

Third Laureate Innovation

26th Khwarizmi International Award (KIA)



- **Project Title:** Rehabilitation of hydromechanical equipment of Golpayegan dam
- **Executive :** Ghasem Rast
- **Collaborator organizations:** Vestabod energy co., Iran Water, Resources Management Co. & Isfahan Regional Water Co.

● Abstract:

A wide range of technical problems, including failures in the dam structure and its auxiliary equipment arises when the regulatory dam's lifespan reaches to the end. Therefore, dam rehabilitation and improvement should be implemented for all local dams within the next few years. Golpayegan Dam - first modern Iranian dam- project is one of the successful examples of rehabilitation of hydro-mechanical equipment of the dams in Iran.

Fifty years after the completion of Golpayegan Dam, controlling and maintaining water in the dam reservoir had become possible by using only two Howell Bunger valves due to the existing complications such as high volume of sedimentation, gate jamming in embedded guides and malfunctioning of butterfly valves located at the discharge lines. A dysfunction in any of these two valves could have lead to complete discharge of the dam reservoir. The Gopayegan rehabilitation project was completed without diverging and/or discharging water from the dam reservoir. Construction and installation of gates, trashracks, branches, and pipes (900 mm and 1400 mm) in a depth of 18 meter, as well as concrete pouring in water from barges and boats were completed as the water level in the reservoir was constantly rising. Regardless of difficult working conditions and lack of proper knowledge of the equipment, innovative methods and precise engineering designs were implemented to complete the Golpayegan rehabilitation project.

