Water Strategy - 2020

1. **Vision 2020**
   - Out of 77.1 million acres (MA) of land suitable for agriculture, only 44.4 MA are presently being irrigated whereas existing network of canals, barrages & dams caters for water requirements for only 34.5 MA (excluding barani & chahi). An additional 22.5 MA (Sindh 3.6, Punjab 4.3, NWFP 3.0 and Balochistan 11.6) can be brought under irrigated agriculture.
   - Additional water would also be needed for drinking, food and other requirements of the increasing population of Pak. We are moving from water abundant to water scarce country.
   - Existing shortage is 9 MAF which is likely to increase to 30 MAF by year 2025. (total water available in the canal system is 106 MAF while total requirement of water is 117 MAF). Water management & conservation projects like brick lining etc are likely to reduce this shortage by 2020 to 15-20 MAF (equal to 2-3 big Dams). How to address this shortage?
   - We have not built any new dam in the past 30 years to deal with this impending shortage despite abundance of rivers unlike other countries We need additional 2-3 large storages of 6 MAF each by 2020 making available around 18-20 MAF at least, otherwise we'll face drought situation. By implementing KBD and Bhasha, we'll have an aggregate capacity of 12 MAF.
2. **Water Storage**
   - Original gross storage capacity of Mangla, Tarbela, and Chasma Dams was 5.88, 11.62 and 0.87 MAF respectively (total 18.37 MAF). This storage has been reduced by 4.89 MAF due to silting, likely to be about 6.37 MAF by year 2012 (This is equivalent of one extra storage project). We are going to retrieve it by 2.8 MAF with Mangla Dam raising.
   - Our existing live storage capacity is hardly 12 MAF or less than 10% of average annual river flows, while the world's average is 40%.
3. **Water Availability and Advantages of Additional Storages**
   - Due to lack of adequate storage capacity, on an average 35 MAF escapes annually below Kotri, varying from 8 to 92 MAF in the past 30 years. It flows for 8-10 weeks and that too in monsoon season, but in a drought it doesn't flow at all.
   - To save and utilize this surplus water it has to be stored and released judiciously for agricultural production, hydropower generation, flood control / mitigation and ecological preservation below Kotri.
   - About 44 MAF sweet subsoil water is available which can be used through tube wells elsewhere in the country but not in Sindh because subsoil water in Sindh is saline. Thus it needs dams to make up for this deficiency.
   - One additional Dam will give Sindh 2.2 MAF extra water whilst two Dams will give Sindh 4.4 MAF. Once these dams are made it also means we have reverted back to 1991 accord which means that Sindh will get 2% additional water (which is over 2.1 MAF).

- Additional Reservoir will improve water supply at all barrages in Sindh (Guddu, Sukkur, Kotri) and the canals emanating will run on perennial basis with water flowing through all seasons unlike the existing situation where 9 are perennial and 5 are non perennial.
- With availability of additional water and construction of Sehwan Barrage coupled with additional storage in Mancher lake, 5 canals will be taken out and 2.5 million acre area in districts of Nawabshah, Hyderabad, Sanghar, Mirpurkhas, Umerkot, will be brought under irrigated cultivation. Whereas with Raine canal becoming perennial, districts of Ghotki, Sukkur, Khairpur and Tharparkar will be irrigated.
- Chotiari reservoir will be filled to its capacity for better water management.

4. **Why water reservoirs?**

- Water comes from snow / glacier melting and rains. In Pakistan rain water is over 8o% from monsoon and remaining from rains during rest of the year. Monsoon rains are in 8-10 weeks of summer and the water flows in to the sea if not stored.
- Bhasha lies outside monsoon rain zone and thus cannot tap the monsoon water which counts for more than 80% of the rain water.
- KBD is the lower most possible multipurpose dam site on Indus that can store monsoon flows and additional flow coming in Kabul, Chitral, Swat, Haro and Soan Rivers. It is the only project ready for implementation and can be completed in 6-7 years by the year 2012. Any other project has yet to pass through time consuming field and desk studies and scrutiny by financing agencies. It is nearest to power load centres and the 500KV Transmission Network.
- There are problems of access road to Bhasha whereas no such problem exists for KBD.

STATUS ON PROPOSED DAMS

Activity	Kalabagh	Bhasha	Akhori	Munda (on River Swat)	Skardu/Katzara
Feasibility Study	Completed	Completed	December, 2005	December, 2005	2008
Detailed Engineering Design	Completed	March, 2008	December, 2007	June 2007	2010
Ready to Commence	September, 2006	March 2009	December, 2008	June 2008	2011
Completion	2012	2016	December, 2014	June 2013	2019

5. **Water Downstream Kotri**

- Currently even though there is surplus water in river system, water going downstream Kotri is not enough. Even when flow is enough,
- This is adversely affecting mangroves, Fisheries, riverine management of the delta. There is only one way to avoid ecological damage and that is regulated flow.

- Intl Panel of Experts in consultation with WB have confirmed that to save this delta from ecological damage we need to allow 3.6 MAF to flow downstream Kotri and 25 MAF once in 5 years.

6. **Water Distribution and sharing**

- Upto 1991. Water was shared on historical average basis worked out from 1977-1982. Share of provinces as per this average: Punjab – 51.61%, Sindh – 41.44%, NWFP – 5.08% and Balochistan – 1.87%
- **1991 Water Apportionment Accord (WAA)**. On 16 March 1991, CCI approved a fresh distribution accord for water, agreed between all provinces and federal govt. Punjab's share was reduced by 2.7% and Sindh's share increased by 1.2%. However while Punjab sacrificed and Sindh gained, there were other salient commitments in the Accord:
    a. **Clause 6**. Agreement on construction of new water reservoirs wherever feasible on the Indus and other rivers
    b. **Clause 7**. Recognition of minimum escapages below Kotri to check sea intrusion.
    c. **Clause 8**. There would be no restriction on the provinces to undertake new projects within their agreed shares.
    d. GTC mentioned as a future project in the annex to 1991 Accord and water allocation made out of Punjab's share.
    e. **Clause 13**. IRSA to be established for implementation of this accord with its HQ at Lahore and reps from all 4 provinces.

7. **Water committees**. These were formed in 2003 to carryout an independent studies so as to build consensus.

- **Parliamentary**. Its main conclusions are:-
    - Implement 1991 agreement in totality.
    - Acknowledges the necessity of building additional reservoirs.
    - Both Bhasha and KBD are feasible from technical point of view.
- **Technical**. Its salient conclusions are:-
    - Consensus on availability of extra 35.2 MAF.
    - Consensus on need for building new storages urgently
    - All 9 have supported series of dams.
    - One member says dam without diversion
    - Chairman supports dam of large capacity (Katzara of 35 MAF), immediate construction of one 6 MAF dam, either KBD or Bhasha (edge to Bhasha) pending Katzara.
- **Study Downstream Kotri**. The Study has concluded that at least 3.6 MAF must flow during the year with additional 5 MAF during monsoon.

  Bottom line: Doing nothing is not the option, as we'll become desert after 2020