

Diamer Basha Dam, a hydro bomb or a blessing?

Diamer Basha Dam: After the first (April 2006) ground-breaking ceremony of Diamer Basha Dam (DBD) we observed a stalemate on this project. Whereas General Pervez Musharraf was trying to look good inline with his announcement of Jan 2006 that Pakistan will build six large dams by 2016 the ground reality was different. India claimed that the Northern Areas of Pakistan was part of "Greater Kashmir" and was demanding that Pakistan needs its NOC before the World Bank & other multi-laterals can consider financing DBD. The nation was not informed by the WAPDA management & infact 2011 a second inauguration was stage managed by WAPDA Chairman, Shakeel Durrani. I now refer to WRDC website for the three letters of 2004 written by late Dr. Ghulam Safdar Butt (Lt. Gen Retd) to General Pervez Musharraf. Now Dr. Butt was heavily critical of the feasibility report prepared by lead consultant M/s Nespak - MWH/ Harza & others known as the NEAC consultants JV. He was critical of the 281m height of the Roller Compacted Concrete (RCC) design of which about 49m would be below the river bed for its rock bed support. He had observed that an attempt to build the world's highest RCC dam in the region of severe seismic history was playing with fire & inviting trouble. The NEAC JV however had chosen an economical site location. The cost by NEAC was estimated at USD 6.45bn including downstream upgrading & upstream relocation of the KKH & environmental mitigation measures. Dr. Butt privately complained that the likes of Senator Nisar Memon had prevailed upon General Musharraf to enlarge the Diamer Basha Dam so that KBD goes into the background. The height was as a result of Dr. Butt's intervention decreased but only by a few meters. Dr. Butt's visit to WAPDA House on 30 June 04 on invitation of Chairman WAPDA Mr. Tariq Hameed was a direct result of Dr. Butt's first letter of 02 June 04 to General Musharraf. It was a fascinating face-off in the presence of WAPDA hierarchy & their consultants.

Earlier Senator Nisar Memon had announced the Technical Committee (on Large Dams) in 2003. The eight member committee led by Mr. A.N.G. Abbasi a gentleman whose anti KBD views were universally known. As Sind Provincial Irrigation Minister in year 2000 he had induced Air Marshal Daudpota Sahib, the Governor of Sind to issue the unfortunate comments against KBD & Punjab in general. In presence of the Water Accord of March 1991 the attempts by the anti-dam lobby to quash the KBD project is simply high treason. Senator Nisar Memon's technical committee of 2003 finally decided that DBD can be built while KBD maybe just a carryover dam devoid of any irrigation canals. This conditional approval of KBD became possible when all seven members rebelled & gave their favorable report independent of Mr. A.N.G. Abbasi in May 2005. Immediately after attending the 30 June 04 meeting at WAPDA House Dr. Butt decided to write a hard hitting letter to Chairman WAPDA Mr. Tariq Hameed. This document is being placed on the WRDC website. I quote a few lines from Dr. Butt's letter "This is a dangerous area to build a dam. The prosperity and survival of the country depends on this and other dams. Geology of the area has not been fully studied. Jaglot syncline is a highly active tectonic element. Basha is located within its stress field where tectonic movements are permanently going on. Frequency of heavy earthquake is considerable. Their epicenters are not too far. More detailed & precise investigations are necessary. Recent 2002 earthquakes in Nanga Parbet Massif (NPM) can initiate several landslides. If that happens after the dam is built & a wave is generated that may fail the dam & spill over it. The downstream devastation to Tarbela and all other barrages, upto Kotri would be enormous. I shudder at the thought". On 08 Oct 2005 Dr. Butt apprehensions based on his thirty years pioneering work on the KKH were proven correct. Renowned National Centre of Excellence in Geology, University of Peshawar's paper from 2002 (Authors Mohammad Riaz & Ghazanfar Khattak) is a must read on earthquake / seismology of the Nanga Parbet area with particular reference to DBD. The paper also covers "reservoir induced earthquakes" as a very real phenomenon. These are classified as triggered or induced earthquakes. This doc will be placed on the WRDC website.

Indian mischief has blocked IBRD financing for DBD as discussed in this article. The overlapping tragedy being that WAPDA selected a new set of dam consultants who disregarded the NEAC JV site location and chose a much wider site about 2km downstream. The width/volume of the dam structure doubled as a result. The cost also doubled. Diemer Basha Dam offers no construction inputs, locally. The explanation for the change being the location of a steep granite embankment on the left bank of the NEAC JV site location. Till today we have understood that granite embankments are desirable but suddenly the Lahmeyer led JV of Design Consultants went ahead with this disastrously expensive site change. In-house adviser Dr. Izhar, a retired WAPDA engineer succumbed to the pressure of the Lahmeyer JV. In the interim the World Bank had blacklisted Lahmeyer due to malpractices in Africa. Even this did not deter Dr. Izhar and his boss the new incumbent WAPDA Chairman Mr. Shakil Durrani to revert back to the economical design of NEAC JV consortium; duly outlined in their detailed Feasibility Studies of August 2004. If the site change is due to consideration of tariff / Royalty sharing between GB province & KP province then it is a terrible shame. Chairman WAPDA is advised to learn about the Royalty formula proposed to the Federal Ministry in 2006 by the venerable Engr. Shams-ul-Mulk, a highly respected WAPDA officer whose tenure as WAPDA Chairman (in the 1990s) will always be remembered with the same reverence as the WAPDA tenure of Lt. Gen. Dr. G. S. Butt (1981 – 1987). Location of power house is a minor royalty factor (15%). Another national tragedy was being enacted and the people of Pakistan were kept ignorant. I appeal to the people of Pakistan to heed the words of Dr. G. S. Butt and revert to the original NEAC site location & reject the wider Diemer Basha Dam design of Lahmeyer. Lower the dam height to about 230m above rock bed as per demand of seismic realities. Try to have one power house, if still feasible. Save the funds and build KBD within 5 years as well in the same costs as the Lahmeyer JV designed DBD. It will also be possible to construct the narrow DBD as per NEAC JV feasibility within 7 years (instead of 10 years at less than half cost of the Lahmeyer JV design). Will the Indian lobby allow the reversal? DBD must be built as a smaller, safer dam whose reservoir would also be a sediment & debris trap for most of the 160mn tons that reaches the Tarbela reservoir every year. Critically Dasu HPP, Patan HPP & Thakot HPP also need DBD to reduce Indus sediment otherwise these HPPs will face severe erosion.

In March 2013 the Director General of the Geological Survey of Pakistan (GSP) has said Islamabad is an earthquake prone area and Basha Dam is highly vulnerable because of huge fault lines. The dam, he warned, must not be built on the present site. Dr. Imran Ahmad Khan DG GSP made these remarks while briefing the Senate standing committee on Petroleum and Natural Resources that met in Islamabad on Tuesday, 26 March 13 with Senator Muhammad Yousaf in the chair. WAPDA as usual tried to justify its design by stating that the contention made by the Director General Geological Survey of Pakistan in the news item is not correct. WAPDA states the detailed geological investigations at the site of Diemer Basha Dam project was carried out. Main Mental Thrust fault (MMT) is at the distance of 40 kms from the date site and main Karakorum thrust fault is about 100km from the location. WRDC believes the letters of late Lt. Gen. G.S. Butt written in 2004 to General Musharraf are the best guide for the nation.

Perhaps for once the mischief by the Indians (leading to a delay in DBD's construction) may prove to be a blessing. It may give a pause and God willing a group of patriots may see the dangers in building such a high RCC light structure covered by a plastic membrane & revert to its original 660ft height & option of having an arch gravity structure with a rock & earth filled core. DBD will allow incremental energy at Tarbela of atleast 1,450GWh (1.45Bn units/year).

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