Hydrological calculations concerning to construction of small hydro-electric power stations on the non-examined rivers on the model of the river Akavreta

Merab Alaverdashvili, Giorgi Bregvadze, Darejan Kiknadze, Nana Kokaia, Nestan Khupenia, Nunu tsintsadze

e-mail: merab.alaverdashvili@tsu.ge
Departament of Geography, Faculty of Exact and Natural Sciences,
Ivane Javakhishvili Tbilisi State University,
3, I. Chavchavadze Avenue, 0179, Tbilisi, Georgia

From the energy sources of Georgia having quite great potential, especially since 2011, a lot of works are done in order to use them. It should be mentioned that 10 ones from the current projects of the hydro-electric power stations to be built in Georgia, are in the process of construction and 19 ones - in the process of permission. Their power given finally till 2023 shall be 2378 MW which shall be added to the power earned by current hydro-electric power stations – 3726 MW and finally earned 6010 MW shall significantly improve the required energy consumption, it shall be partially exported which shall have the positive effect on our economy.

We calculated the maximum discharge of catastrophic flood of 28/06/2016 - 98.97 m³/sec for the river Akavreta, in the hydro-electric power station section applying Chezy's formula, as well as different discharges for 1.90 m interval for water level fluctuation and the curve of discharge was created and the daily water discharges were determined, accordingly the average annual discharge 8.64 m³/sec, river flow (0.27 km³) and its inter-annual distribution were determined. 19.3 MW is accepted in the section project of power capacity. The obtained calculations of hydrological parameters applying Chezy's formula are one of the main and necessary components for the projecting hydro-electric power stations.