Institute of Innovation for Transition to Sustainability
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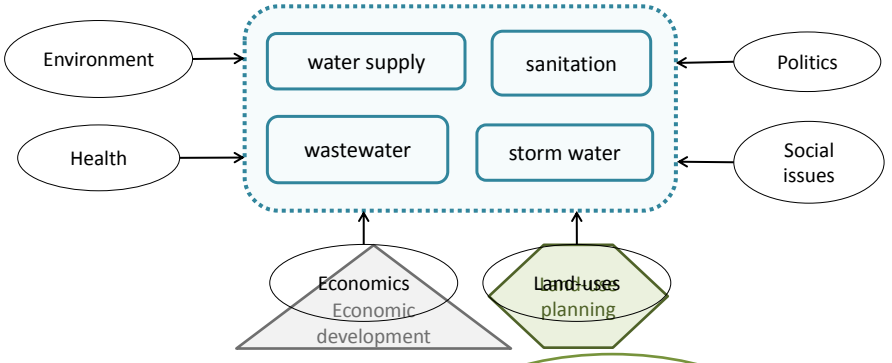
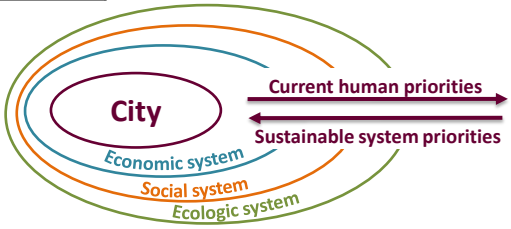
Is it possible to develop a model of sustainable urban water cycle?

26 Sept. 2014

Traditional system's problematics



- ✓ Increasing consumption
- ✓ Increasing wastewater volumes
- ✓ Disrupted natural hydrologic cycle
- ✓ Destroyed vital ecosystem services
- ✓ Growing health risks and social issues
- ✓ Increasing costs



Challenges towards change

Why most eco-city projects fail?

- ✓ ***Knowledge & management***
  - Understanding & managing complex systems is very difficult because of their non-linear, often unpredictable dynamics
- ✓ ***Politics & policy***
  - Public agendas are defined by changing / conflicting priorities
  - Long-term planning is harder and harder / more and more uncertainties
- ✓ ***Economics***
  - Incentives are difficult to identify and align
  - Business models are hard to define
  - Investments are improbable under uncertainty

The hope & challenge resides in:

a. Managing the process of long-term experimentation in innovation platforms
b. Development of new knowledge & management tools
c. Institutional learning

Eco-city: experimenting pathways in Versailles

Main lessons: How to organize knowledge integration & interaction

The transition: conceptual frames

Holistic parameters for cities

- Shape
- Metabolism
- Footprint
- Evolution
- Connectedness
- Potential
- Resilience
- Livability

Current ideas for the future: Integrated urban water management-IUWM

- ✓ Alignment of urban development and river basin management
- ✓ Achieving sustainable economic, social and environmental goals
- ✓ Avoidance of infrastructure being overwhelmed by fast growth of urban population and effects of climate change
- ✓ Planning for water sector integrated with other urban sectors: land-use, housing, energy and transport
- ✓ Cross-sectoral relations fortify via: a common working culture; articulation of collective goals; negotiation; all population included

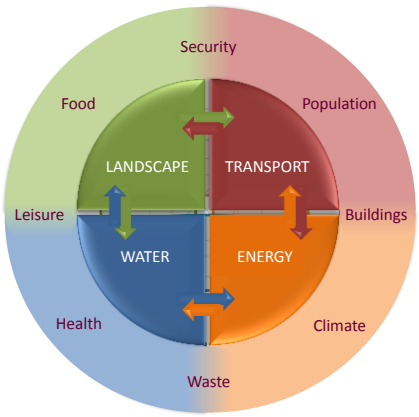
Eco-cities & water: A holistic tool

We propose that it is possible to develop a sustainable urban water cycle.
Condition: to regard water just as a component of a true holistic urban concept.

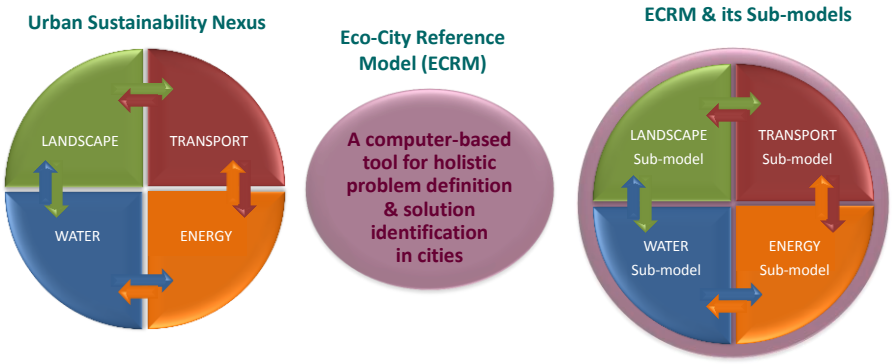
We use the concept of Urban Sustainability Nexus (USN):

all city sustainability issues are driven by the synergy & inter-dependency between four key factors:

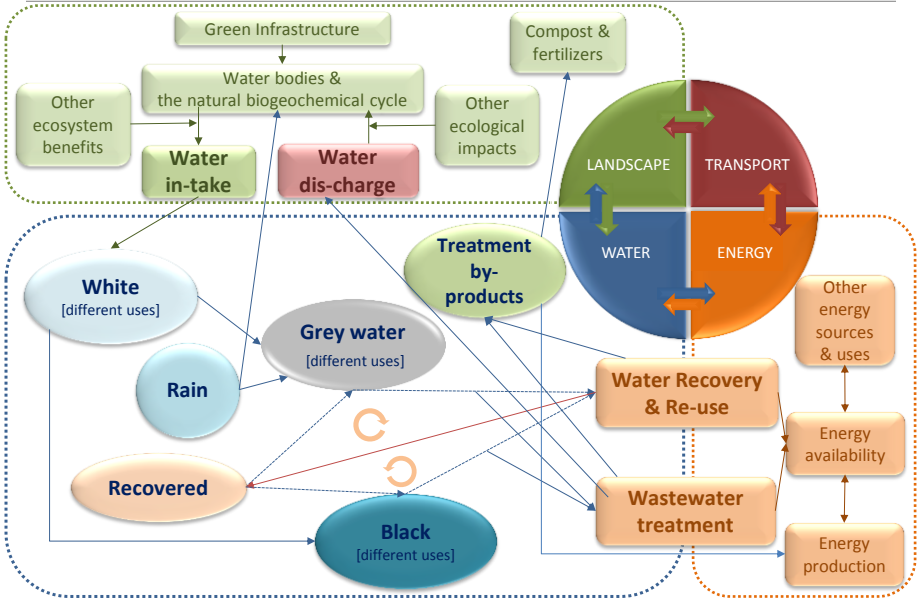
energy, water, landscape & transport.



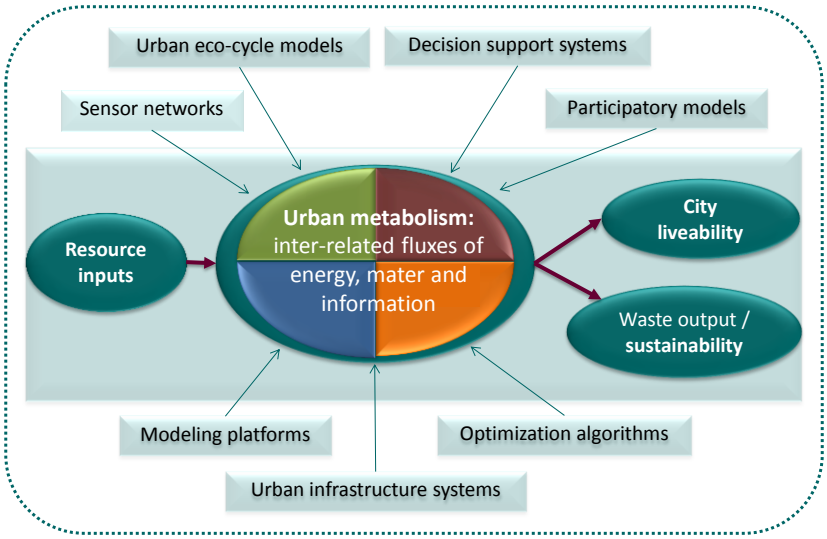
From USN (concept) to ECRM (model)



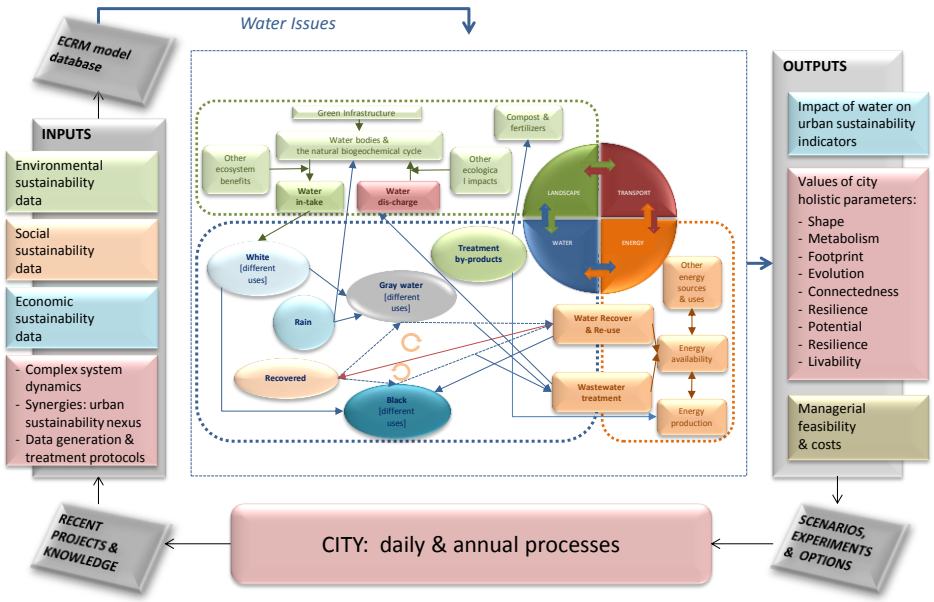
An autonomous urban water cycle?



Putting USN in practice (ECRM)

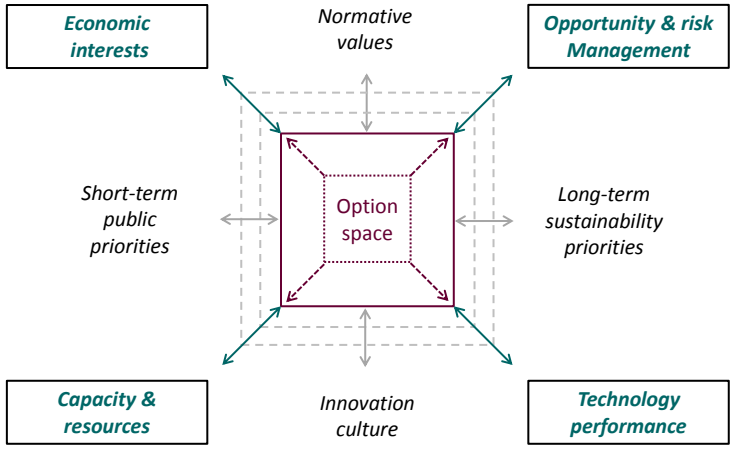


ECRM-WATER sub-model: DATA FLOW



Added value of our approach

Eco-city failures begin with insufficient integration, thence a limited option space.
Successful integrative thinking ***increases the option space for policy and business.***
It requires balancing opposite priorities and values, and coordinating key factors.



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Thank you

& we are looking forward to collaborating with you

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