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<http://www.decisive2020.eu/>

The growing attractiveness of cities leads in increasing population and rising energetic and food demands in urban areas and makes urban waste management increasingly challenging, both in terms of logistics and environmental or health impacts. To decrease the cities' environmental impacts and to contribute to a better resilience of urban areas towards energy or food supply crisis. The DECISIVE project proposes to change the present urban metabolism for organic matter (foods, plants, etc.), energy and biowaste to tend to a more circular economy and to assess the impacts of these changes on the whole waste management cycle. Thus, the challenge will be to shift from a urban "greybox", implying mainly goods importation and extra-urban waste management, to a cooperative organization of intra- and peri-urban networks enabling circular local and decentralised valorization of biowaste, through energy and bioproducts production. Such a new waste management paradigm is expected to increase the sustainability of urban development by (1) Promoting citizens awareness of the waste costs and values; (2) Promoting renewable energy production and use in the city; (3) Developing an industrial ecology approach that can promote relations between the urban and peri-urban areas, by providing valuable agronomic by-products for urban agriculture development and so improving the balance of organic products and waste in the city; (4) Developing new business opportunities and jobs. In order to reach these objectives, the project DECISIVE will develop and demonstrate eco-innovative solutions, addressed to waste operators and public services, consisting in: (1) a decision support tool to plan, design and assess efficient decentralised management networks for biowaste in urban areas; (2) eco-designed micro-scale anaerobic digestion and solid-state fermentation processes.

The role of ENVS (EISA) is to develop integrated sustainability assessment models of complex system by combining different methodological approaches; e.g. Combined Life Cycle Assessment and bioeconomy modelling, Cost-Benefit Analysis with focus on ecosystem services delivered by the decentralized waste management system, Network Analysis including socio-technical transitions and the role of networks in governance of sustainable transition processes. Improvements to the integrated sustainability assessment concept model in terms of system expansion to include multiple services, resource exchanges between actors, operators for end-of-waste stages, from cradle to cradle, including the natural system inside the system boundaries. Monetary and non-monetary valorisation of multiple functions, i.e., products and services provided by ecoindustrial networks quantifying services in terms health improving impacts on the natural environment and climate resulting from circular resource flows across sectors and introduction of innovative environmentally friendly technologies and resource management systems.