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A TRANSPARENT PLAN FOR MEETING WATER SHORTAGE IN PAKISTAN

by
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The President of Pakistan while addressing the Institution of Engineers on 26th May 2001 drew attention to the problem of water scarcity and said our engineers should take it as a challenge and devise ways and means to augment and manage the existing water resources. Pakistan has given away the three eastern Rivers in exchange for storage supplies from dams on the western rivers as a part of Indus Water Treaty. We have built Mangla and Tarbela dams which are today silting and the next dam Kalabagh dam has become controversial due to objections from some stakeholders. Several objections of NWFP have been resolved by lowering the height of the dam. It is necessary to discuss the objections of Sindh. The statement that "Tarbela dam is silting fast due to not operating the silt exclusion gates at the dam site as a conspiracy to contrive a justification for Kalabagh dam", is nothing short of concoction or disinformation of a high-level. There is no sluice gate at Tarbela dam.

As an introduction, the international water crisis as discussed at the earth summit at Johannesburg is worth mentioning. It was stated that though much of the earth is covered with water, it is still a major issue and a possible cause for further wars as only 2.4 percent of the earth's water is fresh and only a small portion of that is accessible. The demand is growing so rapidly that the UN Secretary General Mr. Kofi Annan has said that unless swift and decisive action is taken, two thirds of the world's population might end up living in countries with serious water shortage.

Kalabagh - Dhok Abakki Dams

In spite of general objections against Kalabagh by Sindh, Secretary Irrigation & Power Sindh made a comment that Sindh does not object to the dam if it is operated as a carry over dam. With the addition of Dhok Abbakki a total capacity of 14 MAF of non-silting storage, the present objection of Sindh regarding filling of Tarbela dam in early Kharif would be removed.

The combined river flows during last week of July last year dipped to a record 30 year low forcing IRSA to reduce supplies to the provinces by 22% aimed at refilling Tarbela dam. Such a situation can be prevented if Kalabagh dam with Dhok Abakki is constructed. Dams in the Indus gorge like Basha were discussed in my previous papers of the Congress but were considered not suitable, as they are located in highly seismic zone with poor foundations beside submerging KKH and disrupting traffic. The water availability of these sites is much less than at downstream sites like Kalabagh which are fed by rainfall. Global warming has seriously affected melting down of glaciers in the Himalayas and Karakoram ranges. In its 1999 World disaster report issued in Brussels released by the International Federation of Red Cross and Red Crescent societies asserted that Indus could lose 10% of the total inflow due to recession of the cap/snow line as a sequel to global warming.

Renaming Kalabagh Dam

There is no doubt that Kalabagh dam is one of the few sluicing dams in the World, which have perpetual life. With the addition of Dhok Abakki it becomes all the more attractive. Quaid-e-Azam was a great exponent of the national resources of Pakistan. It would be a proper tribute to the founder of Pakistan if Kalabagh dam is built after him. On the same Indus River Jinnah Barrage already exists. Naming it as Jinnah Dam would fit in very well.

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Chashma and Chiniot Storages

Getting inspiration from Aswan low dam's performance the author of this paper got hydraulic model studies for sedimentation exclusion at Chashma on the Indus and Chiniot on the Chenab rivers. Chashma barrage could be raised to store 3 MAF and Chiniot about 1.5 MAF. The studies were carried out under a seminar "Sedimentation problems as a result of Indus Basin Works". The Government of West Pakistan supported the proposal but WAPDA objected to it starting that a high barrage would take more time to construct it. The Government of West Pakistan insisted that at least one million acre feet storage should be considered. WAPDA objected even to this. The Governor of West Pakistan was keen to have this storage even if the Provincial Government shall not pay the cost. Thus the project was constructed and served the purpose of water needs at critical times. Besides, this storage could store water in winter months during canal closures without reduction at Tarbela dam.

Indus Delta Problems

To meet the problems of the delta where sea is encroaching it is no use dumping water into the Sea, as so much water is not available. A seminar was held by the UN on coastal development in Karachi in 1996. The author of this paper attended the seminar and presented a paper. It was suggested that we should have coastal embankments to prevent seawater intrusion. Plantation of oil palm and coconut plants should be encouraged. According to research carried out by Karachi University the mangrove plantation is adopting to seawater.

There is not doubt that there is severe shortage of drinking water particularly on the right bank. This can be met by a still water navigating channel from Kotri to port Qasim. This channel will be a good route for migration of fish. The author of this paper has contributed a number of papers since 1963 on this subject. This channel is an outlet for bulk Cargo for China and Central Asian Countries through Karakoram Highway.

Royalty from Hydel Power Revenues

There is a clause in the Indus Waters Treaty that hydel revenues shall be used only for operation and maintenance of the Indus Basin works. The use of Tarbela dam Royalty by NWFP is in violation of this rule.

Final Recommendations

China could evict 1.5 million people from the area of the three gorges dam and could take up the project because of strong leadership. India being the largest democracy could not start the Narbada project even in half a century. The Supreme Court of India gave a decision, which started the project. In Pakistan even strong military leadership nor political leadership could take up the Kalabagh dam project. The only solution left is to go to the Supreme Court. If Kalabagh project had been taken up with its off-channel storages along with Chashma and Chiniot storages the history of Pakistan would have been much better. Please see note "Indus Food Machine by Food Foundation" quoted below :

The Great Indus Food Machine

Most of the Middle Eastern countries import their food. As world populations are increasing the situation is becoming worse for food supplies. A United Nations Environmental program report reveals that drought turns 50 million acres of land a year into desert. The effects of the African drought have been compared to nuclear detention. The food situation is so acute in Africa that there are reports that certain tribes are returning to the practices of cannibalism. For the Gulf countries, Pakistan has been one of the important supplies of food and fruit. The Indus basin is known as one of the vast resources for food and fibre production in the world. It is worthwhile quoting here from a report by Food Foundation of 1977.

"The major river basins of South Asia-the Meakong, the Irrawaddy, the Brahmaputta, the Ganga, the Krishna and the Godavari currently support more than 690 million people. By the year 2000 they will have to produce most of the food required for the subsistence of almost twice that number".

Of these river systems only the Indus appears to have the installed infrastructure needed to achieve very great increases in productivity within the next fifteen years. Very substantial investments were made between 1860 and 1947 in the creation of the Indus Basin Irrigation system and since the Indus Waters Treaty of 1960, massive additional investments have been made to build link canals and high storage dams. Taken together with the natural advantages of climate, rich soil, long growing seasons and a river system which widely distributes water across the northern section of the Indus Plain, this has resulted in the most extensive water control and Irrigation command system yet established, a system with enormous underutilized agricultural potential.

Approximately one quarter, or fifty million acres of Pakistan's land area of slightly less than two hundred million acres is currently under cultivation. Of the cultivated fifty million acres, two thirds is under Irrigation. Even though new varieties and better cultivation methods have brought substantial improvement during the past two decades, yields per acre remain low, averaging under one half ton of wheat and under seven tenth of a ton of rice per acre. Most agricultural scientists would agree that with the right inputs, high technology farming practices and increased cropping extensity, further substantial increases in productivity are now feasible. Agronomists and plant breeders stress that the current available germ plasma is not a constraint. With proper nutrients, control of pests and diseases and with more efficient management of water, yields of both wheat and rice can be significantly improved. Cropping intensity, now estimated to average less than 120 can also be increased. Intensities of 150% or even 200% are not unattainable. Cereal yields of three tons per acre per annum of even two thirds of Pakistan's cultivated area should result in production of one hundred million metric tons of grain annually. Even if only half of Pakistan's currently cultivated land were brought under intensive cultivation during the next fifteen years and even if average annual yields were only two tons per acre, it is reasonable to argue that annual productivity of cereal grain could reach fifty million metric tons i.e. more than three times the amount currently being produced. This would be sufficient to meet Pakistan's own needs and to permit it to be the major exporter of grains in South Asia.

Thus, if Pakistan is conceived of as an enterprise-a factory-with the central development objective of increasing food and fibre production, it may be argued that the Great Indus Food Machine within that factory, has all, or nearly all, the components and raw materials required to achieve very high production. There would appear to be few technological constraints now or in the immediate future.

Recently Pakistan has become the world's fourth largest exporter of cotton due to the efficient agricultural practices followed. The production of wheat and rice is bound to increase considerably due to the signing of the water accord between the provinces. In the past, considerable water, about 20 MAF to 40 MAF used to be wasted to the sea for want of an agreement on sharing water through large areas were short of water and larger new areas were waiting to receive water. Pakistan could easily become the granary for the Gulf countries.

Cultivation of deserts for Food

Israeli example of "Making the Deserts Bloom" is attractive and warrants detailed study to find out if it can suit our conditions.

Conclusion

It is expected that by the year 2005 Pakistan would become fourth most populated country in the world. It is already a member of Security Council. Insha Allah Pakistan will be self-supporting in food and a granary for the Gulf countries.