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Bhutan: The sad case of Punatsangchhu project 1- Lessons to be learnt

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Dr. Pema Gyamtsho, of DPT and leader of opposition raised the issue of Punatsangchhu I in Bhutan Parliament and suggested that in view of geological problems, mounting debt and expenditure it would be better to hold the project at the current stage. He added more out of courtesy that no one can be blamed for 'geological surprises'. He said that the project due to be completed by 2016 may get extended even to 2024-2025.

One of the newspapers in Bhutan described the project as one of "collective nightmare" with a huge cost escalation and no guarantee of a solution!

What went wrong with the project? Were the geological problems now encountered in the right bank envisaged at the time of preparation of DPR by WAPCOS, a Government of India Undertaking way back in 2006? It is normal to expect changes when the natural slope was disturbed but having realized that the stability of the right bank was in question with a series of further slips, why was the project continued without a detailed investigation by the Geologists?

These are the questions that arise when one is now confronted with a huge expenditure, cost overruns and even visits by a large number of engineering experts from abroad to advise on the stability of the right bank have not brought forth any viable solution.

The latest to visit is an expert from the Austrian Company Spa Geo Infra who suggested construction of huge piles in concrete or metal deep into the earth to provide stability to the right bank.

The Punatsangchhu project was thought of as early as 2003 in a Memorandum of Understanding between India and Bhutan. An agreement was signed between the two countries in July 28, 2007 and the project started on November 11 2008. The DPR was executed by M/S Wapcos a GOI undertaking and the cost estimated was 35147.85 Nu million for 1095 MW scheduled for completion by 2015! The location itself was revised by shifting the dam higher up by 1.5 km. The idea was to reach the bedrock at lower levels and the production of power was revised to 1200 MW.

The project involved constructing a concrete dam 130 m in height and 239 metres in length. The cost was to be shared in the usual formula of 40 percent grant and 60 percent loan by India.

A slide of 5 metres was noticed in 2013 followed by two more slides. There was one more slide in 2016 and a smaller slide in 2019. It was clear that the right bank of the dam was in an unstable area and no one was sure when another side would occur.

It is learnt that the WAPCOS as well as the CWC were aware that there were “geological weaknesses” in the right bank and still went ahead with the tendering in 2009.

The Geological Survey of India which studied the area opined after a preliminary investigation that additional investigation with regard to the delineation of the weak geological structures in the right bank should be done. At this stage the GSI should have been forthright and firm in declaring that the construction of the right bank should not be proceeded without further detailed investigation by experts from GSI or from other disciplines before the project could move on.

Instead of conducting further investigation, the contract was awarded to Larsen & Toubro on 27th March 2009 who were only too glad to bag another big project and start construction!

As of now the cost overrun is almost three times and could be more when the project is completed. This directly affects the tariff of the power produced and also the management of the loan taken for the project. We are discussing about Punatsangchhu I and not the second project II on the same river which has also been delayed though no geological problems were encountered!

India has enormous experience in the construction of dams of all types and are not new to construction of dams in unstable formations. What went wrong in Punatsangchhu I when it has an array of experts on reservoir rim stability, slope formations and fault lines? What was the hurry to go ahead with the project when it was known that there could be difficulties relating to geology of the area?

It is also a question of prestige for India itself and it is sad that we approached such projects in a lackadaisical manner in another country where our good name is involved. If the project is stopped, it is possible for India to absorb the loss but not for Bhutan! One will only have to see around other countries which are completing projects well in time and without the cost overrun in the region!

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