



University of Zabol

Graduate School

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Department of Range and Watershed Management

**The Thesis Submitted for the Degree of M. Sc
In the field of Watershed Management**

**the Role of Masonry Check Dam and Earth Structures in control
of sediments Entering the reservoir of Tangwiya Dam Sirjan**

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Abstract:

Sediment sequestration in dams reservoirs that aim to store part of the river flood, For the purpose of flood control, water storage for downstream uses, Energy production or recreation, Causes loss of useful tank volume. Accordingly, in the upstream dams in addition to erosion control operations, Watershed structures are constructed to control sediment and prevent their entry into the dam reservoir. However, construction of dams is one of the important measures in controlling soil erosion and sediment inflow into dams reservoirs that has received special attention in the watershed of Iran. But the extent of the country's watersheds, along with administrative, time, and financial constraints, has made watershed operations operational in a small portion of the watersheds. Therefore, determining the spatial and temporal priority of watershed operations is of particular importance. In this study, the Role of Masonry Check Dam and Earth Structures in control of sediments Entering the reservoir of Tangwiya Dam Sirjan upstream of the dam was investigated. Based on existing watershed structures information such as geographical coordinates, height of the structure, length of the structure, volume of the reservoir and upstream area of the structure and upstream sedimentation rate were investigated using PSIAC model. In this study, the impact of construction structures in upstream dam watershed on sediment control was evaluated and the following objectives were evaluated. Given that area of the field 115679 ha, And its production sediment 223413 m³(About 2 cubic meters per hectare) that is on the surface 73396 ha Structures have been constructed from the area where the produced sediment was 145568 m³. On the other hand, 42283 ha of watershed area downstream of the watershed structures up to the Tangwiya Dam reservoir And its production sediment is 77845 m³ It is not a structure. That is watershed structures were not well distributed And About 35% of the sediment produced in the basin is transported to the reservoir without any obstruction and is mainly deposited in the dam reservoir. The relationship between the volume of sedimentation with the height and length of the dam axis was determined There was no significant relationship between height and volume of sedimentation But there was a significant relationship between the volume of sedimentation and the length of the structure with 0.01 level with correlation coefficient $r = 0.95$. In other words, structures with larger axis length control more sediment.

Key words: Watershed Management, Tangwiya Dam, Watershed Structures, Sediment Contro and PSIAC model.