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Background Paper

Construction of Kalabagh Dam

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Construction of Kalabagh Dam

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Pakistan Institute of
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Printed in Pakistan

Published: March 2011

ISBN: 978-969-558-212-1

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Published by



Pakistan Institute of Legislative Development and Transparency - PILDAT
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Foreword

The Background paper on **Construction of Kalabagh Dam** has been commissioned by PILDAT to assist and support an informed dialogue on the conflict of Kalabagh Dam. The peer reviewed background paper is authored by **Mr. Muhammad Feyyaz**, who holds a Masters degree in War studies from Quaid-e-Azam University, Islamabad and M. Phil in Peace & Conflict Studies from the Faculty of Contemporary Studies, National Defence University, Islamabad.

The paper has been prepared to serve as a background for a conflict resolution simulation exercise for the benefit of Members of Pakistan's Parliament.

The construction of dams in Pakistan was initiated in 1955, when the country was facing an acute power shortage. When India stopped water supplies to the network of canals in Pakistan, it became imperative to build large storages and link canals to restore water to the affected canal system. This resulted in the construction of two gigantic dams, Mangla with a gross storage capacity of 5.88 MAF and Tarbela with 11.62 MAF, as a part of the Indus Basin Replacement Works. At present, the country not only needs a particular dam but a series of them because its agriculture, the economic base of the country, is in bad shape.

The Kalabagh Dam project has always remained an apple of discord in the hydro-political history of Pakistan. There are varying perspectives for or against construction of the dam. One school of thought predicates its argument on the need for food sovereignty for the galloping population of Pakistan, and the other for environmental security on which the lives and livelihood of millions depend. The controversy of Kalabagh Dam (KBD) has raged between the four provinces of Pakistan since 1984 when its project report left the drawing boards of WAPDA and was circulated among the provinces. Punjab has been the only province in favour of the dam. The other three provinces have expressed dissatisfaction: their provincial assemblies passed unanimous resolutions rejecting the proposed dam. Hence, the project is still under consideration only. The present Government, upon assuming power in 2008, announced it will not pursue the construction of Kalabagh dam project as resolutions had been passed against its construction by the Sindh and Khyber Pukhtunkhwa (KPK) Provincial Assemblies.

Acknowledgments

PILDAT would like to acknowledge the financial support provided by the British High Commission, Islamabad through UK Government's Conflict Pool Fund for the project of Orientation of Members of National Assembly and Provincial Assemblies on Conflict Resolution. The paper has been prepared under the project.

Disclaimer

The views, opinions, findings and conclusions or recommendations expressed in this paper do not necessarily reflect the views of the the British High Commission, Islamabad or PILDAT.

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Profile of the Author**Mr. Muhammad Feyyaz**

Mr. Muhammad Feyyaz holds a Masters degree in War studies from Quaid-e-Azam University, Islamabad and M. Phil in Peace & Conflict Studies from the Faculty of Contemporary Studies, National Defence University, Islamabad. He is a diploma holder in Conflict Management from the Modern Institute of Informatics and Management, Islamabad Pakistan and a certificate in an identical course from the Pakistan Institute of Management, Lahore. He was also part of a marketing strategy Course at the Lahore University of Management Sciences in 2008. Participates in international conferences and seminars on peacekeeping, terrorism and security issues and frequently writes for Pakistani and foreign research and academic journals.

Introduction

Debate on water issues has become a social taboo in contemporary Pakistan. Political formulation of water-related socio-economic interests and the civil society debate on water issues have remained limited. The media too have not been as active in projecting such issues. For the common public, facts about water remain controversial and all domestic water issues are explained in the context of provincial antagonism¹. Pakistan is already one of the most water-stressed countries in the world, a situation which is going to degrade into outright water scarcity due to high population growth. Its dependence on a single river system means it has little of the robustness that most countries enjoy by virtue of having a multiplicity of river basins and diversity of water resources². By implication Indus Waters have become an increasing bone of contention, not only between India and Pakistan, but also between the regions/provinces in these two countries³. Violent nuances in inter-provincial deliberations on water issues are manifest signifying future trend of inter-unit relationship in Pakistan.

Concurrently, however, to meet the rising demand of water and power for economic growth, Pakistan urgently needs a series of water storage and hydroelectric power projects. Kalabagh Dam figures out prominently in this regard.

Given multi-party perspectives and concerns about its construction, it is extremely important that as a first step these issues are understood by Parliamentarians and other stakeholders; and as a second step, concerted efforts be made by them to resolve these major issues in the larger interest of the country, its people and the future generations⁴.

This background paper is an attempt in that direction by highlighting salient features of the contemporary conflict paradigm surrounding Kalabagh construction. It has been developed as part of a series of conflict resolution workshops initiated by PILDAT which aim to sensitize elected legislators on important national issues and in the process build their capacity and develop skills to resolve these intricate issues. Two key features of the paper merit a

mention here. First, it is essentially a non-perspective research compilation and secondly, it employs two theoretical notions viz. 'hurting stalemate' and 'ripeness' coined and conceptualized by William Zartman. The purpose is to depart from conventional thought which focuses on objective arguments to highlight the significance of an issue, instead review the predicament also from theoretical lens to deepen understanding.

Loosely though, the paper has four sections. It begins by an explanation of aforementioned notions followed by detailed narration of genesis of water disputes among different regions of Pakistan in a historical context. Next, it highlights spectrum of challenges faced due to water shortages in order to construct a frame of reference for the issue under review. This is followed by discourse on construction of Kalabagh Dam locating its evolved yet controversial character vis-à-vis the water wrangling involving claims and counter-claims by the provinces. In essence, this section attempts to capture views of the federating units on construction of Kalabagh Dam. Finally, Zartman's formulation is applied to conceptualize the conflict paradigm thereby offering, if not new, a different perspective to comprehend the moot topic.

Explaining Hurting Stalemate and Ripeness

Once conflicts escalate for a while, they often reach a stalemate: a situation in which neither side can win, but neither side wants to back down or accept loss either. Stalemates emerge for a number of reasons: failed tactics, depletion of available resources to fuel the conflict, a reduction in support of the conflict by group members or allies, or costs becoming too high to continue⁵. Paradoxically, despite realizing that the conflict is going nowhere, it is often difficult for parties to transform the nature of the conflict and consider a settlement. The underlying cause of such behavioural pattern is that for long-term conflicts, individuals [or a political entity, interest group, etc.] are socialized to the polarized view of self and other. They are afraid of the other side and do not want to reconcile with them or meet their demands.

Eventually, conflicts reach a point at which a sort of

1 Dr. Zaigham Habib, Water: Issues and Politics in Pakistan, South Asian Journal Apr-Jun 2005, pp.35-43.

2 Pakistan Country Water Resources Assistance Strategy, Water Economy: Running Dry, Report No. 34081-PK, Nov 2005, Agriculture and Rural Development Unit South Asia Region, World Bank, accessed 8 Mar 2011.

3 Sultan Shahin, The shape of future warfare, Asia Times, Nov 2002, http://www.atimes.com/atimes/Front_Page/DK23Aa01.html, accessed 15 Mar 2011.

4 Ateeq ur Rehman et al, Heading for Water Scarcity in Pakistan: Implications of Internal and External Disputes and their Resolution, Group Research Paper Dec 2009, 91st National Management Course, National Management College, Lahore.

5 Brahm, Eric. "Hurting Stalemate Stage." Beyond Intractability. Eds. Guy Burgess and Heidi Burgess. Conflict Research Consortium, University of Colorado, Boulder. Sep 2003, <http://www.beyondintractability.org/essay/stalemate>, accessed 10 Mar 2011.

equilibrium sets in, in which neither side is getting any closer to achieving its goals and which no one is happy with the situation. They come to realize themselves or through external intervention that the costs of continuing the struggle exceed (oftentimes greatly exceed) the benefits to be gained. This is the situation known as the "mutually hurting stalemate" (MHS). It is grounded in cost-benefit analysis, fully consistent with public choice notions of rationality.

According to Zartman, while most studies on peaceful settlement of disputes see the substance of the proposals for a solution as the key to a successful resolution of conflict, a growing focus of attention shows that a second and equally necessary key lies in the timing of efforts for resolution - idea of a ripe moment⁶. This concept is based on the notion that when the parties find themselves locked in a conflict from which they cannot escalate to victory and this deadlock is painful to both of them (although not necessarily in equal degree or for the same reasons), they seek an alternative policy or Way Out. The catastrophe provides a deadline or a lesson indicating that pain can be sharply increased if something is not done about it now. The concept of a ripe moment centres on the parties' perception of a MHS, optimally associated with an impending, past or recently avoided catastrophe. This perception may reside in the consciousness of parties to the conflict or can be created by intermediaries. In this paper, catastrophe implies a possible water rationing scenario in Pakistani context.

Genesis of water disputes

Provision of irrigation on a controlled year around basis in subcontinent started in 1859. The conflict between Sindh and Punjab over water apportionment is as old as the 1870s, when Punjab started constructing irrigation infrastructure on Indus River⁷. There were several accords and agreements regarding water apportionment between Sindh and Punjab promulgated by the British India

governments. India Irrigation Commission 1901-1903, was among the initial accords for Water of Indus River recognizing the need and decreeing Sindh's usage of Indus water. Punjab was denied right to use Indus River water until the completion of Sukkur Barrage Project (Cotton Committee-1919). Thal Project by Punjab met identical refusals in 1919 and 1925 by the then Viceroy, Lord Chelmsford and Lord Raids respectively⁸.

Henceforth, in what later became a series of water dispute resolution committees and commissions, Anderson Committee was the first that was appointed by the Government of India around 1935 to resolve water sharing problems among former states of Bekaneer Bahawalpur and the Punjab, later joined by Khairpur state⁹. The dispute occurred among Khairpur State with Sindh on water for Kharif and Bekaneer State and Bahawalpur State with Punjab on more allotment of water. A committee was established to resolve the dispute under the supervision of Mr. Anderson, Chief Engineer UP who presented report in 1935¹⁰.

After restoration of provincial status of Sindh in British India, an agreement was reached in 1945 signed by Chief Engineers of the two provinces, whereby the right of Sindh over Indus water was held supreme¹¹, but it was not ratified by the Government of Punjab for lack of settlement of financial issues¹².

Consequent to partition of British India, Kashmir, besides its political dimension, being the origin of many rivers, also manifested in enduring disagreement over sharing of Indus waters between India and Pakistan.

The origin of issue between the two countries lay in division of 'the major tributaries (Ravi, Beas and Sutlej rivers) of the Indus between upstream and downstream riparians that provided irrigation water for the fertile and densely populated region of Punjab on both sides of the border¹³. The World Bank played major role by providing mediation, support staff, funding and proposals for pushing

- 6 William Zartman, The Timing of Peace Initiatives: Hurting Stalemates and Ripe Moments, *The Global Review of Ethnopolitics* Vol. 1, no. 1, Sep 2001, 8-18, http://www.ethnopolitics.org/ethnopolitics/archive/volume_1/issue_1/zartman.pdf, accessed 10 Mar 2011
- 7 Dr. Rajab Ali Memon, Conflict management on water sharing and storage, Sindh Agriculture University, Tando Jam, Pakistan), <http://www.sanalist.org/kalabagh/D-18.html>, accessed 11 Mar 2011.
- 8 Riaz Ahmad Abro, KALA BAGH DAM – Some Realities, CSS Forum, Jan 2006, <http://www.cssforum.com.pk/general/news-articles/articles/2281-here-i-expose-kalabagh-dam.html>, accessed 14 Mar 2011.
- 9 Muhammad Idris Rajput, Inter-Provincial Water Issues in Pakistan, PILDAT-Background paper (draft), Jan 2011, <http://www.pildat.org/Publications/publication/WaterR/Inter-ProvincialWaterIssuesinPakistan-BackgroundPaper.pdf>, accessed 15 Mar 2011
- 10 Riaz Ahmad Abro, KALA BAGH DAM – Some Realities, op.cit.
- 11 Dr. Rajab Ali Memon, Conflict management on water sharing and storage
- 12 Muhammad Idris Rajput, Inter-Provincial Water Issues in Pakistan, op.cot.
- 13 Saleem H. Ali, "Water Politics in South Asia: Technocratic Cooperation and Lasting-Security in the Indus Basin and Beyond, *Journal of International Affairs*, 2008, <http://www.britannica.com/bsp/additionalcontent/18/32110398/water-politics-in-south-asia-technocratic-cooperation-and-lasting-security-in-the-indus-basin-and-beyond>, accessed 31 Jan. 2010.

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negotiations forward, and was able to resolve it after 9 years with the signing of Indus Water Treaty (IWT) in September 1960 for joint sharing of water in the Indus basin.

In Pakistan, however, distribution of water continued in accordance with the 1945 Formula till 1977 when, after construction of Tarbella dam, the Federal Government decided to follow ad-hoc arrangements for water apportionment between provinces. Earlier, after the dismemberment of One Unit in 1970, the Federal Government on the request of the provinces appointed different commissions/committees, headed by Supreme Court Judges, one after another to examine the problem of inter-provincial apportionment of Indus water, but the consensus could not develop amongst the provinces on Justice Fazle Akbar committee and Justice Haleem Commission¹⁴.

The latest Water Apportionment Accord (WAA) was signed by chief ministers of all four provinces of Pakistan on 16th March 1991¹⁵ and ratified by the Council of Common Interest (CCI) on 21st March, 1991. It replaced previous agreements to distribute the Indus River waters among the provinces and command areas. It established the water rights among the provinces and protects future water rights, including the effect of future storages. A formula is available for sharing river flows. The Indus River

System Authority (IRSA) was created as the regulatory authority for monitoring and distribution of the water sources of the Indus River in accordance to the WAA¹⁶.

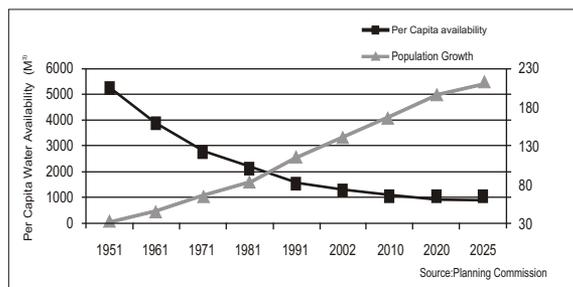
Just Six months after the accord was signed, the CCI held its meeting on 16th September 1991 to decide 10-day average system-wise, season-wise allocation consented in clause VII of WAA for the provinces¹⁷. In this meeting, Punjab expressed the view that it would not be appropriate to take any one clause of the accord in isolation and that the ten daily system-wise allocation by provinces should not be taken in isolation without protecting the existing uses and deciding on future storages, to which the Government of Sindh expressed the view that providing data on 10 daily average allocations on system-wise basis was an integral part of the accord. In response to Punjab's objections and Sindh's concerns, the CCI authorized 10-daily seasonal system-wise adjusted allocations (excluding flood flows and future storage) provided by the provinces to become part and parcel of the water accord¹⁸. Furthermore, the CCI did not agree with the view of Punjab that the existing sharing arrangement had to continue during deficit periods in the absence of construction of storage¹⁹.

The ground realities suggest that till 2003 sharing for availability below accord allocation was being done on the basis of average uses for five years from 1977-82 (historic uses) rather than on the basis of 10 daily statements

Table 1 and Figure 1- Per Capita Water Availability

Year	Population (Million)	Per Capita Water Availability (M ³)
1951	34	5260
1961	46	3888
1971	65	2751
1981	84	2129
1991	115	1565
2002	139.5	1282
2010	167.7	1066
2020	195.5	915
2025	208.4	858

Source: Economic Survey of Pakistan 2009-2010



Source: Planning Commission

14 Engineer Abdul Majid Kazi, Special Reports/Water Crisis - Overview of water resources in Pakistan,

<http://www.pakissan.com/english/watercrisis/overview.of.water.resources.in.pakistan.shtml>, accessed 10 Mar 2011.

15 For details of WAA read THE WATER ACCORD 1991 at <http://www.pakissan.com/english/watercrisis/the.water.accord.shtml> as well as PILDAT Background Paper, <http://www.pildat.org/Publications/publication/WaterR/Inter-ProvincialWaterIssuesinPakistan-BackgroundPaper.pdf> p.9.

16 Fernando J Gonzalez, Thinus Basson, Bart Schultz, FINAL REPORT OF IPOE FOR REVIEW OF STUDIES ON WATER ESCAPAGES BELOW KOTRI BARRAGE, Nov 2005.:// <http://www.fcc.gov.pk/download/flood/IPOEFINALREPORT.pdf>, accessed 15 Mar 2011.

17 Engineer Abdul Majid Kazi, Special Reports/Water Crisis - Overview of water resources in Pakistan, op.cit.

18 Ibid.

19 Ibid.

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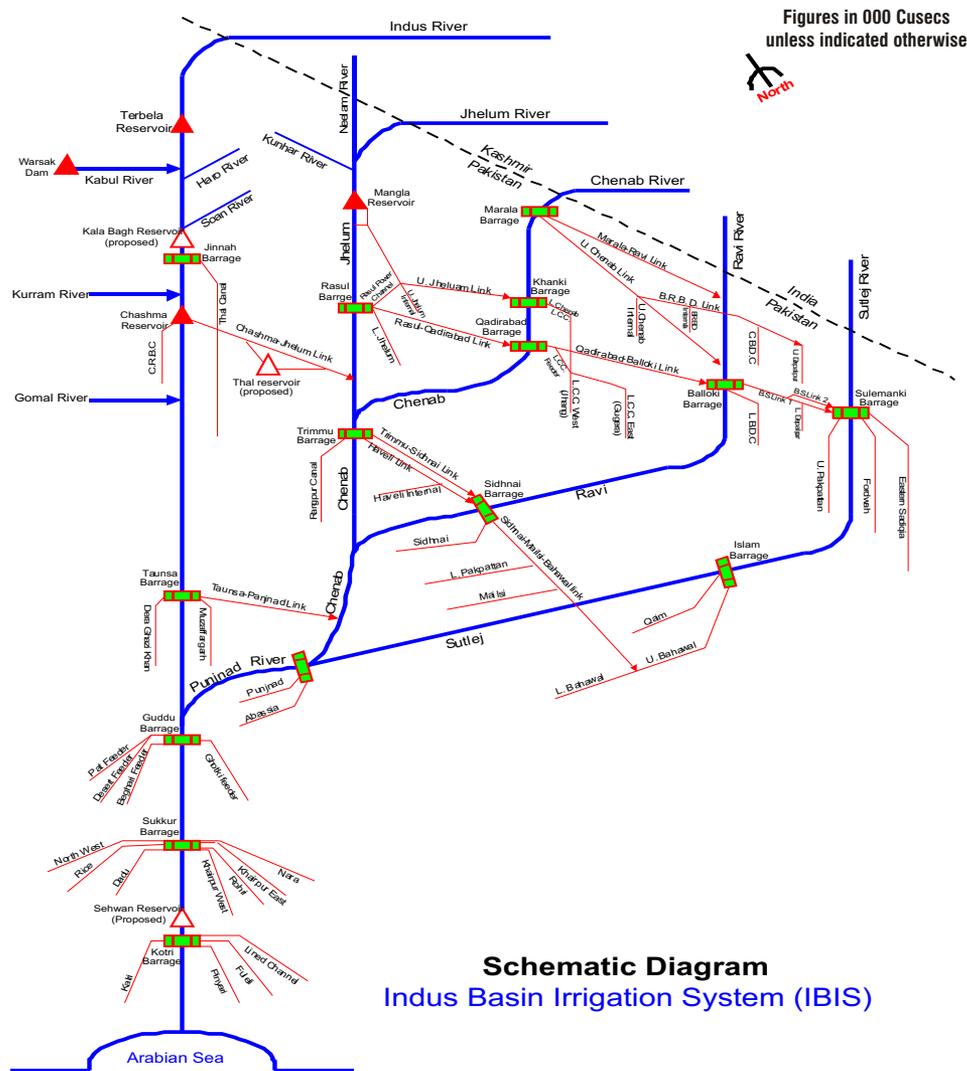
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approved by the CCI, which was a clear violation of the accord²⁰.

Engineer Abdul Majid Kazi, a water expert, opines that Punjab generally propagates that according to 1991 Water Accord Punjab's share was reduced by 2.7% and Sindh's share increased by 1.2%, and "Punjab sacrificed and Sindh gained"²¹. He argues that as a cumulative effect of the construction of Mangla Dam, Sindh's uses reduced to 43.67 MAF against its pre-accord sanctioned allocation of

50.92 MAF, whereas the uses of Punjab increased to 54.39 MAF against their sanctioned allocation of 48.33 MAF. In May 1994, Punjab presented a working paper as an ex-agenda item before the Federal Minister of Water proposing a different formula for sharing shortages now known as the so called "Historical Use Formula." The matter was subsequently referred to the Federal Law Division, which duly observed that any interpretation of sharing shortages on the basis of historic use shall be a violation of the 1991 Accord as well as the Constitution of Islamic Republic of

Figure 2: The Indus Basin Irrigation System



20 Shamim-ur-Rahman, Removal of mistrust over dam building stressed, Dawn.com, <http://www.dawn.com/2011/02/16/removal-of-mistrust-over-dam-building-stressed.html>, accessed 15 Mar 2011.

21 Ibid.

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Pakistan²². The proposed provision was regarded by some as a catalyst for sowing the seeds of discord on water accord.

In all from 1937 until signing of WAA, there were several attempts made such as by Anderson Committee (1935), Indus (Rau) Commission (1939), Akhtar Hussain Committee (1968), Fazal-e-Akbar Committee (1970), Anwar-ul-Haq Commission (1981) and Haleem Committee (1983), to resolve water distribution issue between the provinces. All these attempts failed except Rau Commission (1939) which resulted in Sindh-Punjab (Draft) Agreement, 1945 which became the basis of water distribution between Sindh and Punjab till the 1991 accord²³.

This pessimistic facet of water disputes is not the whole story, all was not so bad since the inception of Pakistan. There have been a number of occasions when the provinces showed mutual goodwill and accommodation in resolving long-standing disputes. The construction of Kotri, Taunsa and Gudu Barrages on the main Indus River after independence was the result of such goodwill and cooperation. Similarly, the 1991 WAA was a major breakthrough and a turning point towards national consolidation. In the Indus Waters Accord of 1991, all provinces also recognized the need for new storages wherever feasible for planned future agricultural development²⁴. Analytically viewed, these structural arrangements by and large managed the conflicts, but remained far from finding their enduring resolution.

Prevailing and Emerging spectrum of water challenges

Pakistan, which was water abundant country in the 1950s (having a per capita water availability of more than 5000 M³ persons), will be a water scare country by 2017. The per capita water availability, which is now (1100 M³)

persons, will be (1000 M³) (Table 1 and Figure 1²⁵). According to the benchmark water scarcity indicator (the Faulkenmark Indicator), Pakistan's estimated current per capita water availability places it in the "high water stress" category²⁶.

The vast irrigation system in Pakistan comprises three major storage reservoirs, 19 barrages or head works, 43 main canals with a conveyance length of 57,000 kilometres, and 89,000 water courses with a running length of more than 1.65 million kilometres. It feeds more than 40 million acres of irrigated land in Pakistan, a country with the highest irrigated and rain-fed land ratio in the world (Figure 2²⁷). Nonetheless, the gross area of Pakistan is nearly 200 million acres. All the available water resources, surface as well as groundwater, are hardly sufficient to support good irrigated agriculture in about 20 percent area of Pakistan viz. 40 million acres²⁸.

The diversion of river flows, following IWT, had a major impact on the flow regime of the Indus River and Eastern Rivers. Long reaches of the Eastern Rivers have very low flows and are dry for extended periods during the year, while flows in the Indus River below Tarbela Dam and the Chashma Barrage are highly altered and reduced²⁹. Subsequent increase in use of Indus River water for irrigation has significantly changed the hydrological balance of the basin³⁰. As a result, the water availability in rivers has been highly erratic and unreliable. The highest annual water availability in the recorded history 1922 to-

Figure 3: Actual Water Availability

Period	Million Acre Feet)			%age ince/decr. Over the Avg.
	Kharif	Rabi	Total	
Average system usage	67.1	36.4	103.5	-
2003-04	65.9	31.5	97.4	-5.9
2004-05	59.1	23.1	82.2	-20.6
2005-06	70.8	30.1	100.9	-2.5
2006-07	63.1	31.2	94.3	-8.9
2007-08	70.8	27.9	98.7	-4.6
2008-09	66.9	24.9	91.8	-11.3
2009-10	67.3	26.0	93.3	-9.9

Source: /RSA

Source: Economic Survey of Pakistan 2009-2010

- 22 Dr. Rajab Ali Memon, Conflict management on water sharing and storage, op.cit.
- 23 Issues of water Resources in Pakistan, PILDAT Briefing Paper 7, Sep 2003, <http://www.pildat.org/Publications/publication/waterR/IssuesofWaterResourcesinPakistan.pdf>, accessed 11 Mar 2011.
- 24 Humaira Sharif, Inter Province water distribution conflict in Pakistan, storages wherever feasible for planned future agricultural development. http://www.intermedia.org.pk/pdf/pak_afghan/Humaira_Sharif_Research_Paper.pdf accessed 15 Mar 2011.
- 25 National Seminar on "Water Conservation, Present Situation and Future Strategy", <http://www.pakwater.gov.pk/wcap.aspx>, accessed 10 Mar 2011. Economic survey of Pakistan 2009-2010, puts current water availability at 1,066 M³.
- 26 Agriculture, Economic Survey of Pakistan 2009-2010, http://www.finance.gov.pk/survey/chapter_10/02_Agriculture.pdf accessed 14 Mar 2011.
- 27 Aijaz Nizamani, CASE STUDY: PAKISTAN Population and Water Resources, IUCN Country Office, <http://www.aas.org/international/ehn/waterpop/paki.htm>, accessed 11 Mar 2011.
- 28 I.A.Khaliq, Irrigation System in Pakistan – Measures to improve irrigation efficiency at the farm level, Paper No. 445. Water Resource Planning, <http://www.pecongress.org.pk/images/upload/books/Paper445.pdf>, accessed 11 Mar 2011.
- 29 Fernando J Gonzalez, Thinus Basson, Bart Schultz, FINAL REPORT OF IPOE FOR REVIEW OF STUDIES ON WATER ESCAPAGES BELOW KOTRI BARRAGE, op.cit.
- 30 Ibid.

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date was 186.79 MAF (million acre feet) in the year 1959-60 as against the minimum of 95.99 MAF in the year 2001-2002³¹.

It is viewed that variability in annual river flows is a major cause of variability of canal diversion, even after the construction of Mangla and Tarbela dams, because the storage is extremely limited and has little impact on canal water diversions³². Data of IRSA substantiates the observation that flows in western rivers vary significantly. On average of MAF it differs by indicating a potential for new reservoir, albeit subtly. IRSA claims for every four out of five years, yearly flows are around 123.59 MAF. Super floods occur approximately once in five years. This may increase the average to a respectable 137.27 MAF per year but in the remaining four years availability of water is 123.59 MAF only³³. It is in this contextual framework that some technocrats suggest that River Kabul should be tapped to address flow uncertainty, and Pakistan should establish its water rights on the Kabul flows³⁴.

In 1986 there were 40 dams with a height of over 15 metres in Pakistan. In 1992, 12 other dams were under construction. At present the number has risen to 143. The two major dams are Tarbela (13.7 km³ of maximum reservoir capacity and 12.0 km³ of active reservoir capacity) and Mangla (7.2 km³ and 5.9 km³ respectively), both being also equipped for electricity generation. In 1994, hydropower represented 49.9% of total installed capacity, and 47.5% of total energy generation, Tarbela dam alone represented 36.7% of the total. The gross initial hydropower potential was estimated in 1991 at 150 000 GWh/year³⁵. Currently, about 30% of Pakistan's energy is generated from hydropower.

This situation has aggravated manifolds from 2006. Overall climatic change of Pakistan has slowed down melting of the snow from mountains, thus reducing flow of rivers and leaving very little water for the winter crops

(Kharif) in Punjab as well as Sindh³⁶. Water availability for Rabi seasons has been particularly impacted, dwindling by about 10 % in last six years with nearly constrained supply during 2004-2005 and 2008-2009 (Figure 3). Out of the total cropped areas in Pakistan, Punjab accounts for 76.38 per cent (16.10 million hectares). Nearly 63 per cent of rural work force in Punjab is employed in agriculture³⁷. Sindh is relatively less agriculture, relying more on industrial and service sectors. Overall wheat crop has declined to 21.7 million tons in 2009 as against 23.3 million tons a year before³⁸.

Besides recurring irrigation water shortage, the country passes through periodic calamity caused by the phenomenon of floods (1992 followed by 1994 very large and super floods of 2010). Monsoon rains result in swollen rivers which spill over their banks, bringing in the wake loss on a colossal scale. Floods are detrimental, not only in financial terms, but also in the form of severe undermining of productive system, which should logically be free from uncertainties and frequent dislocations³⁹.

On the other hand, the original storage capacity of 15.24 maf of Mangala Dam (5.34), Chashma Barrage (0.5 maf) and Tarbela Reservoir (9.40MAF) has declined by 4.68 maf by 2003 due to sedimentation and may further decrease⁴⁰.

Pakistan has the largest contiguous irrigation system in the world which commands an area of 42 million acres⁴¹. However, it was designed for water requirements of the 20th century and not for the 21st century. The design of system was for 60% cropping intensity and now the cropping intensity has crossed over 120%. Further the cropping pattern on which water demands and withdrawals were worked out was not supposed to cater to crops like sugarcane and rice which require high water use. To intensify the situation, India's construction of water storage infrastructure at Baghlihar and Kishanganga, is threatening to disrupt the uninterrupted flow of water downstream into Pakistan⁴². Being ageing and outdated,

31 Engineer Abdul Majid Kazi, Special Reports/Water Crisis - Overview of water resources in Pakistan, op.cit.

32 National Seminar on "Water Conservation, Present Situation and Future Strategy", op.cit.

33 IRSA Report-2008.

34 Dr Zaigham Habib, Water Management and Reservoir in Pakistan, South Asian Journal Jan-Mar 2006, pp.183-198.

35 National Seminar on Public Private Partnership (PPP) Mode of Financing & Implementation of Water Sector & Hydro Power Sector Projects Project Management, Project Management & Policy Implementation Unit Ministry of Water & Power, Jan 2009, [www.pakwater.gov.pk/Download.aspx?.../Final%20Report%20PPP%20\(PMPIU\)](http://www.pakwater.gov.pk/Download.aspx?.../Final%20Report%20PPP%20(PMPIU)), accessed 16 Mar 2011.

36 There are two principal crop seasons in Pakistan, namely the "Kharif", the sowing season of which begins in April-June and harvesting during October-December; and the "Rabi", which begins in October-December and ends in April-May. Rice, sugarcane, cotton, maize, mong, mash, bajra and jowar are "Kharif" crops while wheat, gram, lentil (masoor), tobacco, rapeseed, barley and mustard are "Rabi" crops.

37 Dr. Ranjit Singh Ghuman, Economic Cooperation Between the two Punjabs, South Asian Journal Apr-Jun 2007, pp.88-104.

38 Pakistan Economic Survey 2007-08, p.vi.

39 Khurshed Anwar, Why Not Kalabagh Dam? <http://www.daily.pk/why-not-kalabagh-dam-17533/>, accessed 4 March 2011.

40 Ateeq ur Rehman et al, Heading for Water Scarcity in Pakistan: Implications of Internal and External Disputes and their Resolution, op.cit.

41 Agriculture, Economic Survey of Pakistan 2009-2010, op.cit.

42. Ibid.

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the system maintenance also requires a lot more attention due to deferred maintenance over the last 100 years⁴³.

As of now, groundwater accounts for almost half of all irrigation requirements. Now, although, there is clear evidence that groundwater is being over-exploited, yet tens of thousands of additional wells are being put into service every year. In the barani areas of Balochistan, farmers are pumping from depths of hundreds of metres and in the sweet water areas of the Indus Basin depletion is now a fact in all canal commands. Furthermore, there are serious and growing problems with groundwater quality, a reality that is likely to get worse because there are 20 million tonnes of salt accumulating in the system every year⁴⁴. The public sector operates the irrigation systems above the moghas. This monopolization too has its inherent implications on operational efficiency of water bodies.

The severe energy shortfall is estimated to have reduced overall GDP growth by approximately 2.0% in 2009-10⁴⁵. It is expected that the energy and water shortage could constrain growth in 2010-11. The water shortage scenario in Pakistan is further aggravated with high variability of rainfall. The onset of climate change and global warming is likely to severely affect the availability of water. During the monsoon season (July-September, 2009) the normal rainfall is 137.5 mm while the actual rainfall received stood at 101.8 mm, indicating a decrease of 26.0 percent. Likewise, during the winter (January to March 2010), the actual rainfall received was 49.2 mm while the normal rainfall during this period has been 70.5 mm, indicating a decrease of 30.2 percent over the normal rainfall⁴⁶.

The power demand which at present is about 17,000 MW would be increased up to 54,000 MW by year 2015⁴⁷ whereas the supply-demand gap of electric power in the country has grown to 1500 to 2500MW per day⁴⁸. As per SOE 2005, the water shortage in the agriculture sector has been estimated at 29% for the year 2010 and 33% for 2025⁴⁹. The Water Resources Section of the Planning and

Development Division has estimated average water losses from canal head to outlet at 25 %, and from outlet to farm gate at 15 %⁵⁰.

The population of 32.4 million in 1948 increased to 152.4 million in 2004-05 and is estimated to increase to 220 million by 2025. Even the conservative estimates indicate that it may increase to 208 million by this time. As a result, Pakistan will have a shortfall of 11 million tons of major food grains by 2010 and 16 million tons by 2020. This food grain deficit will increase to 28 million tons by 2025⁵¹, necessitating 31% increase in water availability to meet requirements of the population in 2025⁵².

In the wake of this scenario, construction of high dams in the country is assuming highest priority as irrigated agriculture is the backbone of Pakistan's economy⁵³. River Indus and its tributaries, un-questionably, are the largest national resources. Besides, sizeable surplus water is still going out to sea. For effective harnessing of these renewable resources, most of which is run-of-river type, it would be necessary to build multi-purpose storage⁵⁴.

Construction of Kalabagh Dam: incompatibilities, claims and counter claims

So much has been written on Kalabagh Dam that is difficult to discern fact from fiction. The project has been highly controversial since its inception. In December 2005, the then president General Pervez Musharraf had announced that he would definitely build the dam in the larger interest of the country⁵⁵. Former Minister for Water and Power Raja Pervez Ashraf announced on May 26, 2008 soon after the present [Peoples' Party] government had come into power that the controversial Kalabagh Dam project had been discarded forever, pleading the project was no more feasible and resolutions had been passed against it by the Sindh and Khyber Pukhtoonkhwa (KPK) assemblies⁵⁶.

43 Agriculture, Economic Survey of Pakistan 2009-2010, op.cit.

44 Pakistan Country Water Resources Assistance Strategy, op.cit.

45 State of Economy – Executive Summary, Economic Survey of Pakistan 2009-2010.

46 Agriculture, Economic Survey of Pakistan 2009-2010, op.cit.

47 Khalid Chandio, "Solving energy crisis" Pakistan Observer 31, August 2009

48 Arooj Asghar "Short falls and solutions" Pakistan & Gulf Economist September 21 – Oct 4, 2009.

49 Pakistan's Water at Risks, Freshwater & Toxics Programme, WWF – Pakistan, WWF Pakistan, 2007 <http://www.wwfpak.org/pdf/water-report.pdf>, accessed 4 March 2011.

50 National Seminar on Public Private Partnership (PPP): Mode of Financing & Implementation of Water Sector & Hydro Power Sector Projects, op.cit.

51 Ateeq ur Rehman et al, Heading for Water Scarcity in Pakistan: Implications of Internal and External Disputes and their Resolution, op.cit.

52 National Seminar on "Water Conservation, Present Situation and Future Strategy", op.cit.

53 Khalid Khokhar : Benefits of Building Kalabagh Dam, Jun 2008, <http://www.netpakistan.com/pakistan/benefits-of-building-kalabagh-dam/>, accessed 4 March 2011.

54 Shaikat Mahmood Alvi Al-Khobar, KALABAGH Dam, <http://www.contactpakistan.com/downloads/KALABAGH%20DAM.pdf>, accessed 4 March 2011.

55 Mazhar Tufail, Kalabagh Dam to be revived after budget, The News Feb 25, 2011.

56 Consultant - "Review of National Water Policy Documents/Strategies 20 Jun 2010, <http://new.brightspyre.com/jobs/jid/8128>, accessed 4 March 2011.

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The idea of Kalabagh Dam was conceived in 1953 and until 1973 it was going to be a water storage place for irrigation purposes only. From 1973 to 1984, the design was changed to make it a multi-purpose mega dam. The proposed site for the dam is situated in Kalabagh across the Indus River in Mianwali district of the Punjab, bordering KPK province⁵⁷. If completed it will be 260 feet high, will submerge 35000 acres of land, will generate 3600 MW of hydel power, store 6.7 MAF water for flood control and supply 12.8 MAF water to Mianwali, Khushab, D.I. Khan and Jhelum districts for irrigation⁵⁸.

However, the Kalabagh Dam project has always remained an apple of discord in the hydro-political history of Pakistan. There are varying perspectives for or against construction of the dam. One school of thought predicated its argument on the need for food sovereignty for the galloping population of Pakistan, and the other for environmental security on which the lives and livelihood of millions depend⁵⁹.

The Project's Advocates

Advocates of Kalabagh Dam in particular or generically the food security advocates are found almost in all four provinces of the country; however province of Punjab and technocrats from KPK are among the principal proponents of its construction. They make numerous claims in support of their case.

1. The case for the project is argued on the basis of water shortage and the need for and possibility of one more dam on the Indus system⁶⁰.
2. Besides agriculture, the second vital component associated with the construction of Kalabagh Dam is that of electricity which is required to sustain the progress of the manufacturing sector of the country⁶¹.
3. They assert that Kalabagh Dam Project would

play a very important role by way of replacing storage lost by sedimentation in existing reservoirs at Mangla, Chashma and Tarbala, providing additional storage to meet existing water shortages during early Kharif sowing period of April-June (particularly critical for cotton crop in Sindh), providing effective regulation of Indus river to meet additional Kharif allocations of the provinces under WAA-1991, regulation and control high flood peaks in the Indus, generating a large chunk of hydro-power⁶².

4. In post-Tarbala 20 years, an annual average of over 38 MAF escaped below Kotri,⁶³ after adjustment of future abstraction out-side Indus Basin, this could still be around 32 MAF⁶⁴. Out of this, an average of over 26 MAF per year could be effectively controlled and efficiently utilized to bring about prosperity to millions, particularly, in backward areas of Pakistan through national water resources development approach⁶⁵.
5. Also, Pakistan satisfies 81 percent of its primary energy needs through oil and gas, while total demand of oil and gas in the country stands at 51 million tonnes of oil equivalent (TOE)⁶⁶. The current production stands at 34 million while the residual is met through imports⁶⁷. In this backdrop, a large scale injection of cheap hydropower through multi-purpose storages is a plausible option if the cost of electric supply is to be kept within affordability of the consumers.
6. Further, it would add a large amount of cheap hydropower to the National Grid through its 2400 MW (Ultimate 3600 MW) installed power⁶⁸.
7. A number of other advantages are also explained in support of the proposed project:
 - i. For example, reducing dependence on imported fuels;
 - ii. creating employment for 30,000 persons during construction and significant numbers after commissioning, etc.
 - iii. The overall direct benefits of Kalabagh Dam, it is

57 Consultant - "Review of National Water Policy Documents/Strategies 20 Jun 2010, <http://new.brightspyre.com/jobs/jid/8128>, accessed 4 March 2011.

58 Owais Mughal, *The Politics of Kalabagh Dam and Pakhtunkhwa*, May 29, 2008, <http://pakistaniat.com/2008/05/29/the-politics-of-kalabagh-dam-and-pakhtoonkhwa/>, accessed 14 Mar 2011.

59 Akbar Kazi, *Politics of Large Dams in Pakistan*, South Asian Journal Jan-Mar 2008, pp.82-92.

60 Ramaswamy R. Iyer, "South Asian Water Concerns", in *SAPNA: South Asian Studies*, Vol XIII, Jun 2006, ed. Imtiaz Alam.

61 Sikander Ismail Khan, *Kalabagh Dam--Is It a Political, Economic Or Regional Issue?*, Individual Research Paper 89th National Management Course, Jan 2009 - National

Management College, Lahore.

62 Khalid Khokhar : *Benefits of Building Kalabagh Dam*, June, 2008, <http://www.netpakistan.com/pakistan/benefits-of-building-kalabagh-dam/>, accessed 4 Mar 2011.

63 Shaukat Mahmood Alvi, "Kalabagh Dam", op.cit.

64 Ibid.

65 Ibid.

66 "Energy shortfall reaches 3,330MW", *The Nation*, 6 Oct 2010.

67 Ibid.

68 WAPDA, "Kalabagh Dam Project", <http://www.wapda.gov.pk/pdf/KBDAM.pdf>

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contended, would be around Rs. 25 billion per annum, thus the investment cost of project would be repaid within a period of 9-10 years⁶⁹.

8. Implications of not building Kalabagh Dam find close attention of its supporters. Among other, one such argument put forward is that annual energy generated at Kalabagh would be equivalent to 20 million barrels of oil. This annual import of fuel for thermal generation, including augmentation of transportation infrastructure, would be an additional burden to the economy⁷⁰.
9. Since Bahawalpur and Bahawalnagar will get most of the water stored in Kalabagh Dam, it is appreciated that it would also settle grievance of southern Punjab.
10. Besides, Punjab has agreed not to claim any royalty on generation of resources from Kalabagh dam; the trust deficit however, persists.

The Opponents

The opponents of the project argue that:

1. Water is not available for the dam
2. The project is not needed, and
3. It will have serious environmental and human impacts⁷¹.
4. It is further argued that the key imperatives, transparency and good governance, were never a factor in the formulation of the project. Thus, the technical specifications have undergone numerous revisions because of perceived concern in the KPK regarding seepage and inundation of surrounding areas, a problem that could have been resolved had affective communities been consulted⁷².
5. Politically, the dam has been a non-starter as its benefits are viewed as accruing to the Punjab, at the expense of Sindh and the KPK, with both provinces, it is perceived, being the victims of water deprivation, ecosystem degradation and social displacement.
6. The alleged arbitrary manner in which the Punjab has appropriated water from the Indus River Basin in the

past does not set a precedent for credibility⁷³.

7. Specifically a number of apprehensions/doubts have been expressed both by upper (KPK) and lower (Sindh) riparian provinces⁷⁴. KPK objects to the Kalabagh because, a sizable number of its people will be displaced, and a vast area of its land will either be submerged under the reservoir or rendered waterlogged⁷⁵.
8. The dam will raise the water level of River Indus throughout the Attock gorge, and resultantly, the Nowshera City, inhabited by 200,000 people falling on both the left and right banks of Kabul River, will be under severe threat of flooding⁷⁶. These observations are believed to be based on the original design of Dam.
9. Besides, drainages of surrounding area of Mardan, Pabbi and Swabi plains and Operation of Mardan SCARP will be adversely affected⁷⁷, because of their outfalls being lower than the high flood levels in Kalabagh reservoir.
10. Sindhis believe that Kalabagh Dam left bank canal will divert the waters of Indus to Rasul-Qadirabad sector in the upper reaches of Punjab, and the whole of River Indus waters will be left to cater to the needs of Punjab only, whenever there is shortage of water in Jehlum, or in the eventuality of India appropriating all the waters of Jehlum, or Chenab or both.
11. Furthermore, spectre of desertification of riverine area below Kotri, Sindh has constantly felt threatened by Punjab and has bitterly disputed the figures of water availability advanced by WAPDA, citing legal, economic, ecological, geomorphologic and many other reasons for opposing Kalabagh Dam. Its apprehensions stem from past experience of the operation of Taunsa-Punjab and Chashma-Jehlum canal [and also baggage of Thal Canal project reportedly built without consensus], therefore Sindh strongly opposes the construction of Kalabagh Dam⁷⁸.
12. While Punjab questions the 'surpluses' which pass downstream Kotri and considers a major quantity of this 'surplus' as waste which should be stored and put to use, Sindh, on the other hand, considers the 'surplus' downstream Kotri as essential and feels offended when this flow is termed as 'wastage'.⁷⁹ They

69 Khalid Khokhar : Benefits of Building Kalabagh, op.cit.

70 Shaukat Mahmood Alvi, "Kalabagh Dam", op.cit.

71 Ibid.

72 The Case Against Kalabagh Dam: The Absence of Good Governance, SDPI, March 2007, http://www.sdpi.org/research_Programme/environment/Water.htm#2, accessed 4 March 2011.

73 Ibid.

74 Shaukat Mahmood Alvi Al-Khobar, KALABAGH Dam, op.cit.

75 Iftikhar Ahmad, "Kalabagh Dam -- Development or disaster?", <http://www.sanalist.org/kalabagh/a-10.htm>, accessed 14 Mar 2011.

76 Ibid.

77 Shaukat Mahmood Alvi Al-Khobar, KALABAGH Dam, op.cit.

78 Riaz Ahmad Abro, KALA BAGH DAM – Some Realities, op.cit.

79 Ateeq ur Rehman et al, Heading for Water Scarcity in Pakistan: Implications of Internal and External Disputes and their Resolution, op.cit.

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- further appreciate erosion of Indus delta, degradation of mangroves and dilution in fish catch.
13. Sindh also asserts its rights as the lower riparian which have precedence according to international water distribution law.
 14. The 1991 WAA recognized the need for certain minimum escapage to sea, below Kotri, to check sea intrusion. Sindh held the view, that the optimum level was 10 MAF, while other studies indicate lower/higher figures. It was decided that further studies would be undertaken to establish the minimum escapage needs downstream Kotri.⁸⁰ This Author could not locate any such study. An independent International Panel of Experts (IPOE) from Netherlands recognized the need for below-Kotri water streaming to prevent salinity encroachment in the river, aquifer and coastal zone. But it recommended that a total volume of 25 MAF in any 5 years period (an annual equivalent amount of 5 MAF) be released in a concentrated way as flood flow (Kharif period), to be adjusted according to the ruling storage in the reservoirs and the volume discharged in the four previous years⁸¹. This view contradicts Sindh's plea of 10 MAF annual requirements for the purpose. Tacitly accepting Sindh's assertion and making a case for new Dam, the Federal Government contends, even if 10 MAF is allowed to escape below Kotri, there is sufficient water for additional storage⁸². This is also resonated in the views of Idris Rajput, a prominent expert on water issues. He though insists that no surplus water is available but proposes space can be created for surplus water by conservation which is available in flood years and can be stored by building a big capacity dam for use in subsequent dry years. If three dams on the Indus at Bhasha, Kalabagh and Akhori were built, there would be no problem in flood years. He concurrently highlights that in dry years, they would not be filled and agriculture and industry dependent on them would suffer if not filled. If filled, Sindh would suffer as the lower riparian, as its Kharif supplies would be significantly curtailed for filling of dams⁸³.
 15. Rejoinders and counter claims to all apprehensions of Sindh are several. For example, Alvi claims that a recent study has shown that there is no clear evidence to suggest that fisheries stocks in the river reach below Kotri have declined due to progressive reduction in the surface water supplies. On the other hand, fish production has been constantly increasing as indicated by statistical data. As such, Kalabagh Dam is unlikely to have any adverse effect on fish production in the area⁸⁴.
 16. Alvi notes, the growth of domestic industrial and agriculture sectors would be impeded due to high power costs, in case the Dam is not developed. Besides, on issue of apprehensions about flooding of parts of KPK in the context of Peshawar Valley above Nowshera, it is said that frequent flooding takes place due to entrance of Kabul River into confined channel below this point⁸⁵.
 17. Balochistan does not touch River Indus and is not a riparian in the strictest sense. Still the Pat Feeder canal from Guddu Barrage, with 3400 cusecs of water, irrigates about 300,000 acres in the province⁸⁶. Balochistan's opposition to Kalabagh Dam is based on belief that requests for more water from River Indus will meet little success if said Dam overstretches the demand of water in Indus River system. In addition, with the revised distribution of water in the post Kalabagh Dam scenario, Balochistan fears a further reduction in its share of irrigation water usage⁸⁷. Balochistan also has its serious reservation on the method of calculating the water availability for each cropping season.
 18. The location of the Dam on a fault line and inadequate studies regarding geophysical and geological environment of the area further accentuate opposition to the construction of the project.

The Neutral Camp

Yet another opinion quarter asserts that most of the policy issues related to water focused on hydro-power generation and consumptive use for expansion in irrigated agriculture lands which increased from 8.4 mha in 1947 to 18.09 mha in 2000. The potential of harnessing surface and underground water resources in dry lands through small

80 Shamim-ur-Rahman, Removal of mistrust over dam building stressed, Dawn.com, <http://www.dawn.com/2011/02/16/removal-of-mistrust-over-dam-building-stressed.html>, accessed 15 Mar 2011.

81 Fernando J Gonzalez, Thinus Basson, Bart Schultz, FINAL REPORT OF IPOE FOR REVIEW OF STUDIES ON WATER ESCAPAGES BELOW KOTRI BARRAGE, op.cit.

82 Ibid.

83 Ibid.

84 Shaukat Mahmood Alvi Al-Khobar, KALABAGH Dam, op.cit.

85 Khursheed Anwar, Why Not Kalabagh Dam? <http://www.daily.pk/why-not-kalabagh-dam-17533/>, accessed 4 March 2011.

86 Iftikhar Ahmad, "Kalabagh Dam -- Development or disaster?", op.cit.

87 Riaz Ahmad Abro, KALA BAGH DAM – Some Realities, op.cit.

dams and rain water harvesting has almost remained under utilized⁸⁸.

The counter argument concedes small dams are good but not good enough as these cannot replace the big dams. Equally true, however, is that while no source of energy can match the 49.ps per unit as produced by hydel generation but desilting of large dams is also not possible⁸⁹.

Experts view Punjab's ambition for extension of its irrigated land with a thinly spread water supply as an added burden on depleting ground water. Sindh is somewhat criticized for keeping its irrigation system conceptually close to "run of the river summer agriculture" despite much higher Rabi supplies after 1978. Likewise, all direct and indirect water uses from the flood recharge in Sindh are not accounted and protected, it is observed⁹⁰.

The whole scenario is termed as a crisis of governance, where decision-makers are at odds with an increasingly vocal society⁹¹.

Beyond disputes to conflict paradigm – the mutually hurting stalemate

The water issues between the provinces are no longer disputes which are generally identified with legal nuances. The confrontational posturing by Sindh and Punjab on sharing rights and dividends, and ANP's aggressive stance raising rhetoric of blowing up any construction on Indus River, far exceed bounds of mere bickering. In particular, the mismatch between supplies and demands during a growing season give rise to water allocation disputes among the federating units⁹².

It is a conventional wisdom however that each million acre feet of storage capacity lost means one MAF/year less water that can be supplied with a given level of reliability. And, there is an urgent need for storage just to replace the capacity that has (as predicted) been lost to sedimentation.

Given the high silt loads from the young Himalayas, Pakistan's two large reservoirs are (as predicted at design) silting relatively rapidly⁹³. Paraphrasing Akhter Hameed Khan, the great Pakistani reformer, it might be said that the [World] Bank's involvement in water in Pakistan has been one in which the Bank "has chased the rainbow of well functioning institutions and dreaded the nightmare of further institutional decay and that only the boldest among us can say that we [The Bank] may not be similarly engaged tomorrow"⁹⁴.

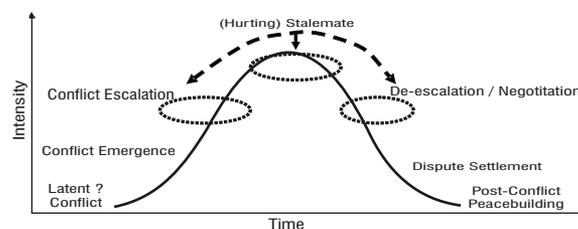
The dispute on sharing the water shortages during the drought years further accentuated crisis of confidence⁹⁵. Some quarters even suggest that raising of Mangla and construction of Kalabagh, Akori and Bhasha dams would improve situation but would not end the problem⁹⁶. Data on various issues presented by provinces and other agencies is also seriously doubted and contested.

The hardened stance on the issue in all four provinces presents a highly charged environment which has reached to a state of 'mutually hurting stalemate' as far as the nation is concerned. The diagram below figuratively illustrates circular pendulum characterising the onset, current impasse and possible future course (as and when unfolds) in the entire spectrum of the interprovincial water conflict⁹⁷

South Asian Journal: Apr-Jun 2010⁹⁸.

Current status of Kalabagh Dam project

Figure 4 – Mutually Hurting Stalemate



South Asian Journal: Apr-Jun 2010

88 Consultant - "Review of National Water Policy Documents/Strategies, op.cit.

89 National Seminar on "Water Conservation, Present Situation and Future Strategy". op.cit.

90 Dr Zaigham Habib, Water Management and Reservoir in Pakistan, op.cit.

91 The Case Against Kalabagh Dam: The Absence of Good Governance, op.cit.

92 National Seminar on "Water Conservation, Present Situation and Future Strategy", op.cit.

93 Pakistan Country Water Resources Assistance Strategy, op.cit.

94 World Bank report on Pakistan water resources: Water economy: running dry, Jan 18 2006, http://www.dailytimes.com.pk/default.asp?page=2006%5C01%5C18%5Cstory_18-1-2006_pg7_27, accessed 9 Mar 2011.

95 Ateeq ur Rehman et al. Heading for Water Scarcity in Pakistan: Implications of Internal and External Disputes and their Resolution, op.cit.

96 Pakistan to face 25 MAF water shortage: IRSA, Pakistan Observer 13 Mar 2011, <http://pakobserver.net/detailnews.asp?id=80250>, accessed 15 Mar 2011.

97 Muhammad Feyyaz, P-5 Members and the UN Conflict Resolution Approaches, South Asian Journal Apr-Jun 2010, pp.111-132.

98 Ibid. Developed by this Author in the context of Pak-India relationship.

It is learnt that the government is going to initiate efforts, possibly after the passage of the Federal Budget for 2011-2012, for evolving a consensus on the construction of the much-debated and long-delayed Kalabagh Dam, which the present government had earlier discarded forever⁹⁹.

The government is trying to remove reservations of the parties opposed to this project which has already been delayed for decades. Now there is a general perception among those who matter that had this project been executed according to initial plans, the country would have not faced the power shortages, which have already caused losses of billions of rupees to the national economy¹⁰⁰. Such conjecturing apart, the empirical reality does not indicate any change in traditional positions of the conflicting parties.

Conclusion

The installed capacity at present exceeds 20,000MW¹⁰¹. Pakistan has used only about 10% of its estimated 40,000 mw of economically viable hydropower potential, a proportion much lower than, say, India and China (around 30%) and much lower still than rich countries (around 75%)¹⁰².

Most independent analysts believe that the foremost problem with the proposed dam at Kalabagh is one of a trust deficit between the Punjab on one side and the other three provinces on the other¹⁰³. This lack of trust is the fundamental issue in the context of water resources. Whether or not the 'ripe' moment has come to resolve the conflict is left up to the best judgment of public leaders. The plethora of challenges facing the country warrants that de-escalation is direly needed.

Despite the best irrigation system the country is compelled to import wheat on credit from abroad and facing severe electricity problem for the last many years. Given that Pakistan has a remarkable history of successfully confronting major water challenges, it is hoped that its enormous human capacity will enable it to confront this challenge as well¹⁰⁴.

99 Consultant - "Review of National Water Policy Documents/Strategies, op.cit.

100 Ibid.

101 Member Power WAPDA Briefing to NMC Participants in WAPDA House on 5th Oct. 2009

102 National Seminar on Public Private Partnership (PPP) Mode of Financing & Implementation of Water Sector & Hydro Power Sector Projects Project Management, op.cit.

103 Waqar, Kalabagh Dam, May 2010, <http://www.urbanpk.com/forums/index.php?/topic/27245-kalabagh-kalabagh-hep-dam/>, accessed 11 Mar 2011.

104 Pakistan Country Water Resources Assistance Strategy, Water Economy: Running Dry, op.cit.



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