

Recent Water Crisis in Sindh and Mismanagement of River Indus

1.0 Introduction

This brief is aimed at international community to brief recent water crisis in Sindh, a southern Province of Pakistan. This brief also communicates the concerns of people of Sindh regarding progressive damming of the River Indus in Pakistan and erosion of Sindh's primary rights over waters of River Indus (Sindhu). The decades of preferential governance, tempering with mighty forces of nature, abusive management of natural resources and selective distribution of peoples' resources was destined to bring this grave crisis.

2.0 Recent Water Crisis

Opening of CJ Canal is a yet another criminal onslaught from Punjab on Sindh's rightful waters in connivance with federal water and power ministry. Despite, not allowed under the IRSA Act (Indus River Systems Authority) of 1992 and closed by a majority decision of the water regulator, IRSA chairman at the behest of Punjab government, illegally verdict to open the controversial CJ-link canal.

Before stating the facts regarding the illegal, immoral and unconstitutional operation CJ Link Canal and Power plant project, following are the key facts which will explain the technical, moral, environmental and political dimensions of the water case of Sindh:

The natural geo-agricultural pattern has made in such a way that the Chenab meets the Jhelum near Trimmu, the Ravi meets the Jhelum downwards, and the Sutlej meets the Jhelum at Panjnad, and still down, the combination of these rivers meets the Indus at Mithankot. Then the Indus flows down into Sindh. There are three barrages in Sindh while all other waterworks are upcountry. Another fact is that in Punjab's all rivers and waterworks are interconnected by channels and links as under:

C-J link (Chashma-Jhelum link) connects the Indus at Chashma with the Jhelum above Trimmu. U-J-C link (upper Jhelum Chenab Link) connects the Jhelum from Mangla to the Chenab above Khanki headworks. R-Q link (Rasul-Qadirabad link) connects the Jhelum at Rasul with the Chenab at the Qadirabad barrage. M-R link (Marala-Ravi link) connects the Chenab at Marala with the Ravi at Shahdara). Q-B link (Qadirabad-Balloki link) connects the Chenab at Qadirabad with the Ravi at Balloki. T-S link (Trimmu-Sidnai link) connects the Jhelum at Trimmu with the Ravi at Sidnai. S-M link (Sidnai-Malsi link) connects the Ravi at Sidnai with Malsi that passes through the Sutlej. The BRBD link is about a 100-mile-long channel from a branch of Marala across the Ravi towards the Sutlej. B-S I & II (Balloki-Sulemanki) are two links which connect the Ravi at Balloki with the Sutlej at Sulemanki. Please See Figure 1.

These waterworks, links and connecting channels form a network of water systems through which deficiency of water in one can be met by another. Thus, the entire Punjab has an effective water system for its agriculture and other purposes. The policy of government of Punjab to control water flows and forcibly opening of flood canals like TP and CJ and erecting power plant on CJ has triggered a movement in Sindh which is likely to create a strong separatist movement.

This year the Indus flow is expected to be the worst in the last five years, causing serious problems for the coming Kharif crop in Sindh. In June, Sindh suffered 54 per cent shortage as

compared to 14 per cent by Punjab. For this reason alone, Sindh feels justified in pleading for closing the Chashma-Jhelum flood canal, Taunsa-Panchnad flood canal, Panchnad link canal and Thal canal, which flow from the Indus. This will help to reduce Sindh's problem because the crop season in the province begins earlier.

Owing to an abnormal fall in the flow of the Indus it is justified to demand that guidelines and major principles of recommendations of A.N.G. Abassi, head of the Technical Committee on Water Resources (TCWR), should be followed for operational criterion of Chashma-Jhelum and Taunsa-Panchnad canals. The report says: "The lower Punjab tributary areas linked to the Indus through the Chashma-Jhelum and Taunsa-Panchnad links cannot be treated as a permanent burden on the Indus main. The link canals are inter-provincial canals and should be regulated as such."

Instead of regulating these canals on the basis of the indent of one province, the Indus River System Authority should operate them on the basis of equitable distribution under the water accord on an all-Pakistan basis. The recent construction of a 44 megawatt hydropower project on the Chashma-Jhelum flood canal, on the plea of power generation, would convert the non-perennial canal into a perennial one to irrigate lands in Khushab, Bakhar and Layyah districts and 2.1m acres of Cholistan. This floodwater is now being diverted to irrigate Punjab districts through link canals which used to flow below Kotri, sustaining mangrove forests from Karachi to Kutch and the livelihood of millions of fishermen and farmers. At least two districts below Kotri have now burned barren.

This would intensify desertification in Sindh, ruining its agricultural economy and rendering a fatal blow to Tando Mohammed Khan, Tando Allah Yar, Matiari and Hyderabad districts after destruction of deltaic districts of Thatta and Badin. It is unjust that four arid districts of Punjab should be irrigated at the cost of six fertile districts of Sindh. Punjab is undertaking powerhouse construction, though Sindh rejected the project on June 20, 2009 terming it unfeasible.



Plate 1 Searching for the water at the riverbed for once mighty Indus

IRSA had termed the NEPRA license for the project non-feasible. The country is faced with a water crisis. Sindh is getting 40 per cent less than its due share. Any construction of a power-generation plant by Punjab on a flood canal would further deepen Sindh's sense of deprivation. The resolution by the Punjab Assembly in favour of power plant is an alarming message for Sindh.

The Chashma-Jhelum and Taunsa-Panjnad link canals and Greater Thal Canal, which were constructed only to be streamlined during floods, are being operated as regular canals. Punjab is planning to make the Chashma-Jhelum canal perennial on the plea of operating hydro-power project. The Chashma-Jhelum canal continues to carry 22,000 cusecs and Taunsa-Panjnad canal 12,000 cusecs. This means Sindh is losing 34,000 cusecs of water.

It should be noted that after Indus basin Treaty, in which a Pakistani dictator has unilaterally decided to sell out three rivers to India, all the development of dams, reservoirs and structures were built at the expense of all provinces including East Pakistan. So the entire Pakistan has legitimate share in these systems. There is a clear mention in all water related documents that CJ and TP will be built provided the funds are available and for enabling devices. Mangla as specifically built to take care of those areas, which were deprived of water after the sale of Ravi, Sutlej and bias rivers to India.

A number of international laws, obligations and commitments which show that in multistate water courses the entire water should be part of the system including river and rechargeable water. In this case the underground water of Punjab is also a property of all the provinces and especially of downstream Sindh. Same international treaties and laws suggest that a certain amount of water is a must for deltaic aquifers including mangroves and fisheries.

There are countries where there are no rivers and no dams. Yet they generate substantial electricity. There are several other sources of power, including coal and thermal power plants, solar power generation and windmill power generation plants. Hence the recent decisions by the Punjab government of Punjab should be in no way a necessity for power generation at the cost of creating conflict among the federating units of Pakistan.

The problem could only solved to ensure that Punjab to withdraw its projects, ensure release of at least 10 to 35 MAF water downstream Kotri (Sindh) and Punjab to withdraw and shun all such projects which are likely to have negative impact on the future political relationship of Sindh and Punjab and future of a viable federation.

3.0 Indus River and Water Distribution

The area of present-day Sindh province was the center of the ancient Indus Valley/ Mohen-jodaro Civilization(2300 BC-1750 BC), it was named after Indus, the great Trans-Himalayan river of South Asia and one of the world's longest rivers, with a length of 2,900 km. The Indus (also called Mehraan and Sindhu) rises in southwestern Tibet at an elevation of about 18,000 feet (5,500 m) and flows in a northwesterly direction along the slopes of the Himalayas, crossing into Jammu and Kashmir from the southeast. The Shyok, Shigar, Zaskar, Gilgit and other streams carry snow and glacial waters to the Indus from the Himalayan, Nanga Parbat and Karakoram ranges. The river crosses the western Kashmir border and then turns southwest to enter Pakistan. In Pakistan it emerges from the highlands and flows towards the semi arid Punjab Plain where it receives its tributaries Jhelum, Ravi, Chenab, Beas, and Sutlej rivers. Afterwards Indus becomes much wider and flows at a slow speed, depositing large enriching quantities of silt along its course in the plains of Sindh. In the district of Thatta the Indus begins its deltaic stage and reaches the Arabian Sea in the southeast of Karachi.

The irrigation and hydropower structures constructed throughout the 2,900 km length of Indus and on its tributaries include 2 dams, 19 barrages and 43 canals. After the partition of

subcontinent (1947) following structures were made on Indus and treaties were signed and executed:

- 1-Kotri, Tuansa and Guddu barrages were built in 1955, 1958 and 1962 respectively.
- 2-Indus Water Treaty was signed between India and Pakistan in 1960 and 33 MAF (million acre feet) water of the Indus's three tributaries Ravi, Beas and Sutlaj rivers was exclusively assigned to India without consulting Sindh.
- 3- Under 1960's Indus Water Treaty India has been allowed to develop 1.35 million acres of irrigated land without any restriction on the quantity of water.
- 4- Mangla Dam was built on Indus 92s tributary Jhelum river in 1967 for the storage of 5.3 MAF water.
- 5- Tarbela Dam was built on Indus in 1975 for the storage of 9.3 MAF water.
- 6- At the time of independence (1947) about 64 MAF of water was being utilized annually in the irrigation canals in the country and as per Sindh Punjab Draft Agreement of 1945, 48.33 MAF water of Indus was allocated to the province of Punjab and 48.74 MAF was allocated to Sindh. But according to Water Accord signed in 1991 by the then federally nominated/ sponsored Chief Minister, 117.35 MAF water have been allocated to the provinces, out of which 55.94 MAF has been given to Punjab (increasing 7.61 MAF) and 48.76 MAF has been allocated to Sindh (increasing just 0.02 MAF).
- 7- Chashma-Jhelum link (21000 cusecs) and Taunsa-Panjdad link (2000 cusecs) were constructed after Indus Water treaty (1960) for providing water of Indus to Punjab.

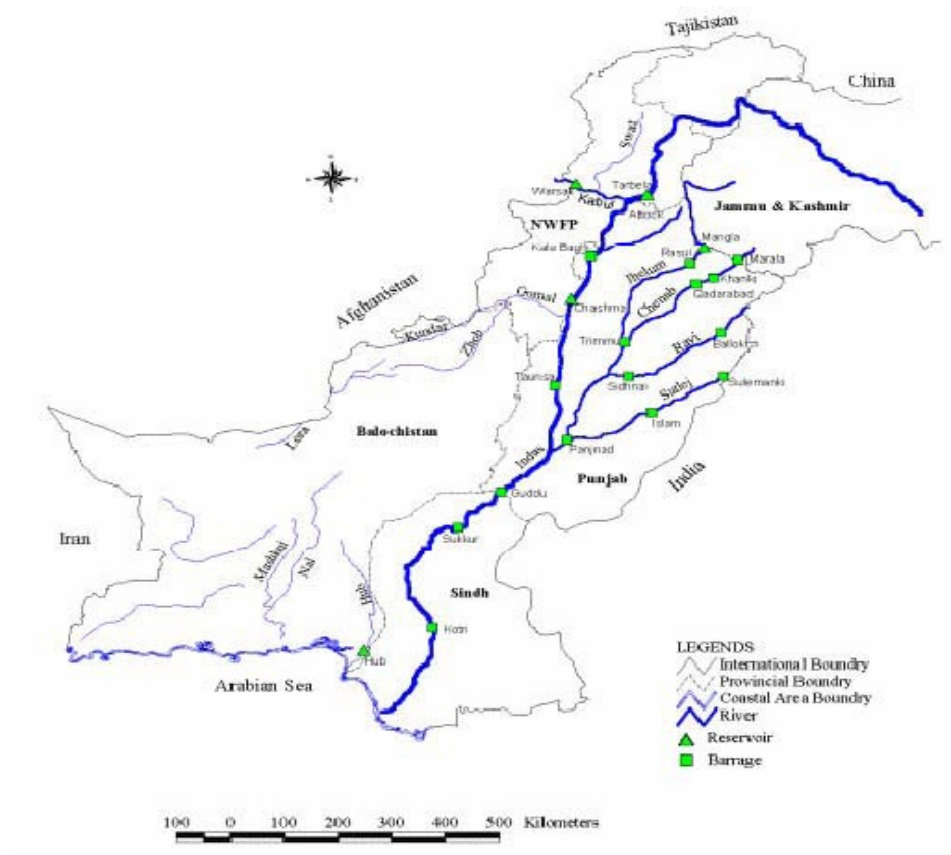


Plate 1 Indus River

4.0 Proposed Construction of Kalabagh Dam and Opening of Greater Thal Canal

The current tragedy is a logical outcome of an on-going piracy of Indus River in Pakistan by the upper riparian of Punjab, depriving the lower riparian of Sindh of their due share in the water and promoting environmental degradation in all four provinces of Pakistan. It is obvious that the Pakistani Government is quick to use current crisis to justify building yet another dam on River Indus at Kalabagh (or another site) in spite of unanimous opposition by the three affected provinces and parts of Punjab province.

The upper riparian of Punjab has been progressively increasing their illegal share in the waters of the Indus River since 1889. Due to extensive upland irrigation schemes, the Indus River System does not have any additional water for which yet another dam could be built.

Kalabagh Dam: The proposed Kalabagh Dam is projected to store 6.7 MAF more of the Indus water. According to the published data of the Federal Government's Water and Power Development Authority (WAPDA), due to highly erratic pattern of river flows in the region, the required quantity has gushed through the Indus River only for 14 times since 1922. Add to this the fact that India is not utilizing its share, 4.79 MAF water, which is already surrendered to it under the treaty. After commissioning of its on-going irrigation projects in India, the availability of water in the Indus River System will further decrease. The Kalabagh Dam will also divert 12.8 MAF of water through the left bank and right bank canals to irrigate two million acres of land in Punjab, in addition to storing 6.7 MAF. If the Federal Government will go ahead with this project, it will not leave the pledged 10 MAF of water to the Arabian Sea, which is essential to keep the deltaic region and river estuary alive. Besides, the dam itself will remain under-utilized, unless water allocated to the other provinces is diverted, illegally and callously.

Though the proponent of the project justify taking up whatever remaining water flows to sea, by calling it as mere wastage, the fact is that upon this depends the economic, social and cultural life of the people living in the downstream area. The Indus overflows and inundates an average 4-km wide strip of kutch land of more than a million acres, 0.6 million acres of which are thick forests and another 0.6 million acres are rich grazing lands. This strip husbands a substantial number of cattle, goats and fowls and economically sustains about one million people. The progressive upland blockade of the River Indus has already started denuding these 0.6 million acres of riverine forests turning vast areas resembling a desert. Due to sustained decline of fresh-water in the coastal areas of Sindh around the mouth of the Indus the area under the Mangrove forests decreased from 263,000 hectares in 1977 to 158,000 hectares in 1990. This has jeopardized the livelihood of at least 28,570 households inhabited by 120,000 people who rely on these mangroves for fuel and fodder of their domesticated animals, especially camels. On one hand the shrimp production in the coastal areas has registered sharp fall, on the other hand the annual Pallo fish production has decreased from 10,000 tons in 1970s to 500 tons in late 1990s. Khaggo (Sea Cat), Bullhan (Indus Dolphin) and many other aquatic species in Indus and the coastal areas are on verge of extinction.

Beside environmental impact and imbalances in the ecosystem, the unsustainable proposed mega project will be detrimental to both agriculture and fisheries, which in turn is bound to increase food shortages and augment poverty in the region. In sharp contrast to other parts of the world, where farmers usually support such dams, the farmers and fisher folks of three provinces of Pakistan are unanimous in opposing the construction of the proposed Kalabagh

Dam. Any further decrease in the Indus water downstream Kotri will directly affect 80,000 people who entirely depend on fisheries for their livelihood.

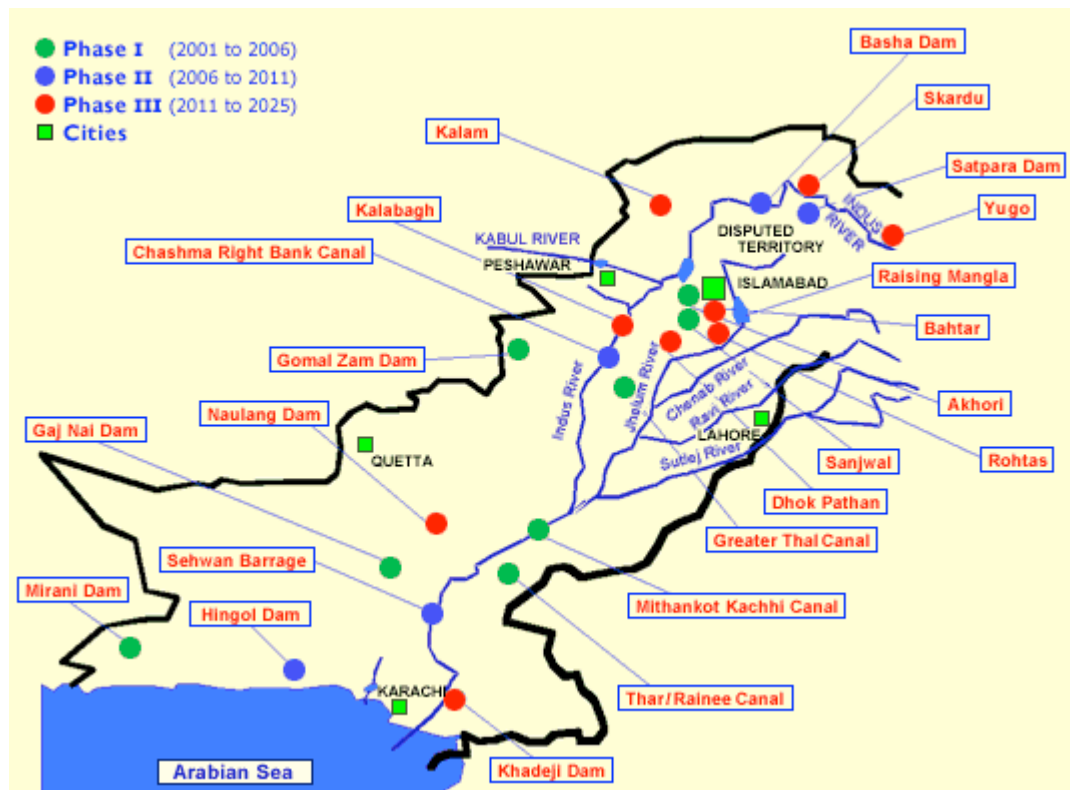


Plate 2 Location of existing Dams including Kalabagh Dam and Greater Thal Canal
Source: WAPDA 2009

Greater Thal Canal: Currently, Greater Thal Canal is not drawing water, but once it starts drawing around 8,500 cusecs (cubic foot per second) of water from Chashma Jhelum link canal there would be more shortage of water in Sindh for early Kharif crops.

The history of Thal Project goes back to over 130 years. It was in 1873 that the project was first conceived for the whole of Thal Doab. The proposal to irrigate this area was repeatedly brought up for discussion in 1919, 1921, 1924, 1925, 1936, and in 1949. But the British colonial masters repeatedly shelved the project on the pretext that it will severely hurt the water availability to lower riparian.

The project proposal once again came under discussion in 1975 in a controversial way when Executive Committee of National Economic Council (ECNEC) refused to endorse the project. Finally, on August 16, 2001, General (retired) Pervez Musharraf, then Chief Executive of Pakistan, inaugurated the 30-billion rupee Greater Thal Canal (GTC) project.

In the Indus system, water availability is around 124 MAF (million acre-feet) for four out of five years and 133 MAF for three out of five years. The Indus Basin Irrigation System (IBIS) requires 155.3 MAF. This includes the Water Accord 1991 allocation of 117.35 MAF of water amongst the four provinces, 10 MAF to sea below Kotri, the supplies of about 4 MAF above rim

stations for irrigation and for measuring sites, and a contribution of about 8.71 MAF from Ravi and Sutlej pending full utilization by India.

The water required for Left Bank Outfall Drainage (LBOD) is 2.2 MAF, to raise Mangla capacity is 3.0 MAF and the average water loss in the system (1948-98) is 12.9 MAF. The annual average availability of water is 138 MAF.

Experts say that the system is short of 16.58 MAF. Thus, an additional water of 5.0 MAF required for Greater Thal, Katchi and Rani Canal project is not available. And such project would further aggravate the water system.

Looking at the historical data, the total water availability as well as the seasonal and annual river flows in the Indus river system has been highly variable. Since the completion of Tarbela, annual average rim station inflows are about 131.19 MAF (IRSA). The highest annual flow was 187.66 MAF in 1959-60 and 91.22 MAF in the year 2001-2002.

Sindh government has time and again opposed any construction of canals and barrages in Punjab against water accord of 1991. But, no heed has been given towards Sindh's reservations. Sindh Assembly unanimously passed two resolutions and demanded that federal government must abandon the project, as it would seriously hurt the interests of lower riparian Sindh.

The amount of water flows below Kotri has been reduced from 80 MAF in 1947 to 2.142 MAF in 2002-2003. As the water stopped flowing downstream, sea water started flowing upstream and according to an estimate, the saline seawater has intruded some 100 kilometers upstream inundating 2.2 million acres of land.

According to IUCN, Indus requires 27 MAF water to check the sea intrusion and to keep the Indus delta alive. The Kotri downstream water should be ensured to save human, environmental and biological life.



Plate 4 Shortage of water brought a worst drought in Sindh

4.1 IRSA – A Death of Accord

The dubious workings of Indus River Systems Authority (IRSA) only add to the mistrust. In flagrant violation of inter-provincial agreement, the Chashma-Jhelum link canal (capacity 21000 cusecs) and Taunsa-Panjnad link canal (capacity 12000 cusecs), which were meant to flow only at the time of surplus availability of water in Indus, have been kept open by Punjab Irrigation Department for the last several years without prior consent and permission of the Sindh provincial government. When confronted by the journalists earlier in the August, the WAPDA authorities conceded that the link canals were being used in April 2000 to irrigate the lands of Punjab when Sindh was crying for water and its crops were withering in drought. Moreover, according to the inter-provincial water accord, Sindh's share of Indus water for the month of April is 121,400 cusecs whereas only 30,275 cusecs were released in April 2000. The month of April is sowing season for Kharif (summer) crops through which Sindhi people generate most of their annual income. In sharp contrast to this, Punjab was able to achieve 2 percent increase in the area under cotton and other crops during the same period. Furthermore, the UNDP had pledged to finance economic and environmental impact assessment study for decreased flow of water in the Indus River. However, the representative of Punjab in IRSA did not allow the study, as it would have exposed the inequitable and unjustified designs of Punjab. This clearly indicates that the intentions of the Punjab are far from justice and fairness.

The country has a water accord; arbitrarily imposed on March 16, 1991 (at least people/experts of Sindh never ratified it). Keeping aside the debate on its legitimacy of even the 1991 accord has been rendered null and void by the Indus River System Authority (IRSA), which was supposed to be its custodian. It is worth mentioning that the IRSA itself is an offshoot of the accord, established under its clause 13, and has, therefore, no moral legitimacy to operate outside the domain of the accord.

The current water distribution set-up is clearly aimed at benefiting just one province as confirmed by the proceedings of the press conference held by the IRSA secretary, Mr. Sohail Ali Khan, in Islamabad on February 22, 2001. According to press reports, he stated at the press conference that the water share of Sindh would rise by 18 per cent and that of the Punjab would be curtailed by 8 per cent if water distribution were done under the water accord of 1991. This substantiates the argument that the IRSA has acted in an unfair, partisan and unjust manner and has, accordingly, failed to maintain its impartiality.

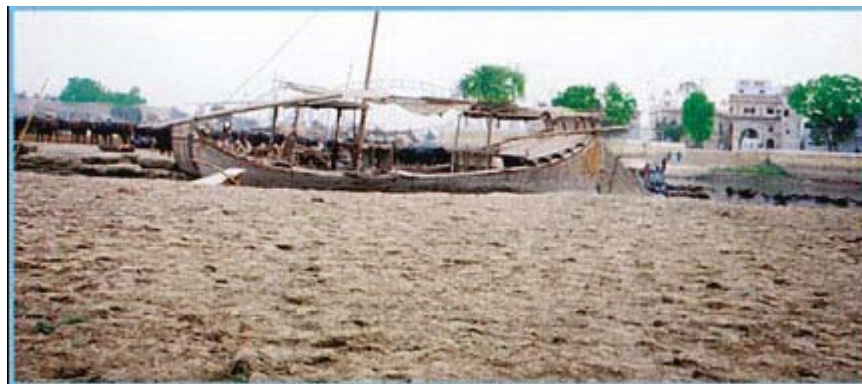


Plate River Indus Today in Sindh

According to the estimates of the federal government, the agriculture sector would suffer a loss of about Rs. 90 billion owing to the unrelenting drought. Since the sector has remained a major source of shoring-up the crippled national economy, it has a vital role to play particularly in terms of food security and employment of the ever-burgeoning population of the country. As a contributor of around 25 per cent to the GNP, the adverse effects of water shortage on agriculture would have a spiraling effect on the revailing level of poverty.

5.0 Summary

While the Federal Government and Punjab continue to insist on the construction of the costly and controversial Dams on Indus and opening of Greater Thal Canal myriad of less capital intensive and sustainable alternatives are available to ensure the increased availability of irrigation water at the agriculture farms, guaranteeing the food security.

With better on-farm water management and lining of water carrying channels much of the sixty percent (60 MAF) of the total irrigation water, which is lost in transit, can be saved and utilized, whereas the proposed dam capacity is only 6.7 MAF. This will also prevent 100,000 acres from being waterlogged every year.

Promoting sustainable agriculture, organic farming and research in these fields can increase the fertility of soil resulting in increased food production per unit of the irrigation water used. Extension services should be made efficient to educate farmers for better management of land and water resources. In particular, optimum water use and land leveling techniques should be imparted to the farming community for better irrigation practices. NGOs, farmers organizations and professional organizations like International Water Management Institute (IWMI) should be engaged for better results. New crops and varieties of the existing crops should be introduced, which could be grown with less water. Reforms in irrigation departments under the National Drainage Program (NDP) should be expedited to ensure system decentralization and farmers participation in water management.

It is tragic that the continuous coercion of the people of small provinces continues in spite of many cheaper and sustainable alternatives. The relentless insistence of the Pakistani for building internationally failed large hydro projects have led the people of Sindh to believe that the actual purpose of building dams on Indus is to control the heartbeat of Sindh and its people. Controlling the free flow of Indus to Sindh will enable ruthless and unscrupulous ruling coteries of Punjab to control the very existence of 40 million people of Sindh.

The social and economic impact of current water management and distribution system in Pakistan including building large dams on Indus are so devastating that it has threatened the very stability of the whole of the South Asia. The continuity of the current policies is not in the interest of already marginalized people of the region. We demand that such policies be discarded forthwith, once and for all. To save South Asia from a potential loss of human lives, Sindh's primary right over Indus River be restored immediately.

The River Indus has been the mainspring of the five thousand year old Indus Valley Civilization. It plays a pivotal role in the shaping of the psyche of the people of Sindh, fashioning their society, culture and economic life. Sindhis popularly identify Indus as Darya Shah or The Great River. Any further damming of the Indus River will keep it dry below Sukkur for most of the year. With the projects like Kalabagh Dam and Greater Thal Canal it will be reduced from once

mighty river to mere expanse of shallow water. This will destabilize the psyche of the Sindhi people and will tantamount to cultural invasion and destruction of their ancient heritage.

6.0 Acknowledgement

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- Fazullah Quershi
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7.0 Additional Resources

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