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Large dams: ecological and economic disasters

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Large dams are now damned, as ecological and economic disasters as the ground reality has drastically changed, Dams even are being demolished. Indus down the Kotri is no more a "perennial" river as claimed by some and only dust storms fly over its river-bed. Visible sign of dry bed of the Indus River is a stark reality for travellers towards the north.

The Aswan High Dam,- 100 meters high and nearly 4000 meters in length- is piling up with silt behind its massive walls, "slowly but surely making it obsolete", observes Marq De Villiers, in his book, "Water". He also states that, "the nutrient, rich ooze no longer makes its way to the Mediterranean, and this has led to the collapse of the sardine fishery in the Nile Delta".

Similarly, identical situation exists in the case of marine life and the depleting wet-lands in the Indus Delta which spreads to over 300 sq km which used to receive 150 MAF of silt containing water in the Arabian Sea. This flow drained with its one million tonnes of silt to the delta country every day; but this process has ceased owing to impediments up stream. Mangrove forest area of 3000,000 has been reduced to 100,000 hectors.

Riverine forests on the banks of the Indus are facing gradual extinction due to water stress. Sea water has intruded 30 to 50 km up the river down stream the Kotri Barrage; some 1.2 million acres of agricultural land has so far been devoured by the sea threatening the livelihood of 400,000 fishermen and their dependents residing on 100 km of the Sindh coastline.

Marc Reisner in his book, "Cadillac Desert" cites the case of Sanmexia Reservoir in China, which was completed in 1964 and decommissioned four years later. He cites the example of the "Tehri Dam" in India, the 6th highest in the world which had its life span

reduced to 30 years due to de-forestation. This controversial dam built in the high Himalayas-the known seismic zone- has been opposed as it could displace 100,000 people and submerge 112 surrounding villages.

If the dam collapses, 500,000 downstream people are likely to be swept away. In the Dominican Republic, the "Tavera" project, which was completed in 1973, by 1984 it accumulated silt 18 meters in depth. Reisner said: "In 30 years, Lake Mead (behind Hoover Dam) was filled with more acre feet of silt then 98 per cent of the reservoirs in the United States are filling with acre-feet of water".

The life-span of dams is conditioned by the silt-up deposits; accumulated level of silt from rivers and determine the degrees of its usefulness. In North Western Canada, the WAC Bennet Dam, considered to be, "a monster on the river, is fatally disturbing fisheries in the Peace-Slave Athabasca Delta,- a world heritage site and one of the largest fresh water deltas in the world".

The considered opinion of ecological and hydrological experts is given by Marc De Villiers, who said that, "If the Aswan Dam is indeed an ecological disaster, its worst perils are hidden in Lake Naser, the 600 km long reservoir formed by dam, where everything looks peaceful. The feluccas ply the waters as they have done along the Nile for 40 centuries, identical in style to the boats depicted on the frescoes at Luxor and Karnak. You can sit by the Nile at Aswan on an evening, and if you are lucky, you may see feluccas drifting by in the lights of a blood-red tropical moon. But below the surface, and in the lands north of dam, problems of accumulating silt; same seems to be the fate of Tarbela and Mangla Dams, besides displacing the people, have elements of collateral damage to fish culture."

The problematic existence of dams is that they alter their flow, sometimes even the temperature of rivers; and almost always lead to elevated salt levels in the surrounding soil, infecting ground water, while sediment loads affect major resources, as the Aswan Dam did in the Nile Delta. Upstream dams on the Indus may have brought prosperity to region in their proximity but down-stream, the Indus is now a dry river leading gradually to desertification in and around the Sukkur and Kotri barrages.

The ecological damage and intrusion of sea in the Indus river affect the cultivatable land, wet-land and the rich marine life. Now Thal canal takes care of the rejected Kalabagh dam water diversions. In our neighbourhood, a campaign is going on against the dam on Narmada, under the title of, "Narmada Bachao Andolan" (Save Narmada Movement). The leading activist, Shripad Dharmadlikary, explaining the campaign said that: "in no way we will lessen the intensity of our campaign against dams, for getting justice for the affected people and for the implementation of equitable and sustainable alternative."

The Hover dam has been an engineering marvel, none so wild and apparently irresistible

as the Colarado, but what is the ultimate result of this human engineering? According to Mare De Villiers, "a change in the character of the world waterways, permanently altering the ecosystem of entire drainage basins, in some cases the local micro climate, and in the least one case, the Nile permanently changing a flow pattern that sustained civilization for 5000 years".

According to an estimate in 1990, there were no dams in the world higher than 15 meters. By 1950, there were 5,270,- two of them in China. Thirty years later, there were 36,562, of them no fewer than 18,820 again in China. "This process is slowing now, mostly because there are few rivers left worth damming, and because the ecologists are, "at last beginning to count costs". The majority of the world's large dams were built between 1950 and 1975. Since then, the rate of dam construction has halved. The generous funding from the World Bank and others for the building of large dams, either for generating electricity or to provide irrigation has been a fiasco as admitted by the bank itself in a candid in-house report.

At the most, none of the goals of alleviating poverty had been met. A protagonist of dams says that, "we in Pakistan are blessed with perennial rivers like the Indus which is fed by mountains and glaciers of the Himalayas. But we are most unfortunate in having not utilized the full water and power potential of the Indus". Where the water for more diversions and reservoirs would come in face of actuate water shortage? Dams are being decommissioned in the 21st century. Already we have, "water-stress" crises between upper and lower riparians as sharing of the Indus Water is not being done under the provisions of 1991. Water Accord.

The Indus is no more perennial down stream from Kotri; yet letters are printed in justification of unilateral and arbitrary decisions for construction of Kalabagh Dam (Dawn 7-3-02): "We in Pakistan are defying historical lessons that big dam can bring prosperity to nation by providing water and energy".

Dam-building in our country has become a subtle design for water diversions and historical misuses rather than an "equitable" sharing of available water resources between the upper and lower ripirians that has become a growing source of discord between the federating units.

The World Bank has published a detailed study, based on the deliberations or experts in a report, "Dams and Development". The World Commission on Dams has broadly given its observation which state that:

i. dams have made an important and significant contribution to human development, and the benefits derived from them have been considerable.

ii. in too many cases an unacceptable and often unnecessary price has been paid for these

benefits, especially in social and environmental terms.

iii. lack of "equity" in the distribution of benefits has called in question the value of many dams in meeting water and energy development needs when compared with the alternatives.

iv. by bringing to the table all those whose rights are involved and who bear the risks associated with different options for water and energy resources development.

iv. negotiating outcomes will greatly improve the development effectiveness of water and energy projects by eliminating unfavourable projects at an early stage, and by offering as a choice only those options that key stakeholders agree represent the best ones to meet the needs in question.

The mania for dams during the end of 20th century has declined. Even in United States, "the rate of decommissioning is great than the rate of construction of new large dams". There are other signs that philosophy of dam construction is slowly changing. In the late 1997 the US for the first time refused to re-licence a hydroelectric dam and ordered the structure destroyed on the grounds that its costs as a barriers to migratory fish significantly exceed its hydroelectric benefits."

The 16-meter high Edward Dam, on the Kennebec River in Maine, was built 160 years ago and produces one tenth of 1 per cent of Maines electricity. The dam blocks spawning grounds for stripped Bass, Shad, Sturgon, Atlantic Salmon and Herring.

"In 1986, a change in the federal law required the federal energy regulatory commission (FERC), which is responsible for licensing hydroelectric dams, to balance conservation, recreation, and other environmental values with electricity generation in decisions to renew licenses. About 550 dams are up for re-licensing in the next 15 years, and many of them block spawning habitat of the threatened and endangered fish". (Peter H. Gleick, "The World's Water" 1998-99).

In the north western United States, the Elwha and Giles Canyon Dam on the Elwhah river in Washington State face destruction. Yet another dam considered to be "one of the largest dams in the United States, the Giles Canyon Dam on Colorado River is to be decommissioned and its reservoir drained such is the growing fate of the dams in United States.

It would be appropriate to quote Frank Church, the US Congressman who, when the "Teton Dam" failed said about the Bureau Reclamation: "it had been a prisoner of stale engineering ideas. No one told me that Dam was going to break", though some had pointed out the geological defects of Teton Dam like Kalabagh Dam which continues to its proponents being the harbinger of new "Eden" with no water available.

Despite the benefits of the Hoover Dam on the Colorado river, Marc Reisner in his book quoted earlier comments that, "one could almost say, then that the history of Colarado River contains a metaphor for our time one could say that age of great expectations was inaugurated at Hoover Dam a 50-years flowering of hopes when all things appeared possible and one could say that, amid the salt-encrusted sands of the rivers dried-up delta, we began a founder on the "Era of Limits" and further on states that, "to some conservationists, the Colorado River is the pre-eminent symbol of everything mankind has done wrong a harbinger of a squalid and deserved fate. To its pre-eminent impounder, the US Bureau of Reclamation, it is the perfection of an ideal", so seems to be Kalabagh Dam to Wapda in Pakistan.