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Load-shedding and irregular canal water supplies due to variability in river flows were observed during the dispute period and even being witnessed today by the country. An inter

Issues in Implementation of the Accord

Formula for water distribution as per Accord was based on ten-daily average use, system-wise and seasonally (Kharif and Rabi) adjusted figures provided by the provinces. The Council of Common Interests (CCI) met in September 1991, six months after the Accord was signed, to agree the ten-daily average water use. Punjab was of the opinion to use the figures of 'historic use' during 1977-82, the period during which adhoc allocations by the federal government had favoured Punjab as per opinion of the Sindh. This proposal was opposed by the smaller provinces, and rejected by the CCI.

In May 1994, the Punjab Government again proposed a revision of the ten-daily figures to be based on historical use. The smaller provinces accuse Punjab of using its upstream position and control of water infrastructure to implement sharing on the basis of historic use. Sindh in particular contends that it has received less water than its entitlement under the 1991 Accord. It says that the reduced flow is insufficient to meet minimum requirement for inflow to the sea; seawater now comes up to 100 km inland. This resulted into increased salinization of agricultural lands in lower Sindh, with subsequent adverse effects on ecosystems, soil quality and deterioration in the quality of water supply to Karachi (both due to increased salinity and increased concentrations of pollutants) causing health problems. Another problem is the shrinking of mangrove forest, which is dependent on fresh water supplies. Once the sixth largest in the world, this has reduced in size by 38% between 1977 to 1990 due to water issues and excessive cutting. The livelihood of thousands of people who depend on the mangrove forests is threatened.

In short, despite the Accord, there are significant disputes between the provinces over the current distribution of water.

Already, millions of people in urban centres like Karachi, and in large parts of provinces, suffer from severe water shortages. As Pakistan's population, particularly in urban areas, expands there will be more demand for water for non-agricultural purposes. This raises genuine danger of extreme water scarcity. It is estimated that Quetta will run out of potable water within next 15 years and water conflicts will be on the rise. Pakistan needs to act quickly to avert its severe water crisis.

41.5% that means 58.5% of water is being lost in the transit but it recharge the aquifer. The loss although is recovered from groundwater abstractions but energy is also a concern in irrigated agriculture, which poses serious concerns on the profitability of agriculture. Furthermore, loss of surface water to the aquifer in poor quality zone can't be retrieved in the quality context and also causing waterlogging and salinity.

The Dam Debate

The Government of Pakistan argues that it has to increase the country's water storage capacity, through the construction of large dams to tackle the water crisis. These would have the added benefit of generating electric power thereby helping meet country's expanding power needs. Among the dams being planned by the government as part of its strategy of dam construction to address water shortages and generate power are: Diamer-Basha, Akhori, Kuram Tangi and Munda. There is considerable opposition to the government's dam construction strategy, and specifically to the proposal to construct the Kalabagh Dam.

The Kalabagh Dam is to be built on Indus Main at Kalabagh in Mianwali district, on the border between NWFP and Punjab. The Government estimates that construction will take 10-12 years, and will generate 35,000 jobs as well as 3,600 MW of hydro-electric power. Punjab sees the dam as vital to increase agricultural and industrial productivity, and argues that it would prevent 'wastage' of water flowing into the Arabian Sea. According to WAPDA, total cultivable land to be permanently submerged by the dam will be 14,000 ha. Independent estimates put the figure dam sidep /T1_0 1 Tf -0.002 Tc oGS2 gs 0 -174,000 ha. INulhe iGS2 gs 0 -1.313 TD [(bet)-nei

In a system with variable water supply such as the Indus, storage capacity is needed to regulate water supply ensuring that surpluses are not wasted and there is sufficient water to meet needs in times of shortage. Pakistan's water storage capacity is currently very limited. Both USA and Australia have over 5,000 m^3 of storage capacity per person; China has 2,200 m^3; Pakistan is way behind with just 137 m^3 of storage capacity per person. Even the dams that have been built in Pakistan are dwarfed by those in other semi-arid countries. In the US, dam on the Colorado River can hold 900 days of average flows. India can store between 120 and 220 days river flow, but Pakistan can store only 30 days of river flows.

Pakistan's water crisis is something that will affect everyone in all provinces. The key to addressing this water crisis, and averting the very real danger of extreme water scarcity within just a few decades, is collective action. The CCI and the Accord were supposed to provide the foundation for collective inter-provincial action on water issues. Unfortunately, various factors prevented this happening, and the situation today is that there is a wide gulf between Punjab and the th(ng)11(t)-6(he)11(-4(event)5nc)11(es. T

projects on the Indus Main. The key issues related to inter-provincial waters have been identified and are:

3.1. Inter-provincial Disputes

- **Inter-provincial water conflicts are now severe on the division of water as per entitlements and sharing of shortages** proportionately as per Accord between the provinces. Punjab and Sindh are facing conflicts since pre-partition. Sindh and Balochistan are also facing similar conflicts as Balochistan (Khirther and Pat Feeder Canals) is a lower riparian of Sindh and not using its due share of allocated water due to inadequate irrigation infrastructure. Who is using the share of Balochistan is a question to be addressed?
- **Provinces are not entitled to market their unutilized share of water** as per Water Accord, which is a weakness of the Accord and may be rectified in future.
- **Transport of effluents to the downstream areas and impacts of pollutants on the bio-diversity and ecology** of lower riparian and delta ecosystem is now a serious 13(a ec)-8(dn)-1(t)-11 TfM9(nov

not available. The current dams are meant for transfer water of the Kharif season to the Rabi season in a normal year. In the wet years, the available storage can't store the excess water during the Kharif season. The trust building measure would depend how transparently allocations below Kotri are provided from the new storages.

- **Utilize available potential sites** (Diamer-Basha, Akhori, Kuram Tangi and Munda) **for construction of carry-over dams to address water shortages and generate low-cost hydro-power**. Consensus can be built for the construction of these dams through a transparent system of water distribution. These dams would have the added benefits of generating hydro-power thereby helping meet country's expanding power needs.
- **Bridge the gulf between Punjab and other three provinces to meet the challenges of water scarcity and shortage of energy** through: a) implementing the Accord in full, ensuring all provinces get their fair share of water; b) giving power to the CCI to make decisions on water disputes; c) carryout feasibility studies to obtain an accurate assessment of impact of constructing dams; d) consider alternatives to controversial dams projects such as Kalabagh, e.g. an increased number of smaller dams although small dams are not the alternative to large dams on the Indus Main, therefore sites have to be selected on Indus Main; e) seek consensus from all stakeholders through open and informed policy dialogue before making decisions to construct new dams: avoid imposed decisions; f) ensure that plans for new dam construction include compensation and resettlement provisions for affected communities; and

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