



Determining the beneficial lifetime of Emad Deh dam (Iran) based on hydraulic methods of sediment transfer & its comparison with the MPSIAC experimental method

A. Rahimi (1), A. Karimi (2), N. Mohaghegh Zadeh (3), and B. Samani (4)

(1) Asmari consulting engineering, Shiraz, Islamic Republic Of Iran (rahimi@geologist.ir), (2) Asmari consulting engineering, Shiraz, Islamic Republic Of Iran (daka_af@yahoo.ca), (3) Asmari consulting engineering, Shiraz, Islamic Republic Of Iran (nazaninmohaghegh@gmail.com), (4) Shiraz University, of earth sciences, Shiraz, Islamic Republic Of Iran (samani_babak@yahoo.com)

Emad Deh watershed has extended more than 64 km² and is located in Emad Deh village in the southeastern Fars, Iran. In this research the total load of Emad Deh River's sediment is computed by using hydraulic and sedimentary features such as flow depth, river slope canal declivity, river width, flow velocity, discharge, constancy angle of sedimentary particles and definite particles' size (d₉₀, d₅₀, d_m). Furthermore by measuring the river water temperature the kinematics viscose of water is specified for its effect on the sedimentary materials movement. The estimated amount of bed load of sediment is equal to 1093.3 ton over year according to the modified method of Meyer, Peter & Muller. The research reveals that the bed load, based on the method of Meyer - Peter & Muller, is nearly %12 of the total load which is estimated 10625.19 ton/year according to the Ackers and White method. Then the specific weight of transported sediments to the reservoir in different interval times can be estimated by the method of Miller (1953) which is modified by Joris de Vente (2004). According to reservoir volume and dam height the beneficial lifetime of the dam computed more than 75 years. Along with the estimation of sediment volume by hydraulic methods, the total load of sediment is also estimated by the experimental method in the Emad Deh basin can be confirmed in comparison to the method of Ackers and White.