

## **Abstract**

River valleys are specific natural and socio-economic systems that play a crucial role in the functioning of ecological systems. Water is an important element of the landscape and rivers have a vital impact on its formation.

This PhD thesis, consisting of a series of five thematically coherent scientific publications, is entitled: "Integrated landscape and hydromorphological method for river valleys assessment". The main objective of the research has been to develop an integrated method for assessing river valleys by combining landscape and hydromorphological elements. This with the intention to properly develop, manage and protect these areas. Two secondary objectives were also defined within the research framework. One aimed at testing the usefulness of the created integrated method when developing guidelines for revitalizing river valleys. Secondly checking the usefulness of the integrated method when determining changes in a river valley after a flood stage and thereto after repair and maintenance work. To meet the presented objectives, five defined research tasks were formulated. Each of these five tasks, as well as their results, are presented in turn in the individual publications..

The first research task (publication [1]) consisted of hydromorphological- and landscape assessment of the Poprad river valley (Nowy Sącz District), here utilizing two separate methods. The second research task (publication [2]) constitutes the realization of the main research objective, the development of an combined method named LandScape & HydroMorphological Assessment of River Valleys Method. The third task (publication [3]) aimed at verify the developed integrated method by applying it during the assessment of the Białka river valley (Tatra District). The fourth research task (publication [4]) was to assess the Skawinka river valley (Kraków District) using the integrated landscape and hydromorphological method. Therafter, based on the results obtained create guidelines for its revitalization. The last research task (publication [5]) was to check the usefulness of the integrated landscape and hydromorphological method when determine changes in the Krzyworzeka river valley (Myślenice and Wieliczka District). Firstly after the passing a flood wave and secondly after undertaken repair and maintenance works.

The developed integrated landscape and hydromorphological method is an easy and practical method to use when the aim is to assess and identify valuable areas in river valleys. The method could thereto be utilized as basic a tool in the creation of guidelines for how to carry out integrated revitalization of river valleys, or when determining changes in the river valley following a flood wave.

*Maria Nawieśniah-Cesar*