

## **SUME – Sustainable Urban Metabolism for Europe**

**Christof Schremmer<sup>1</sup>, Helga Weisz<sup>2</sup>, Paulo Pinho<sup>3</sup>, Simin Davoudi<sup>4</sup>**

<sup>1</sup> OIR - Austrian Institute for Regional Studies and Spatial Planning

<sup>2</sup> IFF - Klagenfurt University, Faculty for Interdisciplinary Studies

<sup>3</sup> CITTA – Research Centre for Territory, Transports and Environment

<sup>4</sup> UNEW - University of Newcastle upon Tyne

The concept of urban metabolism helps to understand and analyze the way how societies – partly located in urban areas - use resources, energy and land, all elements of the environmental system, for maintaining and reproducing themselves. Urban systems are a specific form of organizing societies, namely a concentration of economic, reproductive and distributive functions in certain locations, while using and exchanging resources from much larger areas, especially in a global economy context. The way cities and urban areas are being built – in spatial terms and also in technological terms – is greatly influencing the quantities and qualities of resources being used in maintaining urban life. The quantities and the qualities of this exchange with the environmental system – the extraction of specific resources and sources of energy as well as the return of waste and exhaust to the environmental system – is increasingly damaging.

Future developmental trends, particularly at global scale, show that societal development is running a high risk, using up resources and unbalancing the environmental system, at least in some regions of the world. The research project SUME, Sustainable Urban Metabolism for Europe, is about how future urban systems can be designed in a way which is consistently less damaging to the environment than the current status.

Urban development includes processes of growth in new areas, decay and abandonment and also restructuring and rehabilitation in parallel. In a historical perspective, the varying weight and speed of these alternate components of urban development is characterizing some of the differences between cities regarding land use, resource and energy consumption. The driving forces behind these dynamic processes are demographic change, the individual performance of urban areas in (global) economic competition, the speed and direction of applying technological innovations under various societal/political conditions. While the dynamics of urban development in these components have been studied and debated for a long time, the interrelation between urban development and urban metabolism in the sense of physical interaction with the environment is far less understood. It is the main challenge of this project to find a sound strategy to link the urban metabolism approach to urban development concepts in a way helpful to foster a more sustainable development path of urban areas in the future.

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