



Impact of river regulation development of Iška River on Iški Vršaj aquifer

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Among the rivers flowing into the Ljubljana moor, Iška stands out as one of the most interesting. It lies on the Karst region so it has also an underground stream. Iška has cut a 300 to 400-meter deep gorge between Krim and Mokrc. Its current is fast in the upper part and a little slower in the lower part. Its basin is about 86 km² large and 33% of it lies on Karst. The Iška River sinks already in the gorge and later on when it flows along the gravel grounding. For Iška River it is significantly that it has low flows in summer (more than 50% of low flows are in August and September) which sink and flow underground and join groundwater of Ljubljana moor.

The purpose of the study was to determine in greater details the groundwater balance of Ljubljana moor aquifer which was developed for water supply. We wanted to define how much water of Iška River disappears underground in dry period and that is why our study captured only analysis of minimum river flow and its duration.

The flow was more or less continuously measured at three different locations from 1930 to 1983: location Tomišelj, Iški Vintgar and Iška and later on in year 1997. A research was made about how much water Iška River could contribute to recharge groundwater of Iški Vršaj. The sinking of river flow was determined on basis of simultaneous measurements made on different locations along river stream. The data showed a greater linear dependence. Measurements revealed major differences between flow at different locations, which showed a sinking of river flow to 1,2 m³/s at minimum flows. The flow analysis was made for flows between 0,6-1,8 m³/s and the duration of low flows was determined. The results showed that the duration of time when Iška River was continuously sinking completely (1,2 m³/s) is from 28 to 300 days and time when Iška River flow was less than 0,8 m³/s is from 11 to 155 days. Sinking of river dropped down in past year tremendously, for more than 50% by river regulation works, and significantly diminished available water in aquifer.