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Results

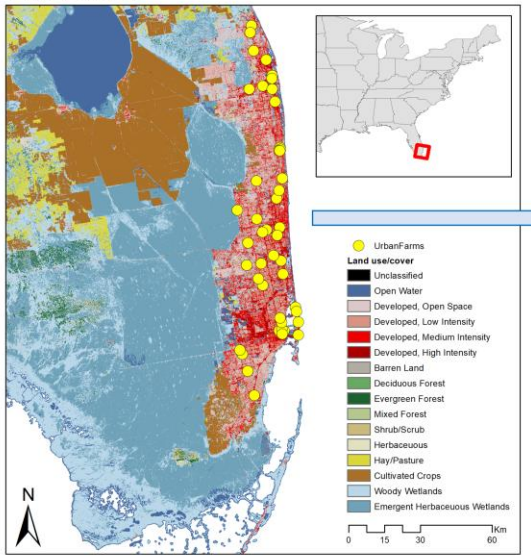
- Conceptualized the integrative technology hubs for urban FEW nexuses that encompass urban farming, low impact development and renewable energy

- Developed system dynamics models to simulate interactions, tradeoffs, and costs-benefits of implementing alternative technology hubs at local and community scales (South Florida, Marseille) and City and National Scales (Netherlands)

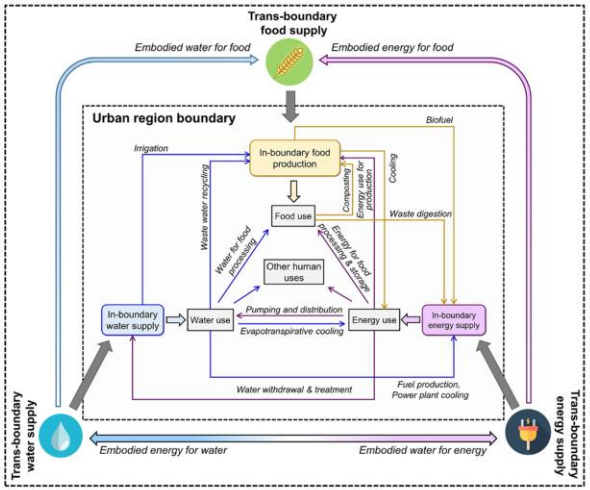
- Designing and assessing of future scenarios to spatialize technology hubs and quantify their consequences on FEW consumptions and footprints (eg. energy transition scenarios in the Netherlands, Marseille redevelopment scenarios,]

- Conceptualising a *socio-technical nexus framework*
  - community resilience in urban WEF infrastructure transitions
  - community participation and equity/justice in WEF transitions
  - governance issues that arise in the large-scale implementation of decentralised FEW nexus systems

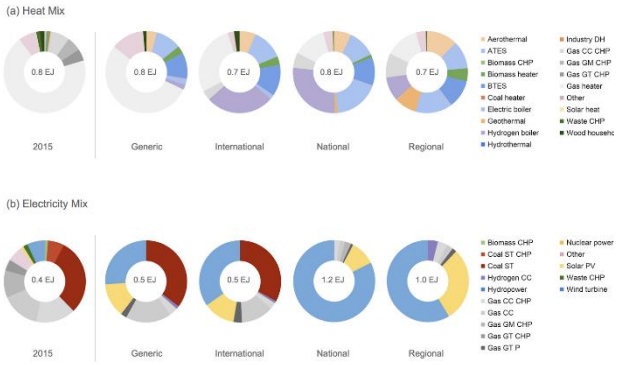
Study system

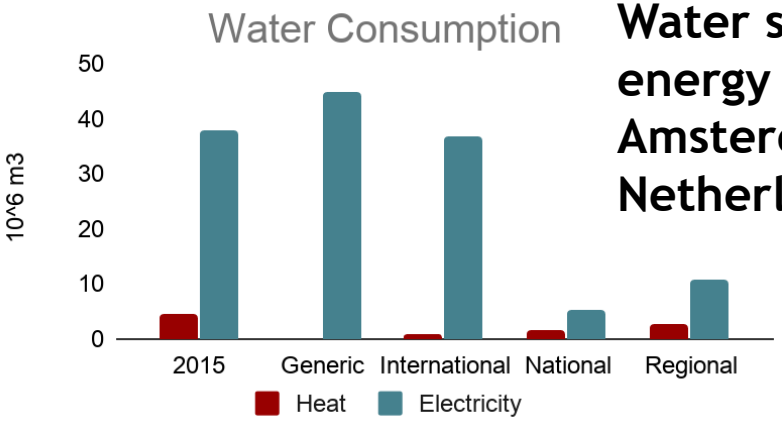


Simulated dynamics of urban FEW nexuses



Food security and the FEW nexus in South Florida





Water stress and the energy transition in Amsterdam, Netherlands.

Sustainable Urbanisation Global Initiative (SUGI)
FOOD-WATER-ENERGY NEXUS

BELMONT FORUM

URBANEUROPE

European Commission

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Impacts

***Short-term*:**

- contribute to an emerging field in sustainability science to address complexities related to FEW interdependencies and interactions in urban systems
- approaches for screening and optimising FWE technology hubs integration
- a suite of water, carbon and ecosystem services indicators for decision making
- Feasibility assessment and technology integration at community scales
- policy recommendations for related to planned scenarios of case study cities

***Long-term*:**

- Inform urban and regional WEF infratsructure planning and environmental policies that aim to bolster urban resilience and sustainability in the context of global changes
- infrastructure transitions enable *social inclusion* and *high quality of life*
    - eg. increased community involvement in decision making

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Approaches

- Multi-scale urban material and energy flow models
  (eg. green building-> green communities -> green city)
- Agent based modelling, Multi-criteria assessment, Numerical Optimisation
- Social equity assessment and community resilience metrics
- **Interviews** and Surveys of households
- **Focus group discussions** with urban citizens, food growers, extension agencies and governing bodies (Florida)
- **Expert consultations** from different disciplines in the design, planning and implementation of new urban energy systems
- Generating scenarios from strategic plans of cities
- Workshops on the use of WEF models (consortium, conferences and beyond)
- Presenting results at local and international conferences, working groups in urban planning (eg. Euroméditerranée)
- Open access publications

SUGI Support: Networking and Capacity Building

- Are similar approaches used by other SUGI projects?
- Potential upscaling of studies through collaboration across SUGI cases/projects ?