

Abstract

Digital river network dataset is an important source of information in any aspect of water management decision making. It is also a base for modelling or scientific research in many different fields. Development of the dataset in the Czech Republic had been fragmented in a past and as a result three different datasets have been developed that cover the whole of the state's territory. The datasets contain different geometries, different and often conflicting attributes and serve different purposes. Today the time has come that water management decision makers have realised that the situation is no longer sustainable and make effort to merge the datasets into one. The task brings in several technical issues and a potential for severe legal consequences.

The aim of this study is to develop a methodological approach to merging the existing datasets into one. This methodological approach to decision which of the conflicting or different attributes should be adopted is based on assumption that the existing datasets will be merged into one consisting the best of all. Comparison of features in the existing dataset will inevitably lead to many conflicts when it will be necessary to decide which of the considered features should be adopted to the resulting dataset.

The study considers the main purposes which the datasets serve, legal aspects related to river network datasets and compares approaches to digital river network representation in selected European countries. Firstly the existing datasets were analysed and consequently extensive field survey of selected river segments was carried out allowing to identify all the major differences between the existing datasets and their impact on water management, decision making and relevant environmental issues. The field survey included complete detailed reconnaissance of all the selected localities, GPS point identification, photo-documentation a wider area search.

The method consists of a set of questions with possible answer “yes”, “no” or eventually “not applicable”. Each answer has specified numeric value and sum of the values then gives a suggestion whether the considered feature should be adopted or not. The application of the method is based on existing river network datasets and publicly available data including aerial images, Digital Elevation Model and land cover data. The application is possible even without training, although, an experience in the water management field greatly improves the results.

The method was successfully tested on selected catchment of the upper Litavka River where several differences between existing datasets occur. These differences cover all the major types of conflicts.