10_Urban metabolism and circular economy

Co-chairs
Mendel Giezen (University of Amsterdam, Netherlands)
Matelda Reho (University Iuav of Venice, Italy)
Danielle McCarthy (Queen's University Belfast, United Kingdom)

Cities are complex systems that are always in movement and transition: patterns of flows, physical environment, social conditions, and evolution of practices. Over the last centuries, their development has had a great impact on the environment through their extraction of resources and the associated additions in the form of greenhouse gasses, air and water pollution, land degradation and biodiversity loss. In light of the recent IPCC reports about climate change, there is an urgent need to address this issue of resource usage as it is a key factor in promoting climate change adaptation and mitigation, environmental health and social justice.

In the last few years the concepts of urban metabolism and circular economy are increasingly in use to aid planners in understanding and addressing the complexity of the city and the relation between the city and environmental resources. Urban metabolism can be defined as the processing of inflows and outflows of resources and energy within the city. These flows are determined by a combination of (1) the physical needs of a city and its infrastructure, (2) the opportunities and limitations that the natural and geo-physical environment poses to the provision of these needs, and (3) the socio-economic and political processes and power structures within the city. Understanding these conditions determining both supply and demand of resources is crucial to achieve more efficient and sustainable urban systems.
The key issues we would like to explore in this track are:

- What are the advantages and opportunities to using these approaches of urban metabolism and circular economy? And what are their limitations and shortcomings and how to overcome these?
- How can these concepts be used or integrated in urban management and planning?
- What are the innovative tools and methods to manage and plan the resource issues, through spatial and environmental planning?
- How can we learn from new practices and experiences through bottom-up approaches to rethink the urban/environment relation?
- Food, water, energy and ecological diversity are fundamental for the functioning of cities and life in general. How can they can be managed and planned to achieve resilience, social justice and urban health?

This track aims to address these and similar issues by considering theoretically and empirically grounded papers, and by collectively exploring the usability of the urban metabolism and circular economy concepts in spatial planning.

Keywords: the economy of natural resources, planetary urbanism, resource management, urban metabolism, ecological footprint, circular economy, energy, water, agriculture and landscape.