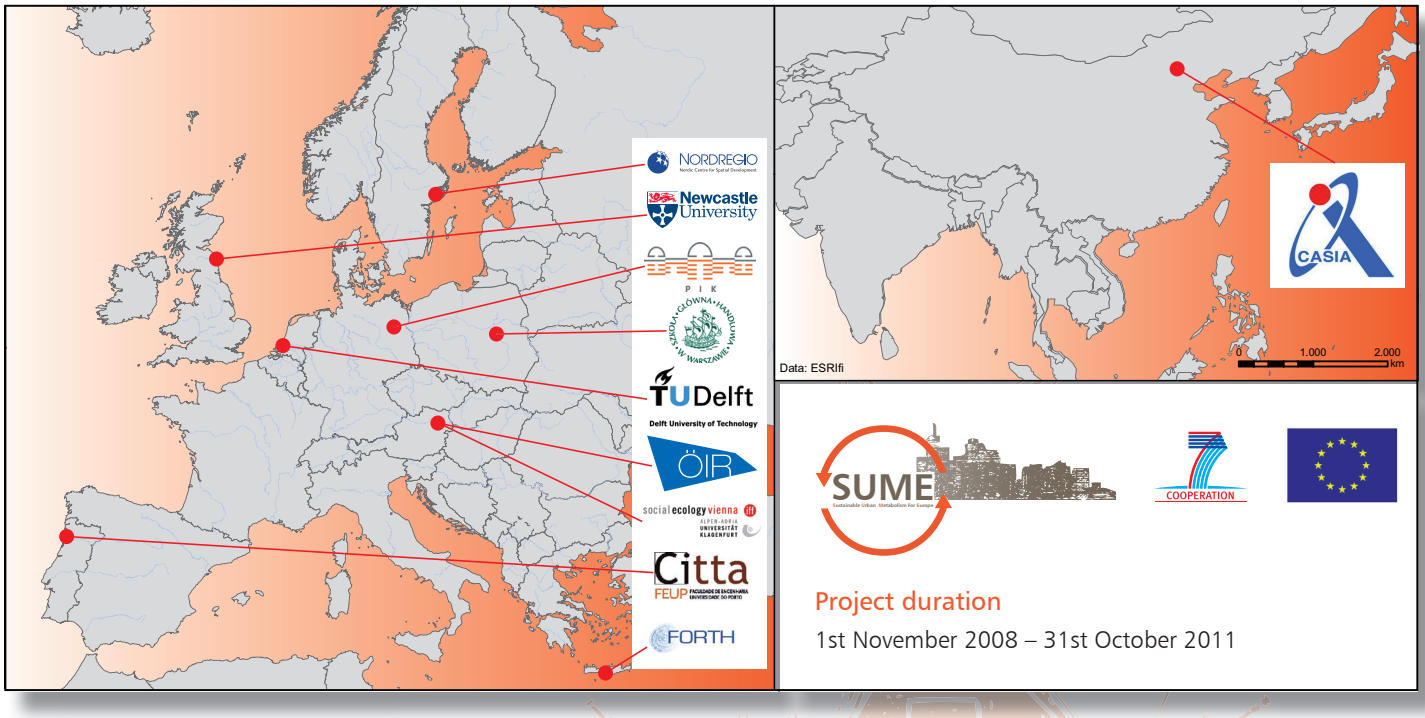

Project duration

1st November 2008 – 31st October 2011

SUME

Sustainable Urban Metabolism for Europe

The challenge is climate change, as a global phenomenon. Cities - urban systems - use flows of resources, energy and waste to maintain life in them – the "urban metabolism". To build cities also uses substantial resources for the building process. The spatial form of cities – the densities used, the layout, the transportation grid - has a great long-term impact on the resources needed for the daily operations within an urban systems over time: The amount of energy needed for heating, cooling and transportation, and also the land needed for urban expansion.

SUME attempts to show how urban resource use is being influenced by the spatial form in which cities are being built. It tries to point out ways to design cities – and to change existing cities in the future. SUME will analyse different urban forms from cities across Europe, such as Vienna, Munich, Newcastle, Stockholm, Porto and Athens, in a future-oriented long-term perspective (2050). The Project will specify the types of urban forms which can reduce resource and energy consumption in urban areas.

SUME thus seeks to link the urban metabolism approach to urban planning theory and practice to foster more sustainable development of urban areas in the future. There are four main „work packages" within the project:

- WP 1: Scenarios of urban development: Dynamics of Urban development in the EU
- WP 2: Urban metabolism and resources – a stocks and flows modelling approach
- WP 3: Impact of urban forms and structures on resource use on Project and neighbourhood level
- WP 4: Transforming urban planning policies and strategies

Work Package 3 Impact of urban forms and structures on resource use on Project and neighbourhood level

CITTA seeks to: develop, test and apply an innovative methodological approach, the Metabolic Impact Analysis (MIA), that can truly understand and appraise the WP1' scenarios of urban development, bearing in mind the operationalization of the urban metabolism concept. Urban form and stock-flow approaches will be integrated, and urban metabolic profiles geared towards three different scales (city region; metropolitan/city; neighbourhood) will be determined.

The following are MIA's general purposes: I) it evaluates the urban development process, from a metabolic perspective; II) it focuses on plans and projects as fundamental drivers of the urban development process; III) it assesses the city wide metabolic impact of the proposals included in plans and projects; IV) it explores the spatial dimension of alternative development processes; V) it may address different temporal scales but is better suited to short-term assessments, and finally, VI) it deals with the environment in an integrated way.

MIA seems able to provide the spatial dimension that is absent from current urban metabolism models. This spatial dimension is essential to urban planning purposes. In addition, MIA provides an operational tool designed to analyse changes and transformations occurring in our cities rather then, simply, their overall metabolic performance. As such, its application (to the cities of Oporto, Vienna, Stockholm and Newcastle-upon-Tyne) will provide a deeper understanding of the nature of different and contrasting development processes, in particular when it comes to their contribution to the existing stocks and flows of energy, land and materials. Therefore, it will be possible to obtain some preferred models offering better metabolic performances.

Work Package 3 is led by CITTA – Research Centre for Territory, Transports and Environment

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