

## Performance monitoring of local sustainability concepts in European cities

Local governments are confronted with a variety of social, environmental and economic challenges these days. Examples can be a lack of social cohesion, demographic change, financial cuts on local budgets, structural changes, climatic change, and the transformation towards the use of renewable energies. Many European cities therefore developed urban sustainability concepts or plans to lead their transitions towards a resilient future. Sustainability is in that means not an end goal, but rather a pathway for cities' governments to advance their social, environmental and economic conditions. A sustainability plan builds a joint framework for goals, implementation strategies and success measurement instruments. A variety of local programmes and projects to improve diverse aspects of sustainability can be brought together in one framework, which is supposed to allow for a better measurement of these programmes' impacts. Generality, content and level of obligation vary between these sustainability concepts. Sustainability objectives vary as well, but especially energy transformation, mobility concepts, local water resource management and education are assessed as leading topics by cities' stakeholders. The application of urban sustainability indicators in monitoring the implementation of the goals defined in sustainability concepts is an important control instrument.

The cooperation levels between different groups of stakeholders might as well play a role in the development and implementation of sustainability plans, as sustainability can hardly be achieved from top-down only, but needs also individual behaviour changes and bottom-up approaches. The question arises, if urban sustainability indicators are necessary as communication instruments with citizens and other stakeholders or whether other methods could also measure or describe sustainability in an appropriate way.

For more than a decade, urban sustainability indicators have been discussed intensive in science and politics. Various indicators have been developed and applied—systems of individual biophysical or socio-economic indicators in absolute or relative numbers as well as composite indicators, aggregating several individual indicators to a single number. The requirements on the characteristics of such indicators differ, depending on the addressee of the information (e.g. political decision-makers, citizens, experts for the related fields, and scientists) and the spatial demarcation (e.g. local, regional, and national). There is a trade-off between validity and complexity of indicators on the one hand and feasibility and simplicity on the other hand. Depending on local capabilities, especially urban sustainability indicators—used for the quantification of target achievements of sustainability plans—should be designed as simple as possible to enable cities to measure these.

During the field research for the WWWforEurope project, respondents from the three sectors government/administration, business and civil society of 40 European cities answered in semi-structured interviews and questionnaires inter alia on strategic sustainability goals and monitoring efficiency. The focus was set on the three urban resource systems energy, water and green spaces. As a secondary database, Urban Audit—hosted by Eurostat—was used for city selection and data analysis, as it is the most comprehensive database on European cities currently available. Amongst others, measures contain systems of individual indicators for social aspects, civic involvement and environmental aspects. Data availability of the participating cities is nevertheless differing strongly. For many cities, the availability of environmental data could be described as 'poor'. Thus, it is hardly possible to make

statements on the local sustainability status of one city or compare the state of transition of different cities among one another.

Derived from the research on socio-ecologic transitions of European cities the question arises, why urban sustainability data is still that fragmentary respectively what hinders a comprehensive data collection and systematisation. If cities with positive experiences of indicator-based sustainability concepts can be found and how these cities' authorities communicate their target achievement to other stakeholders like civil society and business actors will be researched to answer the research question on the necessity of urban sustainability indicators formulated earlier.