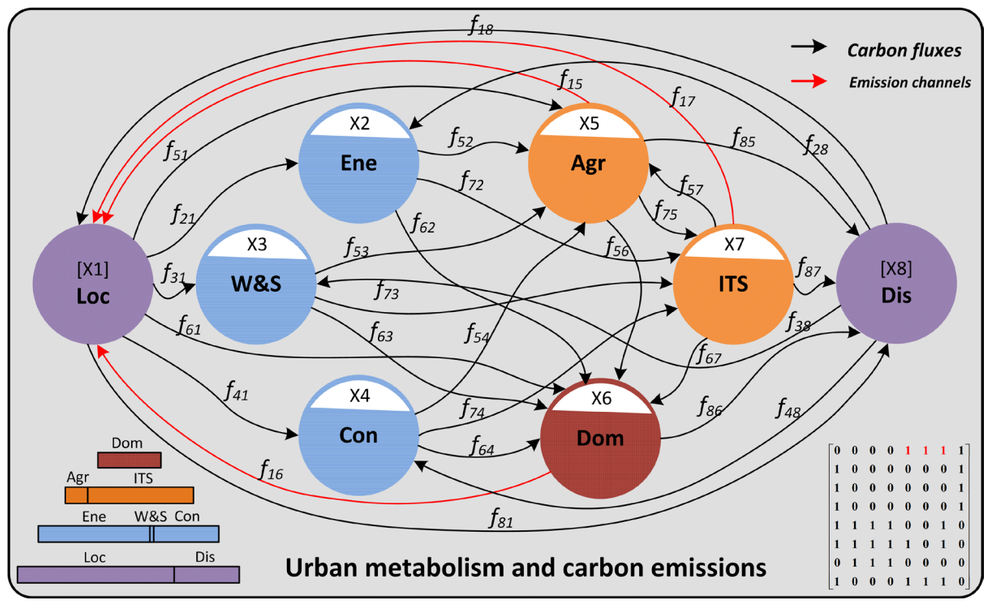
RECREATE

The aim of this project is to identify roles, opportunities, and pathways for cities to foster circular economy: 1) to reduce significantly the energy, water, and material resource uses, and related environmental impacts; 2) to build resilience to ever-increasing uncertainties from globalization and climate changes; and, 3) to become more liveable for growing populations in different urbanization contexts in China and Europe. It will involve working with the four cities of Beijing, Malmo, Shanghai, and Vienna. This will be achieved by developing, establishing, and implementing quantitative methods for urban metabolism, and proposing urban resource cycles, to provide foundations for building urban resilience to social, economic, and environmental stress.

Through our cross-partner collaboration distributed in the four case-study cities, researchers will apply the methodologies to each other's cities for comparative and synthesized knowledge creation. Integrated solutions will have embedded results from policy exercises and elicited stakeholder shared values which will provide bounds of acceptability for these 'liveable' cities.



Ene – energy production sector
W&S water and soil
Con – construction
Agr – Agriculture
ITS – industry, trade, and service sector
Dom – domestic sector
Loc – local environment
Dis – distal environment

Aim/objective

- Identify key inherent strengths and the current sustainability status of the studied cities
- Analyse the urban systems in terms of metabolism, trade-offs of efficiency and redundancy, and ecological footprints.
- Identify pathways and key opportunities where cities can foster the transformation to be more liveable, circular, and resilient.
- Identify key current challenges hindering evolution to the circular economy.
- Assess the ecological footprints of future scenarios in the studied cities that embrace a circular economy/industrial symbiosis approach, whilst minimizing life cycle environmental impact and remaining within reasonable local boundaries of shared resources.

Approaches/methods

WP 1 sets the foundation for the rest of the project in terms of the baseline data needs from each city investigated. This will also include a review of the current status of each city and compilation of the data in a consortium-determined, standard urban metabolism network. Lastly, we develop here the narrative storylines for scenario assessment in later WPs. WP 2 provides a quantitative study on the four cities using three different yet complementary analysis methods, namely, network analysis, robustness analysis, and footprint analysis. The plurality of methods will not only allow to compare outcomes for the cities more widely, but also provide a comparison of the strengths and weaknesses of these commonly singly-applied methods. WP 3 develops a resource-based urban resilience indicator system and builds of the previous results to investigate the uncertainty and sensitivity of urban resilience. WP 4 works with stakeholders in selected cities to co-generate policy options and employs stakeholder elicitation to find acceptability levels of the proposed options.

Expected results and impacts

- The project aims to advance our methodological and substantial understanding of urban resilience and propose options for improved policies particularly in the context of climate change.
- Robust analysis of current urban metabolisms and future scenarios, including integration of interaction of shared values of residents and stakeholders.

RECREATE - Resource nexus for transformation to circular, resilient, and liveable cities in the context of climate change.

Duration: Starting in 2019, ending in 2022 at the latest
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Budget: €983,400
Partners: IVL Swedish Environmental Research Institute, International Institute for Applied Systems Analysis, Beijing Normal University, Fudan University, Jinan University.

Involved countries

- Austria
- China
- Sweden

The Sustainable and Liveable Cities and Urban Areas call

The pilot call Sustainable and Liveable Cities and Urban Areas organized by JPI Urban Europe and the National Natural Science Foundation of China (NSFC), inviting interdisciplinary Sino-European consortia opened on January 31st, 2018.

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