Abstract

Along the paper the size of peak runoff was assessed affected by the influence of changes in water catchment area by land use due to future planned agricultural changes. The investigations were conducted in the Winna Góra catchment area located in Mściwojów, Lower Silesian voivodship at the Mściwojów water reservoir. At present, the catchment is used as arable land, forest and meadows. In the future the area of sealed surfaces such as: roofs, roads and car parks will increase. This can contribute in the change of water balance components. Analyses has shown, that changes in the use of a catchment area lead to reduction of surface flow time from the catchment (less resistance to motion) – in effect it causes increase of the runoff volume at about 28%. The increase of the water runoff volume may have significant influence on the Winna Góra development and functions as well as volume of water run into the Mściwojów water reservoir. To counteract the results of adverse changes caused by the catchment sealing – it is recommended for the investigated area to apply a balanced approach. This would consist of retaining precipitation water in its place of origin.

Key words: balanced catchment development, concentration time, runoff, water reservoir