Implementation of the Ecosystem Services concept into the Green Infrastructure Planning for resilient urban development in the Ruhr and in Chinese Megacities (IMECOGIP)

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FKZ: 01LE1805A/B1

R&D: 10/2020 – 9/2024

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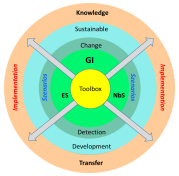

Focus areas: Shanghai and Ruhr Metropolis

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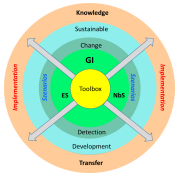
Outline

1. **Main silos and key challenges of integrated urban planning**
2. **Effective approaches for multisectoral and multilevel collaboration for integrated planning**
3. **Characteristics of integrated urban planning in terms of local acceptance, policy openness, multisectoral / multilevel collaboration**



Main silos and key challenges

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Ruhr

Key challenges:

- An industrial region in transformation
  (Shrinking process, demographic change, redevelopment of brownfields, economic competitiveness)
- A technical, cross-departmental integration of previously separate development concepts

Main silos:

- A heterogeneous, patchwork-like, polycentric spatial structure
  (high spatial and institutional fragmentation)
- Stagnation and slowing down path dependencies
- No institutionalized exchange at department level

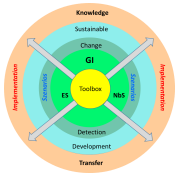
Shanghai

Key challenges:

- Socioeconomic pressure on urban ecosystems in a highly-dense first-tier level global city
  (urban heat island, urban flooding, air quality, biodiversity → foster climate change adaptation/urban resilience)

Main silos:

- A long lasting economic growth paradigm rooted in the institutional mindset and governance framework (*administrative overlaps and power imbalance between administrations, cadre evaluation system…)*
- Weak institutional leverage and budgetary constraints for effective ecological planning and environmental protection *(lack of sufficient supervision instruments/capacity, proper sanctioning mechanisms…)*



Effective approaches for multisectoral and multilevel collaboration

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Ruhr

- **A cooperative and decentral governance structure through the Regionalverband Ruhr for coordination**
- **Inter-municipal working groups, exchange with interested citizens/professionals, network events**
- **Programs and initiatives, flagship projects such as:**
  - ***Integrated urban development concepts***
  - ***'Green Infrastructure 2030' campaign***
  - ***IGA 2027***
  - ***Initiative for Climate Resilience – lead by Emschergenossenschaft focusing on water management, climate adaption, reducing heat island effects and more***

Effective approaches for multisectoral and multilevel collaboration

Shanghai

- **Ministry of Natural Resources/Ministry of the Ecological Environment (2018):** “systematic assessment of ecological space and natural resources”, “and “building a beautiful China” featuring a “harmonious development between Man and Nature”
- **Red lines for ecological protection:** Holistic and integrated urban-rural development → ecological network plans across administrative boundaries
- **Shanghai as a pilot city:**
  - ***Ecological corridors 1,000 m wide, ecological space belts***
  - ***Increase forest coverage, green space per capita, green space accessibility***
  - ***built-up infrastructure will be demolished and turned into urban green infrastructure***

Ecological Network Plan for Shanghai Municipality. Slightly altered depiction based on Shanghai Urban Planning and Land Resource Administration Bureau 2018: 66

Effective approaches for multisectoral and multilevel collaboration

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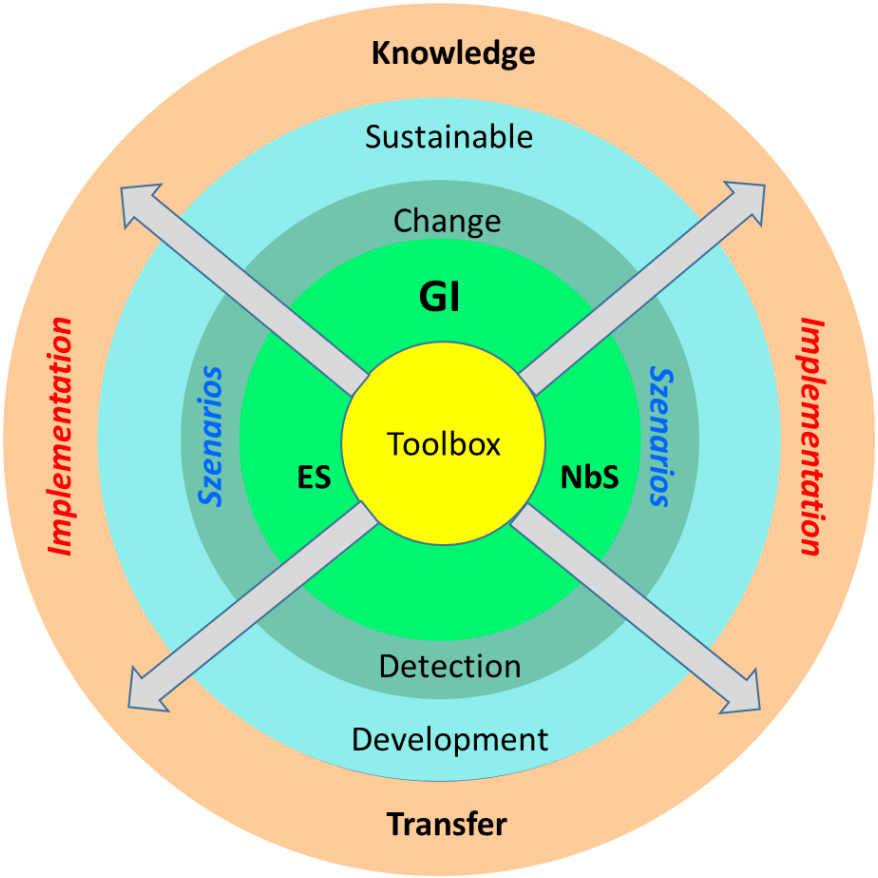
The IMECOGIP project aims to:

1) develop a user-friendly, scientifically sound and spatially explicit open source toolbox to assess and evaluate ES (demand & supply) as well as synergies and trade-offs based on cutting edge ES-research.

2) increase urban resilience by assessing the ES-performance of current GI development as well as different planning variants in urban areas.

3) strengthen capacities and adapt the toolbox to the needs of the intended users by cooperating with a consortium of researchers, planning institutions and consulting companies (backed up by nine MOUs).

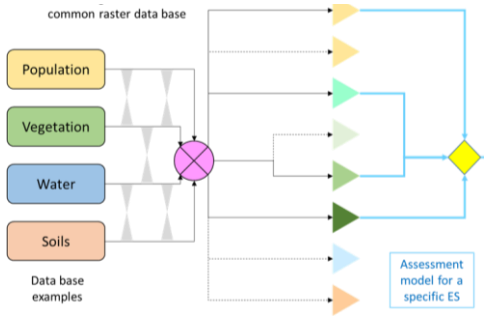


scientific consortium

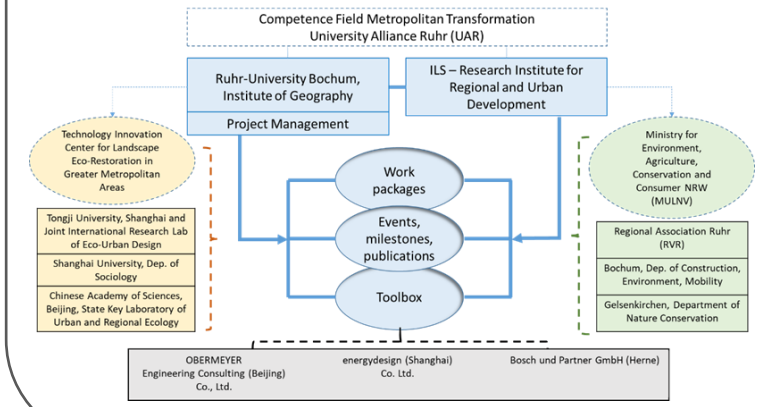
local citizens demand

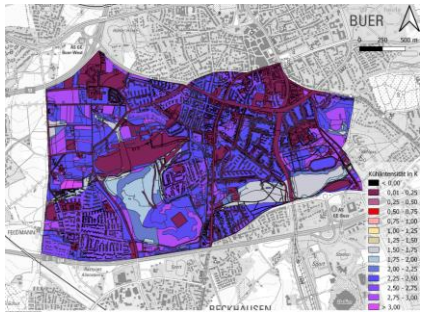
Legend: Provisioning; Regulation & Maintenance ecosystem services; Cultural ecosystem services

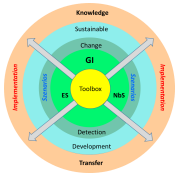
2.1.1.2	Mediation of waste or toxic substances
2.1.2.3	Visual screening
2.2.1.3	Hydrological cycle and water flow regulation
2.2.6.2	Temperature regulation
3.1.1.1	Biotic environments promoting health through outdoor activities
3.1.1.2	Biotic environments promoting health through passive interactions
3.1.2.2	Biotic environments enabling education and training
3.1.2.4	Biotic environments enabling aesthetic experiences
1.1.1.1	Cultivated plants for nutritional purpose
4.2.1.1	Surface water for drinking
2.2.5.1	Regulation of chemical conditions of freshwaters by living processes
3.2.1.3	Elements of living systems used for entertainment or representation
4.2.1.2	Surface water used as material
2.2.2.3	Maintaining nursery populations and habitats



local planning culture







Characteristics of integrated urban planning

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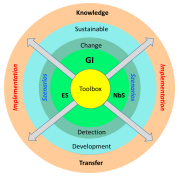
Ruhr

„ES thinking has not yet impregnated land use planning, especially binding land use plans, EIA, compensations mechanisms for encroachments into nature and landscape.“

But

- **Growing interest and general openness communicated by local authorities to implement the ES concept**
- **Linking the funding of planning concepts and projects to the inclusion of ecosystem services by the state of North Rhine-Westphalia**



Characteristics of integrated urban planning

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Shanghai

"China now streamlines an ecosystem-based approach of environmental governance, featuring integrated and resilient urban development nationwide. Shanghai attempts to enforce a zero-growth strategy in terms of land consumption and to strengthen ecological functions of green infrastructure."

But

- **Not the whole scope of ecosystem services is reflected in current UP reform**
- **SH had ambitious environmental plans before, it remains to be seen how MNR and MEE will effectively fill the institutional power vacuum**
- **Some institutional and administrative challenges remain (e.g. large areas administered by state-owned enterprises)**