

KBD A FOCUS OF THE INDIAN WATER AGGRESSION

PREAMBLE: Ever wondered why strategic planning is trashed periodically in Pakistan? Why the nation's hydro endowment & its related national assets are suffering attrition & neglect? India's water war is no longer surreptitious. It is now a blatant, cold-blooded campaign. Her transparent interference internally in Pakistan has created an anti-dam lobby within the three smaller provinces. Their open opposition to a second reservoir on the Indus after commissioning of Tarbela Dam (1974) has been suicidal for Pakistan's economy. Kalabagh Dam (KBD) is recognized in all the major studies as a +100 years reservoir at the point of maximum flow of the Indus Main. Refer to **Primer – 1**. Punjab, Pakistan's largest populated province and breadbasket has seen its agricultural output stagnate. No thanks to Pakistan's rising population the per-capita agricultural output has fallen in real terms. Poverty & the resulting tensions within the Federation have multiplied. India's internal factor (in Pakistan) & external activities (in Kashmir) have inflicted upto 2010 a financial loss of over a trillion USD equivalent to the PAK economy. Potentially the richest nation of South Asia is now a basket case. Due to Pakistan's failure to build multi-purpose dams (after 1974) the desired hydel:thermal ratio has become lopsided; around 30:70. Imported oil based power generation can never be sustainable. The financial deficit has climbed above USD 10bn for the first time. The national debt servicing is even greater. Textiles its dominant agro based sector has not grown in real terms. KBD project the 2nd dam on Indus Main stands blocked under a grand conspiracy. **Refer IWA-1** for details.

India now goes ahead with plans to build 100 + hydro-electric projects on Pakistan's waters flowing through Indian Held-Kashmir; the so-called three western rivers: Indus, Jhelum & Chenab. She uses a benign concession in the landmark Indus Waters Treaty of Sep 1960 to justify building dozens of high dams & creating reservoirs in cascade. India also lays claims on the waters that Pakistan's anti-dam lobby compels it to waste. Pakistan is already since several years facing the inexplicable scenario of drastically shrinking inflows from her western rivers. The hydro based infrastructures being constructed by India in Kashmir permit her absolute control (quantum & timing) of the surface flows into Pakistan besides the capability to divert Kashmir waters into the northern Indian basin. She is building the world's largest single irrigation project using a network of canals between Indian Punjab & Indian Bengal. Refer to **IWA-4** for details. .A blueprint for history's greatest genocide is unwittingly under implementation?

The tragic symptoms of irrational behavior among Pakistani youth including the bizarre & murderous mission to Mumbai by ten odd PAK militants in Nov 2008 are signs of a despondent people. Such missions will escalate exponentially as a nation comes in the throes of an economic suffocation orchestrated by its upper riparian neighbor. Indian maneuvering & high handed tactics leading to the IWT 1960 got them the entire flow of the three Eastern Rivers. Pakistan leadership accepted to maintain the East Punjab drainage (sewers) Hudiana, Kasurwala, Salimshah & Fazilka under Art IV of IWT-60. It was an unprecedented & anti-civil milestone in modern history. Today, Pakistan's second largest city Lahore is sinking in its sewage. Its life sustaining Ravi river has become a sewer. It's deep water pumps throwing up arsenic & nitrates far beyond safe limits. Irrigation water situation in South Punjab is now critical. The anti-dam lobby has ensured reduction of Pakistan's storage capacity to about 8% of its annual surface flows of 145 MAF. Clean drinking water had already become a nationwide struggle. Pakistan is choking economically due to its water stressed situation. Yet the Indians project themselves as the aggrieved party. The 2010 floods have demonstrated that lack of mega dams has another ominous dimension. The floods delivered another 56MAF into the sea. Nature's gift became a destructive force due to missing reservoirs. I focus on the lack of large reservoirs especially KBD & the ignored hydel energy potential. The tragic mistakes clearly orchestrated by our regional adversary & the deadly fifth column within the republic.

PART AA: Why Pakistan's economy could not become self-sustaining (a primer)

We were by 2006 completely dependent on oil based IPPs and the developing "Circular Debt" has been growing menacingly since 1994 due to our unsustainable Imported Energy Policy. The era of massive deficit financing & de-industrialization had arrived. The nation had been trapped in the guise of FDI. How could the thermal based privatization policy lead to lower tariffs? Tragically we had created a USD two billion financial black hole in our economy by the year 2004 due to the unsustainable private thermal generation; uncapped & based on imported oil. The Independent Power Producers (IPPs) were inducted under the 1994 Power Policy. The devil is in the detail. **WAPDA/GoP has to pay the fuel cost differential as a pass-thru component.** Reference price at 1994 levels. Today this financial black hole has at least doubled because RFO/HFO (& Diesel fuel) for power generation has crossed +12 million tons/annum. Our hydel development has been dismal and the mega reservoir projects are virtually on hold since Tarbela Dam (1974). The surface storage is now less than 8% of the average 145MAF surface flows. In 2008 & again in 2009 Chairman WAPDA a non-technical bureaucrat advised the Federal Minister to announce the official closure of the Kalabagh Dam project (KBD) and WAPDA House was the venue for this tragic announcement. Does a nation, a town, a village, a home require "consensus" for its sweet water supplies? Water is life and only an enemy will disagree. Reservoirs are also the lowest cost electric energy source. Refer **Primer 2A & 2B.**

One had been aware of the basic recommendations of the TASK FORCE on Energy (Jan 94). The serious concern was that any policy based on imported energy, which is uncapped, will destabilize WAPDA therefore the national economy and eventually damage the Federation. Some of us observed that the 1994 Private Power Policy was an evil on the scale of the Agartala Conspiracy which had resulted in Eastern wing's separation from Pakistan. The hibernating HUBCO Agreement of Aug 1992 (negotiated since 1985) was made functional by unfair concessions through amendments upto 1994. HUBCO was the fore-runner, the genesis of thermal IPPs in 1985 on the advice of IMF. To accommodate this 1292MW conventional HFO (furnace oil) fired steam power station the Minister of Water and Power gifted a 7 km of beach near Karachi city. A tax free island in Baluchistan. The World Bank had estimated USD 0.8 mn/MW but later allowed USD 1.2mn/MW. Can we overlook that HUBCO had within 13 months (1996/7) recovered its inflated equity of about USD 375mn? It is universally accepted that any IPP controlling +10% of the power supply is a monopoly. In this period Bangladesh was purchasing steam power stations with gas fired boilers at USD 350,000/MW. Later 15 of the 19 originally sanctioned IPPs under the '94 Private Power Policy were established. Together with the freshly inducted IPP's & a privatized KESC the nation is generating about 130bn electrical units per annum; limited only by the financial & infrastructural constraints manifesting itself as the so-called "Circular Debt". About 75% of the total thermal installed capacity & more than 50% of Pakistan's generating capacity is in private hands. More thermal IPPs will soon be inducted.

Both China and India never appreciated this IMF/World Bank concept. In Pakistan IPPs have throttled the public sector. When the GNP of a nation does not rise in tandem with its GDP (due to excessive outflows of profits and dividends) we have economic and social upheaval. The British Imperial masters had increased India's GDP. Eventually they had become a liability. Secondly we all know that economic inequities lead to political & social cataclysms. Historically FDI has often been misdirected and used as a tool of exploitation. **In Pakistan's case we are no longer having a self sustainable economy primarily due to our tragically flawed policy in the three crucial areas i.e. civilian engineering industry sustenance of our irrigation assets & last but not the least our treacherous energy policy. FDI is not always healthy for the recipient. FDI should be accepted on a rational and selective basis.** The nation has to eliminate the mindset (the syndrome) that led to the 1707-1857 debacles for Muslims in India. A culture of scientific thought & observation will have to be implanted.

PART BB: The case for Large Dams (& floods 2010). What is WAPDA upto?

Proposed KBD & future floods: On 09 Feb 98 a premier conference on Water Reservoirs in the National Economy was held at Islamabad. All major aspects of our predominantly irrigated agriculture, hydel potential & related aspects were addressed. Eminent speakers had discussed the benefits of reservoir construction and explained the details of the IBIS (Indus Basin Irrigation System). The expected pit-falls in the building of Diamer Bhasha Dam (DBD) & the near impossible status of Katzarah/ Yago/ Skardu on humanitarian & ecological grounds were also deliberated by several experts. A resolution was unanimously approved for the construction of at least one reservoir on the Indus without further loss of time. Everyone agreed in Feb 98 that 10 years after Tarbela commissioning a new reservoir's construction should have started and could have been available by 1990. Fourteen years later (in 2012) the situation is doubly critical.

In financial terms KBD non-availability is a staggering wastage of around USD 230bn equivalent between 1990 and 2010. KBD was planned as the 2nd reservoir on the Indus capable of +6MAF live storage. A reservoir that would have compensated the depletion of all Pak reservoirs since the commissioning of Warsak, Mangla, Tarbela & Chashma & could have kept our economic growth ahead of our population increase. Only KBD met the criteria for a quick & cheap replacement reservoir to offset the storage capacity lost. A near hopeless sociological situation as seen today would have been averted. The floods of July/Aug 2010 have shown that KBD would have complemented Tarbela Dam's intrinsic flood attenuation & mitigation capabilities. The construction of proposed Munda Storage project on The Swat River would also have been helpful for flood control. The 1.2MAF storage at Munda so close to the population centers is capable of providing around 1.5Bn units/year. The Munda - KBD conjunctive operation presents a wonderful opportunity for inter-provincial cooperation. The energy output of KBD could increase by around 250GWh (0.25Bn units) at average head of 200 ft, due to Munda Dam.

Tarbela clearly moderated the floods of main Indus stem by 250,000 cusecs thus not allowing the flow at Jinnah Barrage to exceed one million cusecs; a flow that would have been catastrophic for all barrages downstream including the creaky Sukkur Barrage. Major reservoirs have three purposes viz, Irrigation Water, Electrical Energy & Attenuation of Floods. Comrades are requested to study the WRDC article on proposed CIBSA as a counter to the ICID menace at www.wrdc.com.pk. Our Sindhi brothers' infant drink surface waters (river, canal & lake) in spite of the chemical pollutants. Their ground water is generally brackish & full of pathogens; unfit for human consumption. Hydraulic efficiency & energy output of all three dams would be greatly enhanced if DBD-Tarbela-KBD cascade is available. A bounty of over USD 50Bn per year.

Nowshera was seriously affected by flood in Kabul River. Kabul River is a major tributary of River Indus which joins it about 4km above Attock gorge. It starts from Chitral, flows to Afghanistan and again enters into Pakistan near Warsak passing through Peshawar & Nowshera valleys. It merges with Swat River upstream of Nowshera before joining the Indus, downstream of Nowshera city. The heavy rainfall in end July 2010 created the excessive flash flows in Chitral, Swat, Panjkora, Kalpani rivers etc (all tributaries of the Kabul). The flood measurement gauges of WAPDA were drowned and washed away at its Nowshera flow gauging station. Flows at Nowshera were about 250,000 c/s on 29 July 2010. The river later peaked at about 400,000 c/s. Unprecedented rains in Tarbela catchment near Pattan, Gilgit and Gupis created exceptionally high flow conditions at Tarbela (840,000 c/s) resulting in outflow of around 605,000 c/s on 30 July 10. This in combination with outflow of 400,000 c/s from River Kabul & 70,000 c/s of Kalpani river should result in 1,075,000 c/s flow at Khairabad but due to Attock Gorge backwater affect it was 995,000 c/s. If KBD had existed with the reservoir level initially at about 820ft & if the irrigation requirements had been met also at Chashma Barrage

(downstream of KBD) it would have achieved its maximum conservation level of 915ft around early August 2010 when outflow at Tarbela was around 390,000 c/s & Kabul River + Kalpani around 120,000 c/s. Cumulative flow at Attock Gorge would have been about 510,000 c/s. KBD would have kept its outflow at a range of 240,000 to 600,000 c/s and maximum level of reservoir would have been about 878ft. If required KBD could have allowed a maximum discharge/outflow of 1,200,000 c/s. Compare this with the maximum floods of 995,000 c/s reaching Khairabad on 30 July 2010. How a backwater situation could have been created due to the existence of the proposed KBD reservoir? Is it not a national tragedy that Chairman WAPDA & his Member Water continued to harp on their deadly hypothesis that if KBD had existed the flood damage would have been greater!? The real cause of flooding at Nowshera and Peshawar valleys upstream are; entrance of Kabul River at Nowshera into a confined channel (gorge) at the end of the wide Peshawar valley and backwater affect of Attock Gorge downstream through which Indus River has to pass after its confluence with Kabul River. Indus river flows through a wide valley of over 8,000ft and is then forced to pass a 1,000ft wide gorge for about 8kms. This constriction forces the river water to backup thus giving rise to flood levels in Kabul River. Flooding of Nowshera city is due to one gorge at Nowshera & a 2nd gorge at downstream Attock. Refer **Primer #3**. Proposed KBD about 160km downstream of Attock with a live storage of 6.1MAF & max conservation level 915ft (asl) would act as a downstream flood mitigator.

DBD cannot replace KBD: After the April 2006 ground-breaking ceremony of Diamer Basha Dam (DBD) we observed a stalemate. General Pervez Musharraf was trying to look good inline with his announcement of Jan 2006 that Pakistan will build six large dams by 2016. I refer to the attached three letters of 2004 written by late Dr. Ghulam Safdar Butt (Lt. Gen Retd) to General Pervez Musharraf at **Annex AA**). Now Dr. Butt was heavily critical of the dam's height proposed by lead consultant M/s Nespak - MWH/Harza & others known as the NEAC consultants JV. He was equally critical that the 281m Roller Compacted Concrete (RCC) design would have an unprecedented crest level at +3900 ft asl. The possibility of 8MAF (10 cubic km) breaking loose; a potential "hydro bomb" hanging over the nation. Construction of the world's highest light structure RCC dam instead of an Arch-Gravity structure(with a earth/rock core) in the region of severe seismic history was playing with fire . The NEAC JV however had chosen an economical site location. The cost was estimated at USD 6.45bn including downstream upgrading as well as upstream relocation of the KKH & environmental mitigation. 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 **Annex BB**) gives the 1987 height comparison of KBD & DBD viz 260ft & 660ft. DBD was mischievously proposed in 2004 as 920ft high structure implying that KBD now stands assimilated into DBD. 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 accompanied by three of us, on 30 June 04, 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.

Senator Nisar Memon had announced the Technical Committee (on Large Dams) in 2003. The eight member committee was to be led by Mr. A.N.G. Abbasi 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 if built maybe just a carryover dam devoid of any irrigation canals. This conditional approval of KBD became possible when all seven members rebelled in May 2005 & gave their favorable report independent of Mr. A.N.G. Abbasi. 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 as **Annex CC**). 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 & classified as triggered or induced earthquakes. The Sichuan earthquake of May 2008 is a tragic example. Refer **Annex DD**).

WAPDA selected a new set of design consultants who disregarded the NEAC JV feasibility site location & selected a wider site 2km downstream. The width/volume of the dam structure nearly doubled. The cost also increased to around +USD 12bn with additional cost for KKH up gradation from Thakot to site. DBD site area offers no construction inputs, locally. The explanation for this drastic 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 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. Lahmeyer was also deeply involved in Bagliar 1 & other IHK projects. Even this did not deter Dr. Izhar and his boss the new WAPDA Chairman Mr. Shakil Durrani to revert back to the economical design of the NEAC JV consortium; duly outlined in their detailed Feasibility Studies of August 2004. The terribly expensive site change is due to consideration of tariff / Royalty sharing between GB province & KP province. It is a national shame. Chairman WAPDA is advised to learn about the Royalty formula proposed to the Federal Ministry in 2006 by the venerable Shams-ul-Mulk, a highly respected WAPDA officer whose tenure as WAPDA Chairman (in the 1990s) is remembered with the same reverence as the WAPDA tenure of Lt. Gen. Dr. G. S. Butt (1981-1987). Location of power house in his report is a minor royalty factor (proposed 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 Diامر Basha Dam design of Lahmeyer. More critically lower the dam height to about 220m above rock bed as per demand of seismic realities. Try to have one power house, as more 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 a part of the 160mn tons that reaches the Tarbela reservoir every year. Life extension of Tarbela Dam is critical. DBD in cascade allows incremental energy at Tarbela of +1,450GWh (1.45Bn units/year). WAPDA Chairman continued to conceal the Greater Kashmir card of India. They have effectively lobbied with the multilaterals that the Northern Areas are part of Greater Kashmir. She has blocked World Bank financing for PAK mega projects such as Diامر Basha Dam & Bunji HPP due to this linkage. Why no one appealed against an earlier AJK High Court

decision? There can be no peace until the Indians abandon their hydro offensive in all its manifestations. Remember Kashmir was declared by the Quaid as Pakistan's "jugular vein".

Akhori: off-channel storage is a revolutionary idea, which needs to be studied. It is not a replacement for the KBD but one day it could supplement the Tarbela reservoir. Of course there is negligible power generation element in Akhori. It is not an alternate to KBD.

WAPDA weakened by design: It is modeled on the TVA which is America's most successful civilian project. The willful destruction of its balance sheet is a national calamity. It was only nine years ago when the Indian Army COAS declared and translated verbatim "Every proposal in opposition to Kalabagh Dam is like a new nail in the coffin of Pakistan's defense capability". Soon thereafter a three member Indian delegation to an Islamabad conference declared that Indus Waters Treaty 1960 is redundant & superfluous! Not a single PAK functionary reacted. It is quite apparent that the induction of non-technical bureaucrats in Engineering Organizations has been a major factor in the nation's economic plight. In WAPDA's nascent developing stages it was fortunate to have had visionaries such as Ghulam Ishaq Khan, Ghulam Faruque Khan & I. A. Khan. They were trained to seek advice & work as a team. They could study the financial impact of every step. Today the seat of Chairman WAPDA has been reserved for a political group whose declared policy is "No more reservoirs on the Indus". Mr. Durrani did not spend more than a week in his office. He would demand that the 96MW Jinnah Low Head project be expedited while the 3,600MW KBD, few km upstream was willfully ignored.

CIBSA our response to the ICID challenge; Global warming: Pak Commissioner Indus Waters (PCIW) secretariat at Lahore deals with the cases related to the IWT 1960. The commission works under the overall control of the Federal Ministry of Water & Power. While the Indus River System Authority (IRSA) also works directly under the Federal Ministry of Water & Power and manages the distribution of Indus Basin Waters to the provinces. The inter-provincial water disputes became manageable after the signing of the Water Apportionment Accord (WAA) in March 1991 and the creation of IRSA as a result in 1992. However both PCIW & IRSA lack the required punch due to deficient technical depth & commitment. In the case of PCIW secretariat it is shamefully under-equipped to face a diabolical, merciless & relentless upper riparian neighbor. PCIW must not depend on Indian data. The Indians clearly worship a water-god as their actions have shown since 1946. Nehru created in 1950 an "International Commission for Irrigation & Drainage (ICID) that now serves hundreds of international clients & multi-lateral agencies. Reportedly +25,000 personnel work for ICID. What is most relevant is that they have the tools to analyze accurately the hydrologic cycle of the Indus Basin. In contrast our fifth PCIW (1991-2011) has repeatedly stated that he has no data /information of the inflows in IHK Rivers & streams. If the watershed in Kashmir is not understood how does Pakistan expect to face their aggression? Secondly every Indian move leading to attrition of water flows into Pakistan is blamed on the altar of "Global Warming". Glacier retreat is ongoing everywhere but this for the interim means more water in the rivers! This is clearly the rationale for the Northern River Linking project of India; a USD 212bn project launched in 2006 based on the Prabhu report of 1999? My face to face talks in New Delhi during end July 10 had compelled the Indian side to agree on a joint watershed study in IHK. How do we implement it if there is no organization in Pakistan to provide the expertise? Above all we need a motivated team that can face all the techno-legal issues around the IWT 1960 especially to neutralize Indian violations & transgressions. The tragic decision by the neutral expert on Baghliar 1 is a contradiction of the basic spirit of the IWT 1960. If low level gates are permitted below the dead level under the pretext of "silt excluder" then who will ensure that these are not misused? A dangerous precedent that must be challenged because there is no monitoring of IHK hydro sites being no-go areas for Pakistan nationals. The creation of CIBSA is therefore overdue by at least 52 years which is the age of the IWT 1960. Let our hydrologists & scientists come forward to

serve CIBSA. I attach the learned articles “Defusing the water bomb” of Mr. Afzal Mahmood (16 July 05) & “the Water Bomb” by Mr. Muttahir Ahmed Khan (24 Feb 11) as **Annex EE**).

PART CC: The Hydrel:Thermal ratio a key to economic independence (Neelum Jhelum HPP)

Labeling parts of Northern areas as “Greater Kashmir” because the ruler in Srinagar a century ago exerted influence in Baltistan is like saying that Peshawar, Kohat & Kabul are parts of Greater Punjab because Ranjit Singh once held away over these western towns. Gangster Logic! Why are we allowing the fifth column to conceal these deadly realities? While we address this menace and compel the government of the day to appeal this “Greater Kashmir” Judgment by an AJK High Court Judge we may rethink our national strategy for a sincere Fast-Track hydrel development campaign. Let us assume that reservoirs on major rivers are presently not being allowed by pro-Indian political elements & their bureaucrat nominees. At best in the next three years we can expect about 1000MW run-of-river projects to be commissioned providing around 2.5bn units per annum. Over 65,000MW of firm hydrel potential is waiting to be utilized. Pakistan is one of the nine countries that could utilize hydropower for +50% of its entire energy needs.

Neelum Jhelum tunnel project is around 10 years away. The illogical decision to ignore the first feasibility report of 1987 and follow the later 2nd option to tunnel under the upper limb of the Jhelum & place the power house at the lower limb of the Jhelum thereby increasing the total tunneling to 48km is a financial disaster in the making. A project that could have met its strategic objectives in less than USD 1bn with completion in five years has been pushed to an estimated project cost of +USD 5bn with completion now estimated in 2025; some 17 years after work commenced in 2008. It is a blatant misinterpretation of the IWT 1960 to discuss a race with India’s Kishenganga HPP (The Indian name for Neelum River). It is a story to scare the nation. Logically the larger & much more expensive project would not have been taken if there was a need for a race between Kishenganga HPP & Neelum Jhelum HPP. Procurement of TBMs (Tunnel Boring Machines) has been during 2010-2011 the obsession of the WAPDA Chairman and his colleagues’ inspite of the dubious technical benefits in the particular soil conditions. Starting from Norconsult who were the first to study this project, 25 years ago, to the present project consultants no serious recommendation has been ever made in favor of using TBMs. The WAPDA management failed to obtain a clear & favorable consultancy report. Finally they used the TBMs as a bait for the PRC contractor. A quid pro deal where he would supply the two European TBMs on the plea of earlier completion of Neelum Jhelum tunnel hydrel project. WAPDA claimed two years will be saved but concealed the fact that TBM delivery / commissioning by its supplier would be two years. The contractor will not only be forgiven some years of delay; but can also justify future delays in construction. Will these TBMs justify the cost in Neelum Jhelum soft rock & clay? The squeezing factor of the soil, increases when seismic events are a regular event. TBMs will be clearly facing the prospect of being trapped upto 2.5km below the surface. These expensive moles can only be deployed for 9.1km out of the 28.54 long Headrace Tunnel. “Drill & Blast” method applies for the balance works of N-J HPP project. India will win the imaginary race; will surely “call our bluff” & steal our water rights.

Neelum Jhelum 969MW HPP: WAPDA has used a false pretext. There is no race between Indian IHK & Pakistani projects. WAPDA states that whoever builds first will have perpetual rights over the Neelum waters. Perfect blasphemy & such a misinterpretation is clearly suicidal & treacherous. The flow of the western rivers are perpetually Pak endowment and for the “uninterrupted use” of Pakistan as repeatedly stated in the IWT 1960 and may only be ignored at Pakistan’s peril. The IWT 1960 is sacrosanct. Refer to the article **IWA-6**. The longer tunnel option N-J HPP & enlarged DBD both have the treacherous purpose of distracting the nation from the most critical KBD project. How much contractual loss will be suffered by the people of Pakistan who are paying a Neelum Jhelum surcharge with every electrical unit in their utility

ills? In fact the project is further burdened with additional costs for operating TBMs instead of the economical “drill & blast” method originally agreed & signed for in the contract.

PART DD: Indian hydro policy in Indian Held Kashmir (IHK)

Let us now discuss the rising menace of India’s Northern Canal Project. What this USD 200Bn + project means for the future of our children. The real implications of Baghliar Dam, Kishenganga Barrage/HPP & all +171 projects in IHK.. There has to be a consensus internally and thereafter a recognition by the world community of our historical apprehension that Kashmir is a water related issue. Since 1947 we have failed to surmount the Indian factor. India must respect in letter and spirit the tenets of the “Indus Waters Treaty 1960”. It is sacrosanct. ***Tragically the Indians are now guilty of laying the groundwork for genocide of our nation through the ongoing theft of Pakistan waters.*** India is in the process of planning & constructing +171 hydroelectric power projects (HPP) in Indian Held Kashmir (IHK). At least 42 projects on the three western rivers and their tributaries are already in operation. At least 14 are under construction & remaining 115 in advanced stages of planning & design. Indian official strategy is to achieve +28,000MW installed hydroelectric capacity in IHK before 2020. This fact has been known since many years. The technical parameters of two large projects (1500MW Sawalkot Dam HPP & 1000MW Pakal Dul HPP) on the Chenab within IHK are at **Annex FF**.

There are 17 projects in operation on Chenab & its tributaries. Three more are under construction (including Baghliar II). Another 56 are in advanced stages of planning & design. The IHK projects in operation on Chenab main include Salal Dam & HPP (345MW) as well as Baghliar I HPP (450MW). The Salal Dam for example has considerable storage capability which can be mis-operated in violation of the Indus Waters Treaty (1960) and could seriously affect the inflow into Pakistan (at Maralla). Secondly on Jhelum & its tributaries another 13 projects are in operation, 8 projects under construction & 43 HPP in advanced planning stages. Work on their Wullar Barrage Project was suspended; the URI HPP (480MW) is operating. Pakistan should have reacted 15 years ago to the Kishenganga HPP project as it is in blatant violation of the IWT 1960. It includes the transfer of Neelum waters into Jhelum & is a violation of the IWT 1960, Annexure D para 15c (iii) & Annexure E para 10. Neelum is a tributary of the Jhelum. The completion of Pakistan’s Neelum Jhelum HPP will mean that India cannot operate its Kishenganga HPP as Pakistan has the right to the uninterrupted use of the western rivers. Any other interpretation is diabolical. **There is no race between the two parties.** Thirdly on the Indus & its tributaries 12 smaller projects are operating, 3 under construction & 16 planned.

It is apparent that by constructing these HPP in cascade, creating substantial storage at any given time, Indian would seriously disturb the flow (and timing of the flow) of the western rivers in clear violation of the IWT 1960. Such activity would have serious repercussion on Pakistan’s future reservoir projects such as Kalabagh Dam, Akhori Dam & Diامر Basha Dam. Also due to India’s Kishenganga HPP water diversion aspect there would be a serious impact on the power generation potential of the Neelum Jhelum HPP. We cannot remain passive.

Mr. David Lilienthal, a founding Director of the TVA dispatched to the subcontinent by President Truman had predicted these tragic events in his August 1951 report to PM Liaquat Ali Khan. In the last decade Prof. John Briscoe of Harvard University has published two major books on the subject of Indus Waters. His well known article “War on the Indus” is highly critical of Indian projects in IHK as they blatantly violate the IWT 1960 by disturbing the flow and timing of the flows of the western rivers. With pondage from dozens of HPP projects the cumulative gross storage at any moment of time will be several MAF & inherently lethal for all downstream infrastructure projects and the Indus Basin Irrigation System (IBIS). Pakistan has priority and exclusive rights (with minor exceptions) over the waters of the Western rivers and this issue is

non-negotiable. Pakistan's anxiety to secure these rights had resulted in the historic blunder within the IWT 1960; of granting India the 100% water rights of the three eastern rivers (Ravi, Sutlej, Beas). India has to be made to respect Pakistan's exclusive rights on the Western rivers. **CONCLUSION:** WAPDA the economic backbone of Pakistan has to be made viable. A technocrat from the civil or military hierarchy must be inducted to stop the rot. The intelligentsia must play its role in building public awareness on the "Greater Kashmir" game which has blocked our mega projects. **KBD is a quick & economical lifeline for Pakistan and has to be built at all costs.** Its perfect location for both irrigation & energy production are indisputable. Imported oil based IPPs & RPPs have to be pushed out asap. The primary energy consumption which includes hydro, nuclear, coal, oil & gas was 65.8m tons in 2011. Reject all previous plans and reduce imported oil in real terms by 5% annually from its peak of 24m tons of which +12m tons is RFO for IPPs and some for public sector generation. Freeze import of POL. Oil consumption may remain static at 425,000 barrels/day (58,219 tons/day). Pakistan's hydro storage capacity is about 8% of its annual surface flows of 145MAF. Pakistan needs water for its agricultural and energy needs. Substitution by imported energy (oil) is not sustainable. The national objective has to be an average annual increase of 12% in the surface storages for the next 15 years and within 10 years to achieve the desired Hydel:Thermal ratio of 70:30 from Hydro Reservoirs & Run-of-River projects. Our sovereignty is at stake. In fact whichever part of Pakistan will be denied Indus Waters its economic growth will be nearly impossible & extremism will follow. CIBSA (Commission of Indus Basin Strategic Analysis) be expedited. Indians created ICID in 1950 & today we have to face this monster without the tools. PIWC & IRSA are toothless organizations unable to neutralize the machinations of the ICID network.

WAPDA management has spent the last years in three major official activities: talking to funding agencies for the construction of the "go-slow" Diamer Basha Dam. Indian inspired "Greater Kashmir" linkage inhibits the World Bank from participating. Secondly they spent considerable time & resources to justify their decision on the never to be built KBD using an absolutely anti-national approach. Thirdly they spent time & effort seeking justification through their human moles to purchase mechanical moles (TBMs) for the Neelum Jhelum tunnel program on the false pretext of a race, while the option I to link the Neelum with the Upper Jhelum is ignored.

If the Indians are not intending to divert Pak waters from IHK into Punjab then let them open the entire valley to inspection by UN or WB experts. The Northern River Linking (NRL) USD 212bn project is predicated on violations of the IWT 1960. In July 2010 the Indian side was willing to create a joint commission for study of the IHK watershed. They had agreed during the 29/30 July Water Conference in New Delhi to have a joint study of the water-shed. **IWA-7, IWA-8 & Indian press reports of 31 July 10** attest to this. Misguided philosophers such as Mr. Rafay Alam have diluted the impact of the hydrological data exhibited by our side. Mr. Rafay Alam's thesis "New approach to the Indus Treaty" is that he wants both nations to share the Indus basin through a joint management process. Due to his naive approach he recommends to let India build run-of-river power houses in IHK so Pakistan may purchase Indian electricity. He describes talks on Kashmir as "rhetoric". Instead of becoming an Indian colony we must cleanse this nation of fifth columnists & use our hydro resource by building mega-dams on a war footing. Our mission should be to focus Indian and world attention on the spirit of the Indus Waters Treaty 1960 so that violations & transgressions can be checked if not totally eliminated ab-initio. Indians are not expected to inhibit residents of IHK or East Punjab to reduce the excessive pumping of Chenab waters. The Indians have to change their mindset. Simultaneously Pakistanis have to eliminate their 1707-1857 mindset. Renegotiation of the IWT 1960 is not possible because the Indians will not discuss the ownership of the three eastern rivers. Indian official strategy since 1947 is leading to history's greatest genocide & this must be reversed for the sake of all people in the region and beyond. Mr. John Briscoe correctly hopes for an Indian

Mandella. Both resultant scenarios are frightening. An economically crippled Pakistan which, God forbid, would be prone to separatist intrigues **or** nuclear Armageddon.

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