

SATPARA DAM PROJECT

By

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INTRODUCTION

Satpara Lake is the famous tourist resort about 6 km south of Skardu town. The Lake was formed as a result of the glacial activity when advancing glaciers dammed up the flowing Nallah. The downstream periphery of the Lake has an over flow channel acting as outlet with perennial flow in the downstream nallah.

An old earthfill dam constructed by Ali Sher Aenchan, a local Raja of Skardu existed on the downstream side of the Lake. This dam was breached around 1880. Later on a 4 ft. high stone bund was constructed by local farmers just downstream of the Lake. About 1300 AF of water was being stored to use during sowing of Rabi Crops. In 1976, Northern Area Works Organization (NAWO) partially completed the construction of the breached old dam and provided an outlet sluice, few meter below the existing Lake. The project did not work well due to excessive seepage.

THE PROJECT

The Satpara Dam Project augments water supply for irrigation and drinking round the year. It will ultimately generate 17 MW power and the annual energy output is estimated to be 106 GWh. The major components of the project are an earthfill Dam, four Power houses and two irrigation canals. It will provide 30 cusecs of water for drinking purpose, which is now available only for half of the population. On the average water availability for irrigation would increase by about 50,000 AF.

The project has no adverse environmental impact, with positive impact such as reduction in respiratory and waterborne diseases, which are common in the area.

MAIN DAM

Main Dam consists of a zoned earth fill embankment 128 ft high and 560 ft long. Other main features of the project are a gated spillway of 5000 cusecs capacity, an outlet structure with RCC concrete conduit, a Control tower, a Valve chamber and an Irrigation Valve.

POWERHOUSES

Four cascade powerhouses development are planned. Water from the outlet structure is conveyed to the Powerhouse-1 through steel penstock. Powerhouse-2 is supplied water through open channel, forebay and steel penstock. An intake weir along Satpara nallah just downstream of Powerhouse-1 diverts water to headrace channel of Powerhouse-2.



POWERHOUSE NO 1

Powerhouse 3 & 4 are located on the Left Bank Canal.

Both powerhouses 1 & 2 are in operation since Oct 2007 and Dec 2008 respectively. The work on Powerhouse 3 & 4 will be started in the mid of this year.

By December 2010 the Satpara project had generated 57 GWh of electricity which is bringing progress to the trade, industry and life in Skardu.



CONTROL ROOM

IRRIGATION SYSTEM

The irrigation system consists of a Diversion Weir along Satpara Nallah, Left Bank Canal (135 cusecs), Right Bank Canal (50 cusecs) and their distributaries and minors. Length of left bank canal is 16 km whereas length of right bank canal is approximately 12 km and this work is 77.5 % complete.

The irrigation system will serve a total of about 15000 acres of land. Much of these lands are now getting the benefit of regulated supplies from the project.

SALIENT FEATURES

Reservoir Capacity

Gross Storage 93,310 Acre ft
 Live Storage 55,617 Acre ft

Powerhouses

Installed Capacity 17 MW
 Mean Annual Energy 106 GWh
 No of Powerhouse 4
 Type of Turbines Francis

Dam

Dam Type Earthfill with silty
 Clay Core

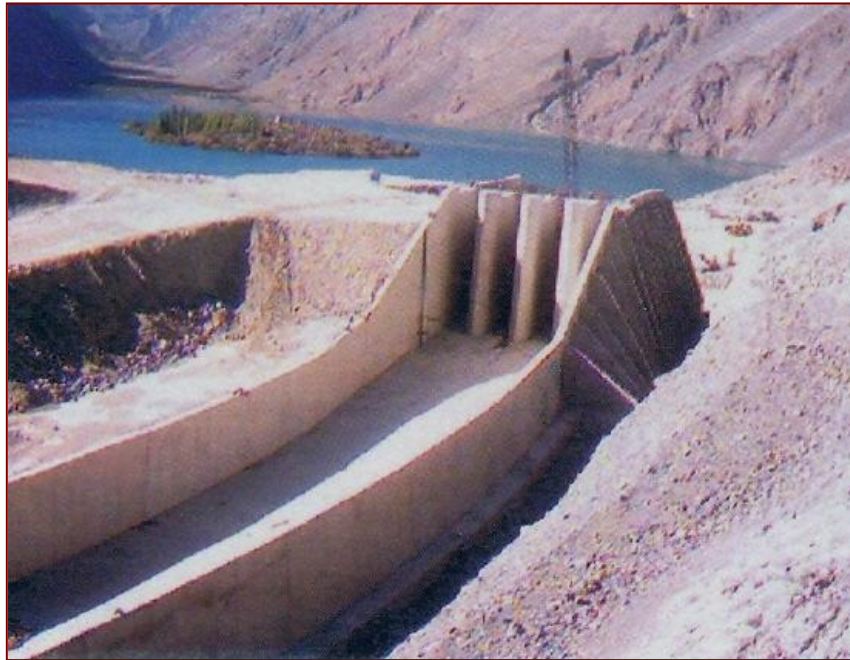
 Dam Length 560 ft
 Maximum Height 128 ft
 Crest Elevation 8750 F.A.S.L
 Gated Spillway 5000 cusecs

Irrigation System

Left Bank Canal 10400 Acres.
 Right Bank Canal 4600 Acres.



VIEW OF MAIN DAM



VIEW OF SPILLWAY