Urban Metabolism Analyst

ROADMAP

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CHALMERS
A definition of urban metabolism
Cities are complex systems

Cities can be studied as living organisms or ecosystems

Cities perform several different functions to fulfill urban biologic needs

Understand cities use of resources with a systemic perspective
STRUCTURAL SUPPORT

PROVIDE MEANS TO ENSURE THE OCCURRENCE OF ACTIVITIES
EXTERNAL PROTECTION
ENSURE OPTIMAL CONDITIONS FOR LIFE
MEETING PLACES

PROVIDE OPPORTUNITIES FOR TRADE
RESPIRATORY SYSTEM
MAINTAIN POLLUTANTS AND WASTE IN CHECK
CULTURAL IDENTITY

CITIES HAVE INHERENT SOCIO-CULTURAL VALUES
URBAN FLOWS

energy and material flows need to be optimized
Quantification of urban systems
UMAn method

Quantification of the full set of MFA indicators
1000 product types
28 material types
100 economic activities
Municipalities within a region or metropolitan area
Lifespan prediction
Hybrid MFA-LCA method

Lavers, Kalmykova, Rosado, Oliveira and Laurenti. 2017. Selecting representative products for quantifying environmental impacts of consumption in urban areas

Selection of representative products
Quantification of 5 environmental impacts
Priority setting support urban plans
Hotspots identification

Identification of products with higher environmental impacts
Monitor and scenario evaluation of climate programme
Definition of sustainable public procurement rules
Support setup of SDG plan for Gothenburg
Support strategies
For circular economy

public admin  industry
academy
Circular economy plan for economic activities

Products in the construction sector

Identification of responsibility for consumed products
Selection of appropriate strategies
Circular economy plan for economic activities

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Identification of responsibility for consumed products
Selection of appropriate strategies

Product based strategies - Service based strategies

Recycle more
Circular economy plan for economic activities

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Product based strategies - Service based strategies

Outsource

Extend lifetime

Recycle more
Urban mining & refurbishment

Estimate available materials in Gothenburg
Locate materials
Identify future end of life of materials
Efficient industries

Identifying opportunities, potential and actors for industrial symbiosis
Materials reuse and recycling at the regional scale
Enabling reuse of wastes
Identification of waste priorities
Support SMEs new businesses

Identify stakeholders willing to exchange wastes
Account quantities of waste
Suggest new partnerships based on mimicking
Urban Metabolism allows:

- complete accounting of materials
- defining priorities for action
- establishment of quantified monitoring schemes
- identification of potential strategies to ensure a sustainable resource use in Gothenburg
UrbanWINS status:

data collection for 8 cities
15 years of data
more than 20 institutions involved
more than 10 data sets per city
more than 10000 points in some data sets
needs for extrapolation and evaluation of results
first results SEPTEMBER 2017
Website: www.urbanwins.eu
Follow us on Twitter, Facebook and Instagram: @UrbanWINS
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