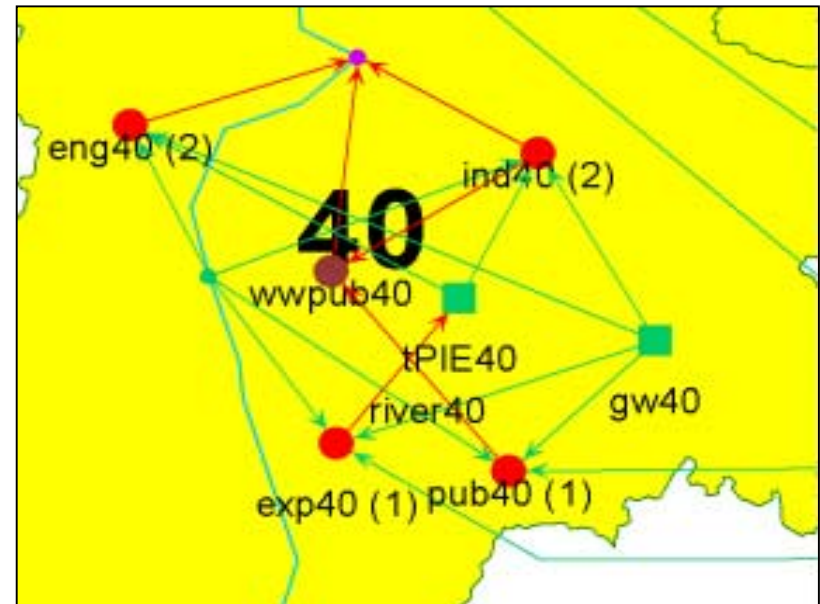
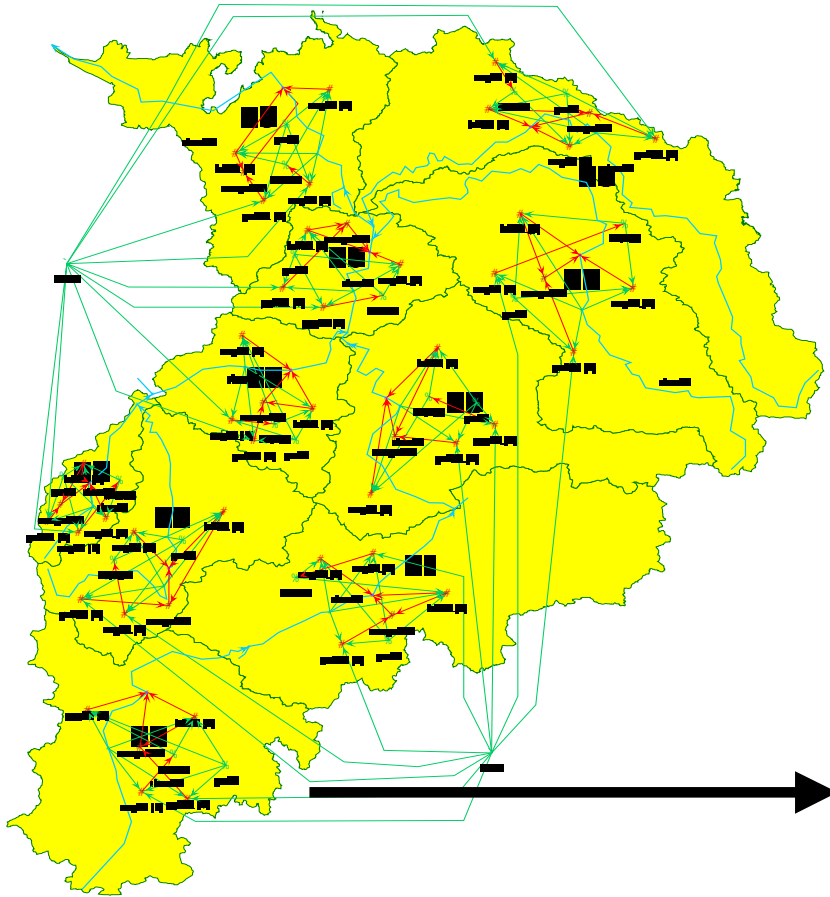


# Model setup

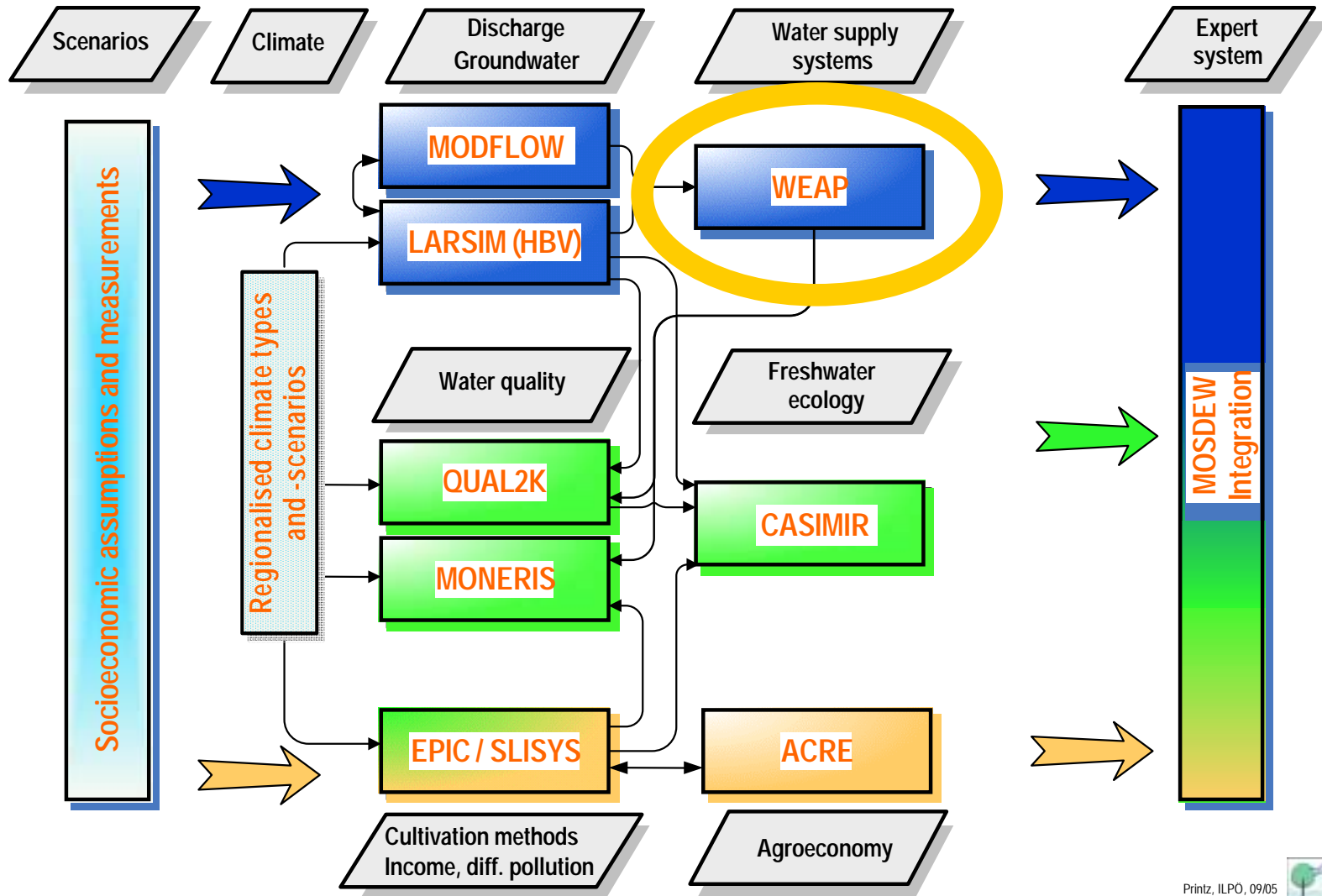
- Network model - nodes for sources, supply, demand (and wastewater treatment)
- Each node with individual characteristics
- Monthly time resolution
- 10/13 sub basins



# Model setup cont'd



# Integrated Coupling Scheme Neckar River Basin



Printz, ILPO, 09/05

# Ouémé example

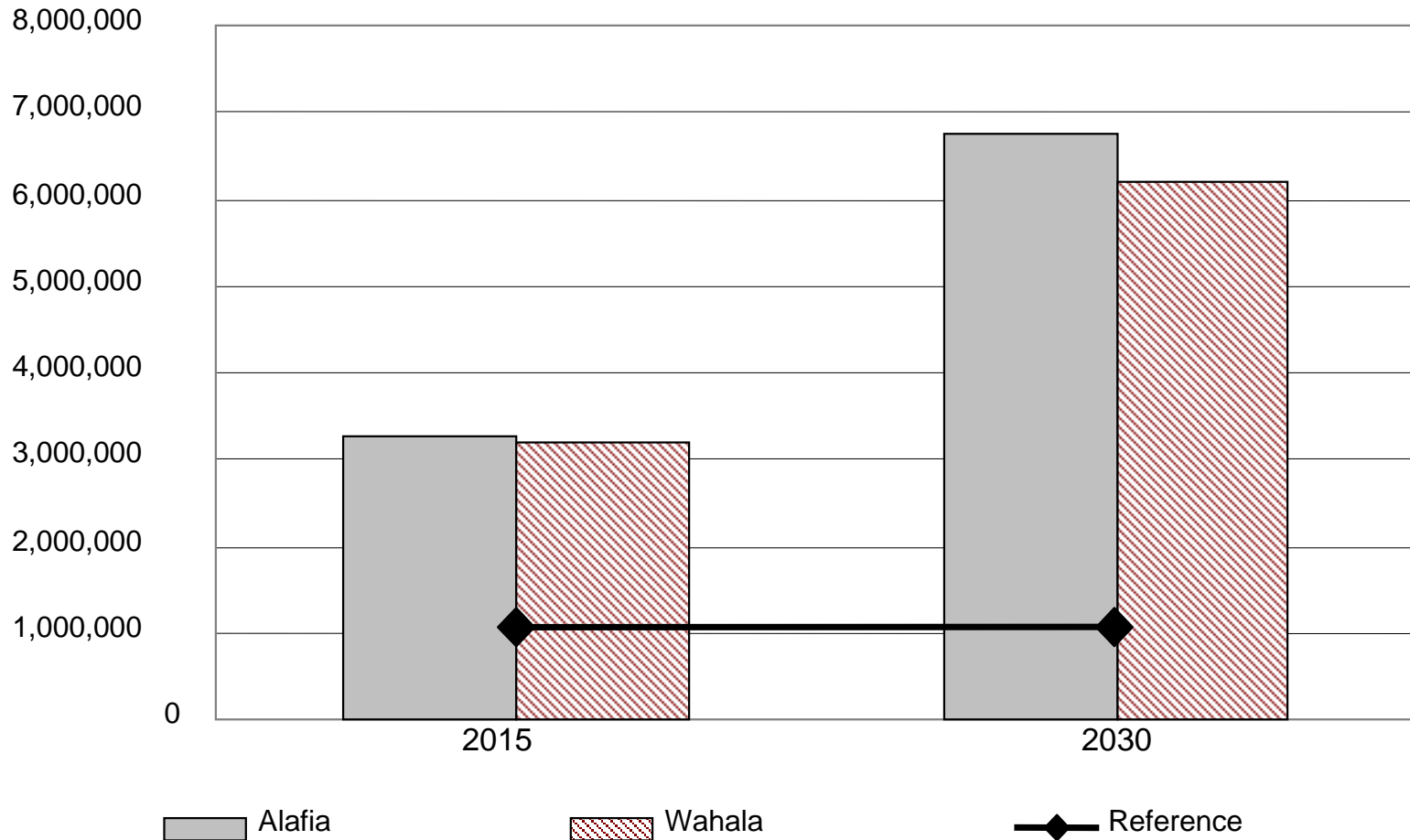
- 13 subbasins + 3 cities
- Demands: domestic, livestock, irrigation, industry
- Water supply: Groundwater and surface water
- Alafia(?) and Wahala(?) socioeconomic scenarios & 7+7 climates

Missing: networks and locations

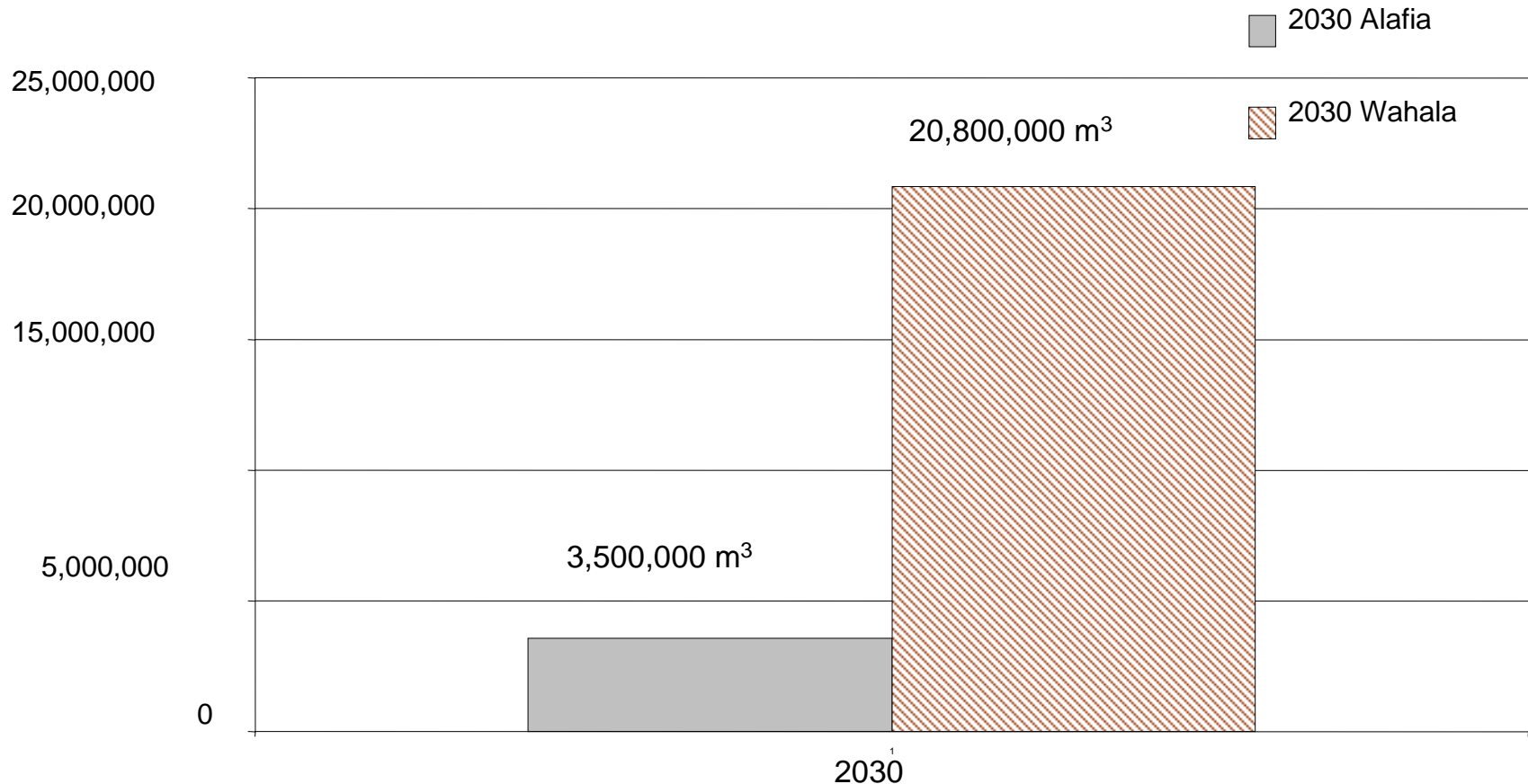
# Ouémé results

- Water demand to increase substantially
- Unmet demand to rise
- Cities at particular risk

# Water demand in city of Parakou



# Unmet demand Ouémé basin 2030



# Ouémé recommendations

- Urban areas: increase supply and reduce losses
- Rural areas: areas suffer from a lack of potable water, but model gives no clear answers
- Importance of pursuing water demand models in this region at a more local (perhaps, commune) level.
- Importance of local understanding in model development: water use tendencies, water uses specific to the given region, costs for the provision of local infrastructure etc.

# Ouémé reflections

- Spatially disaggregated supply and demand information would allow for a more thorough understanding of unmet water demand in the model
- The level of hydrological detail limits the level of spatial disaggregation of the model.
- Data availability on water demand significantly limited the level of detail studied

# Project Conclusions

- Get your (research) questions right
- Think twice about spatial resolution
- Pick your nodes carefully
- Work with the locals - what questions do they want to have answered?
- Try to build capacity from day one

# The End