

Factors influencing cultural ecosystem services of green spaces

Nature provides a wide range of benefits for people, which are called ecosystem services. They are usually divided into three groups, namely: provisioning services (e.g., food and forage, medicinal value, renewable energy resources), regulating services (e.g., soil erosion protection, water flow regulation, pest control, pollination), and cultural services (e.g., recreational and aesthetic values, the inspiration for art and design). Availability of these services decides on the quality of life one can live. In the course of countries economic development increases the dependence on cultural ecosystem services, which are commonly defined as the non-material benefits people obtain from ecosystems through spiritual enrichment, educational value, reflection, recreation, and aesthetic experiences. These services are generated by the interaction between the specific space, human perception and activity undertaken in this space. Research planned in the project will investigate the influence of different factors on the provision of cultural ecosystem services by green spaces. These factors will include landscape features, specific traits of people as well as activity people undertake in green space.

Green spaces are specific areas providing a wide range of cultural ecosystem services. It concerns both green spaces located outside cities, which are often the destination of tourists seeking recreation, aesthetics impressions, but also health benefits, as well as those located in the urban areas. The role of urban green spaces is increasing with the urbanization process as currently more than half of the world's population lives in the cities. Moreover, the crisis caused by COVID-19 has underlined the significance of green spaces. Until pandemic, many people did not realize how important is the access to green spaces and how many needs it satisfies, including the sense of community, which was difficult to experience in any different way because of the lockdown.

Why such research is necessary? Let us consider a simple example. Cultural ecosystem services provided by the aforementioned green spaces may serve as a basis for sustainable development. On the one hand, they serve people to improve their quality of life. On the other hand, they may foster the development of eco-tourism in areas outside the cities, as they provide recreational and aesthetic values. Thus, the knowledge on the landscape features enhancing specific cultural ecosystem services may be used in the management and conservation of green spaces to enhance effects on wellbeing as well as for sustainable development of rural areas. Consequently, the results of the research will be a basis for the formulation of recommendations aimed at conservation and management of different types of green spaces, including post-pandemic implications for urban policy.

We know that there is a link between cultural ecosystem services and landscape features. We know also that not only type of landscape but also its spatial composition and configuration on different levels of organization matters. Apart from that, the characteristics of respondents make the difference, i.e. their gender, age, ecological knowledge as well as their personal feelings, memories and imaginations. Also the type of undertaken activity, e.g., jogging, walking, photographing, is not without significance. However, we still do not know what is the exact character of this subtle, yet complex dependencies. There is a need for a proper, comprehensive description of these relationships. Consequently, the project will deliver the quantitative information on the linkage between landscape features of green spaces and the bundle of benefits they provide for people, which is often lacking in similar studies. What is even more important, the project will not only deliver the "raw" data on the character of this relation, but it will also provide procedures for this type of interdisciplinary research, which will make precious know-how for future investigations in various types of landscapes. The proposed study will undoubtedly deepen the knowledge on sustainable development, especially focusing on the meaning of green spaces as crucial resources.

The objective of this project is to determine the factors influencing on cultural ecosystem services provided by green spaces. In order to address this complex problem, the holistic approach will be applied. The *holistic* is a key-word here. The study will employ different approaches, to capture the problem from as wide perspective as possible. The project will be carried out in the carefully chosen green spaces. The study methods will include computer-assisted investigation – GIS analysis, which is an expert-class tool allowing for scrutiny of spatial data. As for the social part of the research, questionnaires and interviews will be used. The social research will concern benefits people derive from green spaces. They will be conducted among visitors of green spaces. Finally, statistics will be used to analyse the results of polls and draw conclusions. Such an interdisciplinary study is an ambitious, time-consuming and labour-intensive task, and thus it certainly requires a dedicated project. The outcomes will certainly shed light on the everlasting human-nature interaction and be of use for sustainable development.