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SITE VISIT REPORT SATPARA MULTIPURPOSE DAM PROJECT



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SITE VISIT REPORT

SATPARA MULTIPURPOSE DAM PROJECT

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1. Purpose of Visit

A field visit to Satpara Multipurpose Dam Project was conducted on November 26, 2013 to find out reasons for the shutdown of powerhouses # 3 & 4 during winter season, encroachments in escape channel, and to recommend remedial measures/ possible solutions to enable continuous operation of powerhouses # 3 & 4 during winter to minimize load shedding in the Skardu areas. In winter season, the maximum demand of electricity reaches up to 20 MW due to increased heating requirements; however, maximum generation was 10 MW. At Skardu, about 12 hours of load-shedding was observed and the local residents were protesting on roads, and tire burning incidents were noticed during the visit.

2. Existing Construction

The Satpara multipurpose dam project consists of water reservoir, irrigation system consisting of right bank and left bank channels and four powerhouses. Powerhouses # 1 and 2 are up stream of irrigation weir and have separate tailrace channels; therefore these units remain operational during winter season without interruption of irrigation system. Powerhouses # 3&4 are on the left bank irrigation channel. The discharge from powerhouse #3 goes to powerhouse 4 and it discharges in the irrigation channel in summer and is diverted towards escape channel in winter, which is extended about 1,000 ft. downstream and discharges water in an open area. The residents of Skardu have purchased land and have constructed boundary walls in this area. Furthermore, encroachments have caused major restrictions to release water in this open area and therefore, operation of powerhouse # 3 & 4 remain suspended during winter season.

3. Recommended Remedial Measures

During site visit discussions were held with the Project Director and other senior staff of WAPDA Satpara to find out most optimum solutions to operate powerhouses #3 & 4 during winter season when irrigation water is not needed and power demand is high. Based on site visit, following remedial measures/ solutions are recommended;

- A. The civil administration at Skardu shall take immediate steps to remove encroachments downstream of the escape channel. This will allow powerhouses # 3 & 4 water discharge to the existing Satpara/ Harisha nallah. With the removal of encroachments, powerhouses # 3 & 4 will generate 3.8 MW and provide relief to the local residents by reducing load-shedding at Skardu.
- B. As a long term solution, it is also recommended that following additional works may be carried out to achieve independent operation of powerhouses 3 & 4; (see attached layout showing extension of escape channel and new channel from powerhouse # 3 & 4)
 1. Construct tailrace channel from powerhouse #3 to Satpara Nallah – about 1000 ft. to release powerhouse discharge in the Satpara Nallah.
 2. Extend escape channel to Satpara Nallah – about 10,000 ft. to release power house discharge direct to the Satpara Nallah.
 3. Estimated time required to complete both tailrace channels is 18 – 20 months.
 4. Estimated cost of the additional works will be about \$ 1.8 million.

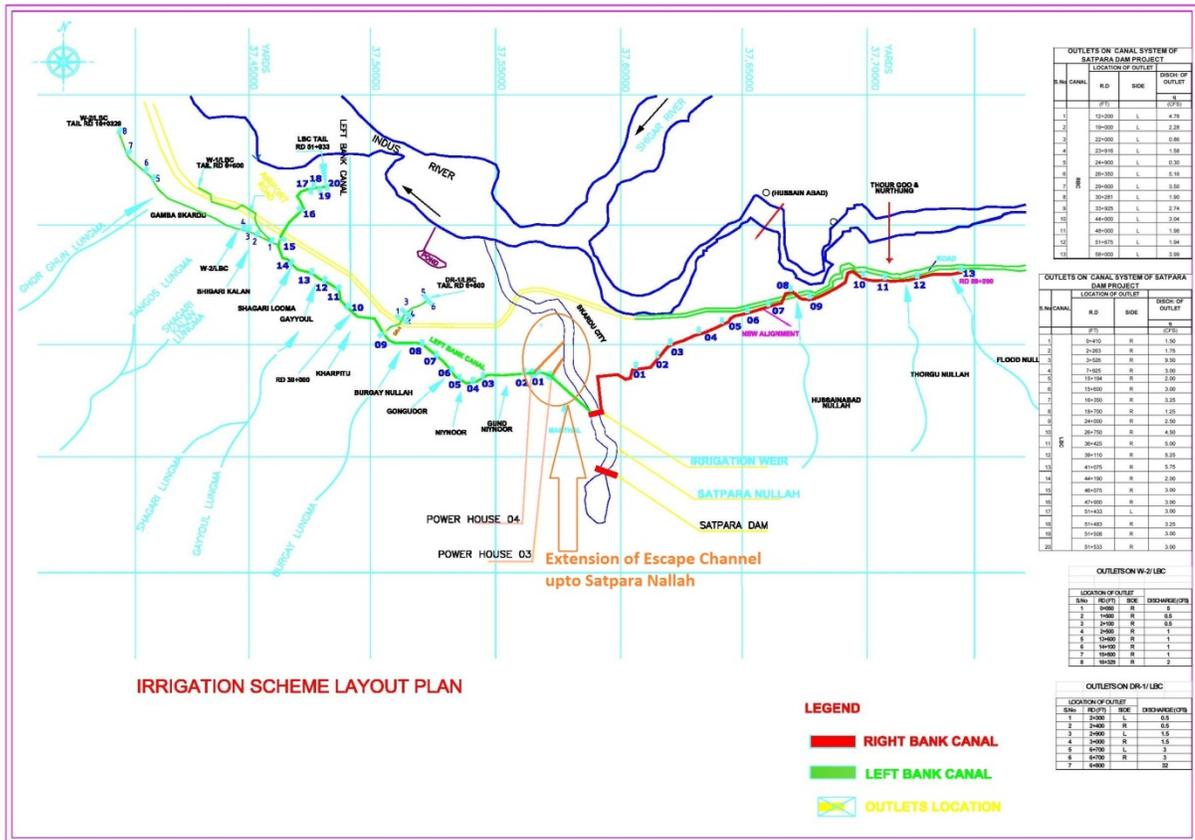


Figure 1: Extension of Escape Channel up to Satpara Nallah

4. Seepage condition at Satpara Dam

It was observed during the visit that the reservoir level was decreasing due to less inflow and increased releases from the Satpara reservoir to meet power generation requirements. On July 15, 2013 the reservoir level was 8,697 ft. (25 ft. below spillway level). And total seepage recorded downstream of the dam was 40 cusecs.

5. Site Visit Photographs

Site visit photographs are appended below;



Figure 2: Irrigation Channel in front of Power house 3



Figure 3: Escape Channel of the Irrigation System



Figure 4: Land Encroachments

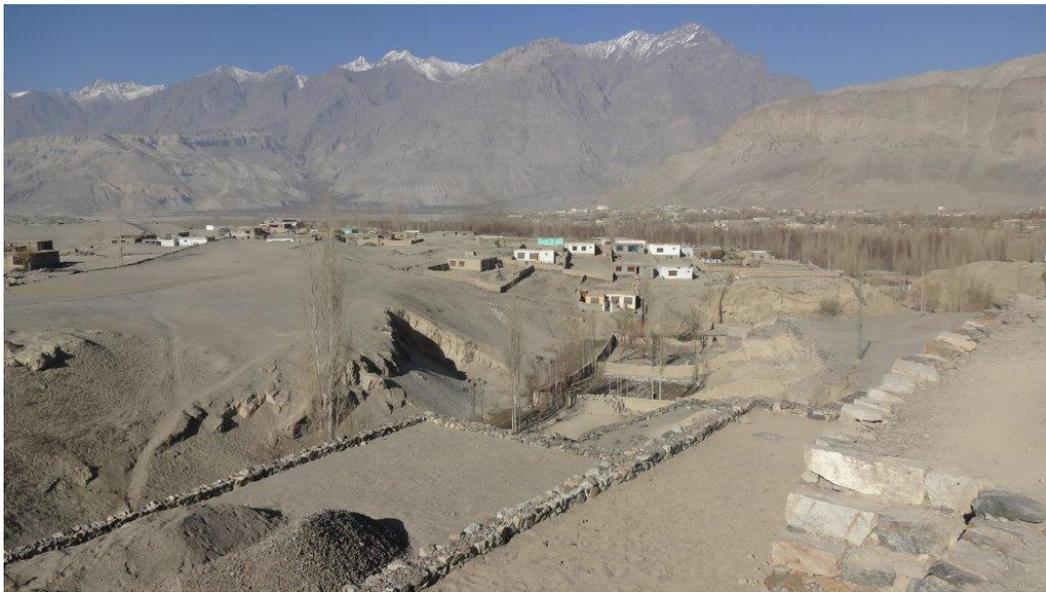


Figure 5: Land Encroachments



Figure 6: Satpara Dam Reservoir

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