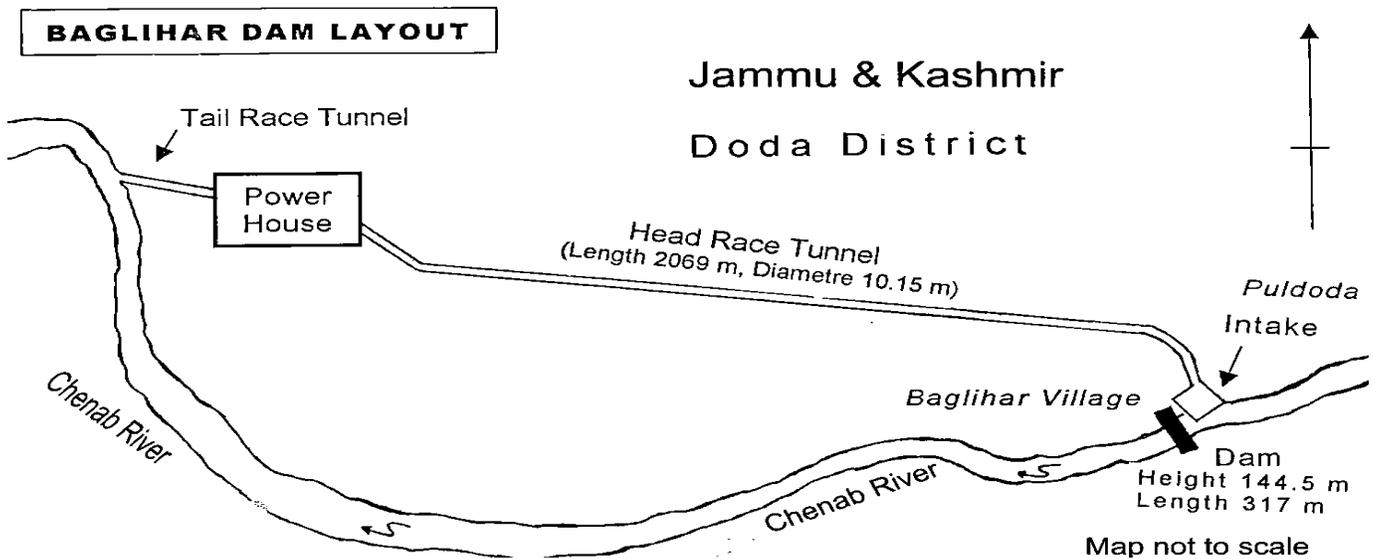


## Baglihar HEP: some crucial facts



Baglihar hydropower project on Chenab River in Doda district in Jammu and Kashmir has been in news for some time now. The main reason for this 450 (3 X 150 mw) MW project to be in news is that the objections raised by Pakistan to the project has lead to the project being referred to a World Bank appointed Neutral Expert. Pakistan feels that project violates the 1960 Indus Water Treaty where as India says the project does not violate IWT. The incident of the differences being referred to a NE is happening for the first time in 45-year history of IWT.

According to the Indian Water Resources Ministry, Pakistan has mainly six objections on the construction of the Dam: Pondage level, Gated Spillways, Lower Wear Level, Level of Intake Tunnels, Height of Gates and Elevation of Tunnels.

**Brief Background** The Baglihar project located about 120 km upstream of the Pakistan territory, has two stages each of 450 MW. The stage II powerhouse will be housed in the caverns to be formed by extending the existing caverns of Stage I. The reservoir capacity is 15 MCM and the headrace tunnels are designed to divert water to the extent of 430 cubic metres per second. An MOU was signed in April 1999 for the project by the Jaiprakash Industries, in a joint venture with SNC-Lavalin of Canada. A 144.5 m high dam is to be constructed to deliver water through a 2.1 km long tunnel to the power station. The Project was then to cost Rs 3495 crores, to be completed in five years. In Nov 2002 J&K state cabinet noted with concern that the project was started without financial closure and it would cost over Rs 4600 crores, thus making per MW installed capacity cost to be Rs 10.22 crores. In Jan 2003, the work on Rs 1750 crores second phase of the project to generate 450 MW has started, to be commissioned in Oct 2006. On March 25, 2003, the J&K Govt indicated setting up of a Commission to probe whether the norms were observed in the allotment of Baglihar dam contracts.

**J & K State govt** has said that J & K had the right to use the water of its rivers.

**WB** The govt of Pakistan formally sought (Jan 18, '05) the WB mediation over the dispute of the Indus Waters Treaty. Pakistan also asked India to stop construction work on the Baglihar HEP. The WB dispatched a list of three water dispute experts to Pakistan and India for their consensus. Those three experts were one each from Switzerland, Australia and Brazil.

Prof Raymond Laffitte who has been appointed the NE by the World Bank after consulting the two countries as provided under the IWT, met the teams from the two countries for the first time in Paris on June 9-10 .

**Raymond Laffitte** Age 70, A professor at the Swiss Federal Institute of Technology in Lausanne, chairman of the committee on governance of dam projects of the International Commission on Large Dams, a member of the advisory committee to the president of ICOLD and Dam Safety Committee of ICOLD. ICOLD essentially being a lobby in favour of large dams, it is clear that Prof Laffitte is a supporter of large dams.

As per IWT, the NE's findings will be final and binding on both the parties. If the NE feels that the points referred to him are beyond his purview or that there is a dispute (as different from "differences" as is the Baglihar issue is described now), the matter will have to go to a Court of Arbitration, as per Shri Ramaswamy Iyer, former Secretary, govt of India (The Hindu 090605).

Iyer goes on to say that Pakistan's concerns about Baglihar are only partly over violations of the treaty; they are more over security aspects. Pakistan is afraid that the possible water storage at Baglihar can be used as a weapon by India to the detriment of Pakistan. India's Prime Minister Dr Manmohan Singh, in fact clarified to the visiting Pakistan editors that Pakistan has nothing to fear on that score.

RN Malik, former Engineering in Chief said in his article (Daily Excelsior 110505)said that India cannot agree for a dam with ungated spillway because the reservoir will be filled silt in just 3 to 4 years. He said that both Jhelum and Chenab rivers are notorious for transporting high load of silt, because of erosion of thick mattle of sand or the hills in the entire catchment area during the rains. Pakistan knows this fact very well because Mangla dam reservoir across river Jhelum in occupied Kashmir has been heavily silted up. Indian engineers too know this fact very well because 690 MW Salal project, the first one on river Chenab, got silted up within four years of its commissioning

That some of the benefits of projects in India on three western rivers (Chenab, Jhelum and Indus) 'given' to Pakistan under the IWT would flow to the people of Jammu and Kashmir state in India add another dimension for the differences on projects like Baglihar.

**Call to stop work on Baglihar** Pak said India wanted to resolve the matter bilaterally but Pakistan did not agree because Islamabad had exhausted all options to find a settlement through bilateral talks before approaching the WB as a last resort under the Indus Waters Treaty. However, the spokesman said, even now if India stopped work on the dam, Pakistan was willing to consider the Indian proposal for bilateral talks.

Indian PM Dr Manmohan Singh assured a group of visiting Pakistani editors that the design of the Baglihar Dam could be changed if it was found to be violating the Indus water treaty. "Nothing will be done which violates the Indus Water Basin Treaty in letter and spirit," Dr Singh stressed and said: "If weighty and credible evidence is demonstrated to us in its design we are duty bound to rectify it."

However India needs to worry about many aspects of the Baglihar project. Here are some of the important issues on which we need to worry.

**Hydrologic viability** Is the 900 MW Baglihar viable? How many days in a year can it generate power at that rate? It will require 860 cumecs of water, but Chenab flow reduces much below that in winter. In fact flow in Chenab reduced to upto 50 cumecs. The authorities have not made public the hydrologic data or the projected power generation from the project. The experience of the existing 690 MW Salal project on Chenab 480 MW Uri HEP on the adjoining basin Jhelum shows that these projects in fact generate much less power in winter when the need for power is maximum in J&K.

**Siltation** Chenab River is known to be highly silt laden river and there are frequent events of landslides, increasing the siltation rates. Construction of so many mega projects on the same River (Salal existing project, Baglihar, Dulhasti are under construction and Sawalkote is already being seriously considered) is also adding to the silt load of the river. In fact as made clear by the paper on tunnelling experience at Baglihar, the rock quality at the Baglihar site ranges from poor to very poor to extremely poor. The huge silt load of the river means that the projects' useful life will be very low.

**Cost** As noted above, even at current cost estimates, the 450 MW installed capacity of the Baglihar project is to cost Rs 4000 crores (Rs 2700 crores have already been spent). This means that per MW cost of the Baglihar HEP will be around Rs 8.89 crores even at current rates. This is much higher than the current cost of Rs 5-6 crores per MW installed capacity for most such projects. The cost of electricity from the project would consequently much higher than Rs 5 per unit. This when the citizens of the valley are unable to pay ever Rs 2 per unit charged currently. Who will pay the cost of such expensive project and who will really benefit? There was earlier attempt to show lower per MW cost of the project by clubbing the two stages of the project. However, stage II work is yet to start and it is far from clear if stage II is even feasible particularly in view of the poor geology encountered during construction of stage I.

As Omar Abdullah, the leader of National Conference and former Union minister of state said, there is little consultation with the local people before taking up such projects.

The project thus should not be interesting from the point of view of the questions raised in India and Pakistan. There are many questions around this project to which Indians too do not have clear answers.

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