Angela B. KURIATA-POTASZNIK, Sławomir SZYMCZYK

VARIABILITY OF THE WATER AVAILABILITY IN A RIVER LAKE SYSTEM
– A CASE STUDY OF LAKE SYMSAR

Abstract

It is predicted that climate change will result in the diminution of water resources available both on global and regional scales. Local climate change is harder to observe and therefore, while counter-acting its effects, it seems advisable to undertake studies on pertinent regional and local conditions. In this research, our aim was to assess the impact of a river and its catchment on fluctuations in the water availability in a natural lake which belongs to a post-glacial river and lake system. River and lake systems behave most often like a single interacting hydrological unit, and the intensity of water exchange in these systems is quite high, which may cause temporary water losses. This study showed that water in the analyzed river and lake system was exchanged approx. every 66 days, which resulted from the total (horizontal and vertical) water exchange. Also, the management of a catchment area seems to play a crucial role in the local water availability, as demonstrated by this research, where water retention was favoured by wooded and marshy areas. More intensive water retention was observed in a catchment dominated by forests, pastures and wetlands. Wasteland and large differences in the land elevation in the tested catchment are unfavourable to water retention because they intensify soil evaporation and accelerate the water run-off outside of the catchment. Among the actions which should be undertaken in order to counteract water deficiencies in catchment areas, rational use and management of the land resources in the catchment are most often mentioned.

Key words: evapotranspiration, hydrological condition, meteorological condition, precipitation, river-lake system