

Current changes in contemporary territories involve different dimensions, including socio-economic, ecological, environmental and technological processes, thus requiring several levels of innovation for achieving complex objectives. Of particular importance are the redefinition of the concept of public space in planning actions, with particular attention to green areas and recreational infrastructures, and the introduction of new parameters and indicators able to assess the sustainability of plans and programs with respect to regeneration and resilience issues.

A promising perspective in this domain is provided by the theory of Ecosystem Services, that allows to understand the relationship that exists between environmental system and human well being. In order to improve the ecological performance of public spaces, it is necessary to measure and assess the availability of green areas and public urban spaces not only from the quantitative point of view in terms of square meters per inhabitant, but also from the qualitative point of view, considering the bio-physical value of the soils that characterize these areas. As recalled in the Millenium Ecosystem Assessment, the complex relationship that links Ecosystem Services and societal well being requires to focus on the aspects related to a correct management of the natural systems, considering also the social and economic implications. It is of special interest to map and estimate the Ecosystem Services with the aim of including their value in planning processes, thus supporting the construction of innovative strategies for territorial governance in the context of public urban areas, rural and natural open spaces and public parks.

Similarly, according to the conceptual paradigm of ecosystem services, the landscape is a system of relations among different elements, which autonomously develop multiple functions and generate tangible as well as intangible benefits, whose value is not solely and strictly dependent on the market and whose evaluation is relevant for protection, management and design actions. In line with the vision suggested by the European Convention of 2000, the multifunctionality, transcalarity and complexity of the landscape values require to recompose and integrate different disciplinary domains into a unique theoretical and methodological perspective. In the face of these instances, the discipline of Appraisal and Evaluation can provide a significant contribution not only for values estimation, but also for the definition of a complex analytical and interpretative framework aimed at supporting values generation.

A further issue that is becoming more and more important in the urban agenda is the energy problem. In order to reach the global energy and environmental objectives, the European Union is implementing specific directives and guidelines for the diffusion of nearly Zero Energy Buildings (nZEB) and the post-carbon city model. In this new scenario, the characterization of strategies for the energy

retrofit of buildings which aim to reduce energy consumption and promote the use of renewable energy sources has become a multidimensional problem that include many important factors such as the environmental impacts, the socio-economic effects, and so on. Moreover, following the eco-district or eco-neighbourhood models, when dealing at district/urban scales specific analysis and ad hoc tools are needed. More generally, in urban and territorial management processes it is of fundamental importance to think about regeneration operations, meaning not only buildings restoration operations, but also programmes aiming at eliminating social decline, increasing the quality of life of the inhabitants, supporting the valorisation of cultural resources, protecting the environmental system, bringing economic development and so on. In this sense, energy transition should be considered in the general domain of the experimentation of urban policies able to face the emerging challenges in the governance of social and environmental transformation of cities.

In this context, evaluation methods and tools play a crucial role to catch the direct and indirect, both tangible and intangible, values of environmental resources. Although the methods for estimating the Total Economic Value are widely acknowledged, they do not always lead to robust and widely shared results due to the influence of socio-economic factors on the individual elicitation of the willingness to pay. In this renovated perspective, the use of integrated approaches, such as Choice Experiments methods, autoregressive models, Fuzzy analysis, Panel data techniques, Agent Based Models as well as Deliberative methods is increasingly frequent. Deliberative approaches, in particular, encourage the construction of value judgments in an open and inclusive way. Thus, the analysis of the stakeholders' preferences becomes an integral part of the evaluation process, whose results are less affected by disparities of problem knowledge, that are common to direct economic methods. Further experiences have tested the use of hybrid methods that mix qualitative approaches, typical of social sciences, with quantitative ones, based on economic-mathematical models and statistical analysis through specific research designs, also in combination with GIS systems for including the spatial dimension of the issues under consideration and building a multifaceted view on the problems.

In conclusion, our discipline plays a crucial role in the processes concerning the transformation and management of cities and territories, being characterized by approaches and techniques based on strong economic and appraisal roots, able to interact and integrate multiple research domains for bringing innovation to the emerging challenges launched by the current development patterns.

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