Blood, Borders, and Water: The Forgotten Hydrological Consequences of the 1947 Partition

In 1947, as a lower riparian state, Pakistan was “flying blind” on hydrological issues. A result of the manipulated and stage-managed creation of Western Pakistan from Indian Punjab and the Great Indian Desert. Partition based on the Radcliffe Award created perpetual complications, including the status of Jammu & Kashmir and the resulting water shortages for Pakistan's western wing. Within no time it became apparent that the Radcliffe Award, the British Imperialists had imposed would lead to serious hydrological challenges for Pakistan, the lower riparian state. In the hope of keeping West Pakistan (1947) perpetually disadvantaged as a lower riparian state, India, as the upper riparian, brazenly manipulated the so-called "accession" of Jammu & Kashmir through a diabolical “Instrument of Accession” between Raja Hari Singh and Jawaharlal Nehru, the Prime Minister of India, on 26 October 1947. Was this influenced by the well-known affair between the widower Mr. Nehru and Lady Edwina Mountbatten? The British imperialists always did favor Hindu-majority British India, which they perceived as more aligned with their interests compared to Muslims. In reality, the Hindu leadership of India had successfully convinced the British Imperialists of their loyalty and shared objectives, marginalizing Muslims in the process especially after the mutiny of Indian Imperial Army in 1857. Can one ignore the savage brutality displayed by the British after the so-called mutiny of Indian garrisons in 1857? The last Mughal Emperor Bahadur Shah Zafar was a figurehead; poetry his only pursuit. Smashing his eyes after making him witness the beheading of both his sons!

No doubt Cyril J. Radcliffe was brought to British India on a 40-day mission that can best be described as "**genocidal**." It is also said that no British bureaucrat in India was willing to draw the line to partition Punjab its villages and hamlets, its rivers and pathways because those aware of this region knew that the bulk of Punjabis (Sikhs, Muslims, and Hindus) would react with fury. Thus, the wicked and inhuman decision by Lord Mountbatten and his handlers in London was to bring in a virtual outsider, who would unilaterally announce the partition of Punjab as per the wishes of Mr. Nehru and his associate, Mr. Patel. Mr. Radcliffe a total stranger to Punjab’s culture, ethnic mix, and recent history was essentially a blindfolded bureaucrat, commanded to divide the fertile heartland of Punjab in ignorant haste.

The rioting and killings in Punjab during the Partition of India in 1947 escalated dramatically in August and September, following the announcement of the Radcliffe Boundary Award on August 17, 1947, which formalized the division of Punjab between India and Pakistan. However, the violence had already begun earlier in the year, with significant outbreaks in March 1947 in Rawalpindi and other regions, setting the stage for the catastrophic bloodshed that follows. **Prelude to Chaos:** The Rawalpindi massacres in March 1947 marked one of the first large-scale episodes of ethnic cleansing, where Muslim mobs targeted Sikhs and Hindus, killing between 2,000–7,000 and displacing 80,000. This violence was orchestrated by the Muslim League National Guards and local leaders, signaling the breakdown of inter-communal trust. After the June 3, 1947 Partition Plan was discussed, communal tensions surged. Armed militias (e.g., Sikh jathas, Muslim National Guards, and RSS bands) mobilized, preparing for retaliatory violence. Demobilized soldiers and criminal gangs exacerbated the chaos. The mid-August transfer of power (August 14–15) coincided with the worst violence. Trains carrying refugees became death traps, such as the Amritsar train massacre (September 22), where 3,000 Muslim refugees were killed by Sikh mobs. By late September 1947, the violence had achieved near-total ethnic homogenization on both sides of the border, leaving over a million dead and 14–18 million displaced. The trauma of partition continues to shape Indo-Pakistan relations today.

It is manifest that within a few days of the treacherous signing of the Instrument of Accession it triggered the first Kashmir war in October 1947, that lasted till January 1949. It was initially a limited clash of regular Pakistan and Indian Army units. It may be remembered that Pakistan had a Dominion status in the British Empire (for the next 8+ years.) The Pakistan Army was under the command of British officers based at GHQ Rawalpindi. Similarly, the fledgling Royal Pakistan Air force & Navy.

Tragically, the Pakistani people in 1947 did not recognize the blatant boundary demarcations as "water aggression." Time has revealed that Hindu leadership accepted Pakistan's emergence with the conviction that Pakistan would remain a Lower Riparian state, which the Upper Riparian (India) could fully or partially control its hydrology. Clearly, the British Empire was complicit in this inhumane objective. It is on record that the father of the Pakistani nation, Muhammad Ali Jinnah, upon hearing of Jammu & Kashmir's accession, declared: "**Our jugular vein has been cut**." Undoubtedly, Pakistan's intelligentsia shared Jinnah's grave concerns. However, the founding father was in an advanced stage of tuberculosis. He passed away on Sep 13, 1948. The British bias and tyranny toward Indian Muslims has deep historical roots. The Khilafat Movement by Indian Muslims (during 1920s) in sympathy with Ottomans left a strong impression on British imperialists. They knew a resurgent Turkey would reclaim leadership of the Muslim world. In matters of religion, Muslims are much closer to Christianity than Hindus. The Holy Quran places Maryam holy mother of Prophet Isa (AS), to the highest pedestal of piety and divinity. Among Abrahamic faiths, Islam uniquely prophesies the return of Isa (AS) as humanity's savior. Hindu religion is an ancient theology, is flexible and will adapt to seek alliances.

The Water Resource Development Council (an NGO), was formally launched on 9 February 1998 with a watershed conference in Islamabad. By the end of the millennium, it had dawned that Pakistani due to changing demographic particularly population growth the Islamic Republic could face water scarcity by the 1990s. By then, Pakistan was already water-stressed, with attention shifting to the western wing had devolved from West Pakistan into Pakistan after East Pakistan became Bangladesh in December 1971. Bangladesh has no water constraints, as it lies in the delta of the mighty Brahmaputra river that rises from the Tibetan Plateau.

IWT 1960 Was an Illusion. Wake Up Pakistan: The IWT signed at Karachi on 19 September, 1960 was supposed to mean "Indus Waters Treaty" a path to peaceful co-operation, good neighborliness & progress. For the Indians, IWT only meant: "India Wanted Time". Tragically we observe that Indian Water Aggression since 1947 has continued with undiminished intensity. They only toned down their rhetoric after the Treaty but never really abandoned their objective; to steal the waters of the Indus basin till the state of Pakistan as existing today would collapse economically. India does not respect any International Water Law or the rights of a lower riparian. She has attempted to divert bulk waters of the Chenab. She violates the IWT 1960 on all three Western rivers flowing through IHK.

Now, Mr. Narendra Modi has gone 100% back to the immoral & inhuman hydro-politics of 1948. It may not be forgotten that the Pakistani people lost millions of their brethren during the mass migration in the partition of British India. Pakistan became independent on 14th August 1947 but alas only in name. The imperial ruler had ensured that the three Eastern tributaries of the Indus Basin (River Ravi, River Sutlej & River Beas) flowing through Indian Punjab are controlled by the upper riparian. Madhopur Headworks on the Ravi River and Ferozepur Headworks on the Sutlej & Beas combined flow were delivered to India through the blatant "Radcliffe Award" that partitioned British India. After WWII, the United States emerged as the planet's moral force, a role which it maintained

in the subsequent decades. A diabolical & cynical India agreed to send a negotiation team in 1952 on the invitation of President Truman. The World Bank was tasked to be the 'facilitator' and the venue was Washington D.C. The next eight years saw negotiations & talks between Indian and Pakistan delegates. The Indian side was led by Mr. N. D. Gulhati, a brilliant hydro-engineer while the Pak side was led by an eminent but non-technical bureaucrat Mr. G Mueenuddin. Whatever the draft of the Treaty conceded in the main text comprising of 12 Articles, was cleverly clouded & neutralized in the 8 Annexures to these Articles and complex Appendices to these Annexures. What the right-hand conceded the Indians took back via the left hand using these Annexures. The Treaty draft was being negotiated by an upper riparian state with a lower riparian state over waters of the sole river basin that flows to the lower riparian. Territorial reality gave a massive advantage to India. They got 100% waters of the three eastern rivers.

An eminent Engineer Sardar Mohammad Tariq, former Member Water of WAPDA, writes that by allocating 75% of the Indus Basin Waters to Pakistan which had 90% of the irrigated land there was a blatant violation of the principle of "appreciable harm". A defining statute of the International Law Commission. Let us remember that India was allowed to take the entire flow of the three eastern rivers viz Ravi, Sutlej and Beas. These were compelling reasons for the World Bank's President, Mr. W.A.B. Iliff who was in Karachi on the eve of the Treaty signing (19 Sep, 1960) advised President F.M. Ayub Khan that Pakistan may not sign, if there were other options available i.e. to end Indian military occupation of IHK! The 1965 war was a little late & inconclusive. Water and its strategic importance for Pakistan was not understood & appreciated by our nation in all its economic dimensions. The nation is still flying blind with respect to its water endowment. Let us seek the truth.

Indian Water Aggression (IWA). India's P.M. Pandit Jawarharlal Nehru said in 1950 "dams are the temples of modern India". He may not have ordered these temples to be built on Pakistan waters however as a founding father of independent India and with military annexation of J&K he did create conditions for her hydro aggression. Our nation underestimated the reach of Pakistan's fifth column. Surely the Indians influenced a section of our bureaucracy & regional politicians through their clearly identified agents. This ongoing tragedy cannot be reversed without a gigantic step. Firstly, the realization that we have as a nation been the victim of a massive conspiracy with respect to our hydro endowment & in tandem the attrition of all our hydro based economic activities. The military occupation of Jammu & Kashmir on the eve of partition was the start of Indian Water Aggression in connivance & with full support of the imperial power. In brief these strategies were not fully comprehended by our intelligentsia and the issue was & remains clouded by religious over-tones. Mr. Mohammad Ali Jinnah's warning was not understood just as the nation ignored his caution note on the activities of our fifth column within Pakistan. Secondly the periodic stage wise progress of the IWA strategy. The period 1947–1960 was consolidation of the military occupation of Jammu & Kashmir as well as the implementation of the inhuman & unprecedented policy of taking the entire flow of the three Punjab Rivers (Ravi, Beas & Sutlej) also called the Eastern Rivers. The Indus Waters Treaty (IWT) signed on 19 Sep 1960 was a terrible tragedy for West Pakistan being acceptable only under great stress. Of the 33MAF average annual flow the historic share of West Pakistan from the Eastern Rivers was 27MAF which reduced to about 26MAF at the time of the treaty. Effectively Pakistan lost close to 20% of its surface flows till eternity thanks to the Radcliffe partition Award. Bureaucrat Mr. G. Mueenuddin, Pakistan's head of the Indus Waters Delegation to Washington DC was no match for India's hydro expert Mr. N. D. Gulhati. In the Treaty draft India also laid the basis for the subsequent

controversies around semantics & interpretation. The real meaning of 'let flow', 'non-consumptive', and 'the then' phrases in the Treaty were all Indian manipulations that they later misuse.

The Indian delegation at Bangalore during the roundtable of February, 2014 also denied that there is any serious climate change or global warming leading to glacier retreat and consequential additional flows in the Indus Basin. Dr. Shakil Ramshoo of the Srinagar University was constantly trying to convince our delegates that global warming is a myth. It was therefore, nature's revenge that in late summer 2014 Srinagar was severely flooded. How could India deny that under their NRL (Northern River Line Project) they were constructing 47,000 Km of canals linking their 25 major & 103 minor-basins to cater for the greater flows due to global warming & logical glacier retreat. It may be understood that India has also decided to construct a dam on the Kabul River and is willing to finance the Afghans. Construction of the dam on the Kabul River is planned within the next few years. The reservoir thus created would be far larger than the needs of the surrounding agriculture in Afghanistan.

The underground aquifers have clearly emerged as the next main target for the Indian Water Aggression after my experience of the closed Door Conference on Kashmir Water New Delhi (28-31 July 2010). I prepared a case for environmental flows in the Ravi and Sutlej Rivers to be taken up at Bangalore during my second encounter in India. The roundtable under track-II was held in Bangalore on 16 & 17 February, 2014. Instead, India's main thrust was to justify pumping of underground water far beyond the share of the western rivers; waters permitted for Jammu and Kashmir's local population. It was a diabolical and cruel statement to argue that only the rivers were divided in 1960. Mr. Ramaswamy Iyer, the leader of the Indian delegation addressed me with the following words: "Mr. Khan note clearly, there were two partitions of India; in 1947 the land was divided and in 1960 the rivers were divided"! Then I reacted with the words, "this is non-sense Ramaswamy Sahib. The Ground Water (GW) is a part of the river valley. The Treaty is called Indus Waters Treaty and not Indus Rivers Treaty. Therefore, no attempt should be made to take our ground water beyond the limits given for all waters in the Indus Waters Treaty 1960". He retorted that India has still to build its permanent storages to which I responded that at any given time India is already stopping more waters than is permissible under the Treaty. Since flow data of Western rivers from India is unreliable (and never received within the time frame of the IWT 1960) so we Pakistanis are reasonably convinced that India has found ways & means to siphon it to Northern India. Similarly, the 28,000 MW India will generate from +171 projects (run of river HPP or reservoirs) on these western rivers inside Jammu & Kashmir is atleast ten (10) times the needs of the local population of IHK. The following steps are urgently needed to be taken by our nation:

I) We have literally lost most of the waters of the Chenab River, as a result of post Treaty Indian Water Aggression. Pakistan has now to struggle harder to save the flows of the main Western rivers; Indus Main Chenab and the Jhelum. The nation has to wake up and take note of this life threatening situation. India will stoop to any inhuman level to damage Pakistan's economy while profiting from our waters. All regional lobbies working against the Indus Cascade are to be neutralized; academically & scientifically. We have not built a large dam since Tarbela was effectively completed in 1974. Indians built +4,600 dams including Bhakra on the Sutlej, a 225m straight gravity dam, the highest in the world, as well as the controversial Narmada.

II) In 1960, the Science of Ecology was not officially recognized by the UNO. It was after the Helsinki Treaty of 1962 that Ecology and Environmental sciences received universal sanction.

That is the compelling reason for demanding environmental flows in the Ravi and Sutlej at the Bangalore roundtable. The sharp retort by Ramaswamy Iyer is quoted in the preceding paragraphs. In brief, the Pakistani nation has to take note of this ominous Indian position and manipulations of the IWT 1960 text. The people of Pakistan are suffering horrendous health issues due to the willful pollution of its waters. In fact, by taking away the total flows of the rivers Ravi, Sutlej & Beas, India has inflicted an ecological & bacteriological war on our people. Our over-reliance on GW is a terrible ongoing tragedy. In addition to heavy metals and arsenic the aquifers have suffered irreversible bacteriological contamination. Compounding our failure to treat & re-cycle wastewater (agriculture run-off, industrial effluents & municipal sewage.) Presently, there are +20 million Pakistani suffering from hepatitis and resultant cancers. The world has to be made aware of this great calamity. First we have to understand it. Falling GW levels is proof that our aquifers are not a renewable resource. They need adequate recharge. Our anti dam lobbies be made to understand this and stop their mischief.

III) The situation of the environment is equally serious. By shutting off the three Eastern Rivers, and controlling the flows of the three Western rivers flowing through IHK, India creates drought like conditions during sowing seasons. The committed +55000 cusecs minimum flow during the entire flood season (21 June to 31 Aug) at Marala, where Chenab enters Pakistan, is not been seen since +20 years. During the monsoon/ flood season we witness that India can suddenly induce serious flooding in the agricultural belts of Punjab and Sindh. This proves that she has enormous storage in IHK, UP and Eastern Punjab. Therefore, Pakistan has to make the world realize that India also carries out environmental degradation of the Pakistani economy. This is part of the ongoing ecological & bacterial war being waged by India. The economic degradation due to Indian Water Aggression is now manifest.

Treaty Article IV (4) delivers a horrendous reality check. It states:

Pakistan shall maintain in good order its portions of the drainage mentioned below with capacities not less than the capacities as on the Effective Date: -

I) Hudiara Drain
II) Kasur Nala
III) Salimshah Drain
IV) Fazilka Drain

IV) Construction of large dams was made controversial after the Bangladesh war through India's clearly identified lobbyists working in Pakistan (as anti-dam pressure groups.) They take a different position in the North West where the anti-partition Bacha Khan group of Wali Bagh increased their activities against building of the critical Kala Bagh Dam/ Kala Bagh Dam Project (KBD/ KDP) by propagating dangers of flooding of Nowshera town due to the proposed downstream KBD/ KDP. This group is unable to prove since 45 years how a down-steam dam with a maximum conservation level of the reservoir at 915 feet (above sea level) could create waterlogging or flooding in areas of KP province which are much higher than 915 feet asl? Analysis of floods 2010 is available. We know Bacha Khan is remembered by his followers & Indians as the "Frontier Gandhi". To this day his party-men call themselves "Congressites" associating themselves with the Congress Party of India. It is an Indian supported party.

In contrast, the Sindh anti-dam lobby in the south is a group of feudals (Waderas) who lay claim to all waters of the Indus Basin. They were happy to practice flood irrigation (sailaba) around the banks of the Indus River. They are oblivious of water waste and Sindh's agriculture generally uses about five times per acre as compared to agriculture in Pakistan Punjab. They

do not realize that flood irrigation (sailaba) is highly wasteful and leads to water logging. This neurosis in Sindh is politically driven by the Wadera Group. These pseudo political lobbies need to be neutralized by a truthful & extensive campaign within the Sindhi masses. According to Dr. Hon. Shams ul Mulk, these lobbies inside Pakistan are following an "Indian agenda". Let our anti dam lobbies be made to stop their mischief. WRDC agrees that Indian money and mischief are involved in the anti-dam lobbies of KP and Sindh provinces. India, a human rights violator that chants 'Ram Ram', practices genocidal policies against minorities.

V) KBD/ KDP is vital for flood control in the Indus Basin in Central Punjab, Sindh & Baluchistan. Floods in rivers Kabul, Swat, Soan & Kohat Koi can only be controlled by the KBD/ KDP reservoir. KBD/ KDP is the only point on the Indus able to provide a gravity flow canal for KP. DBD can never be a replacement for KBD/ KDP. Infact DBD must be made into a lower & safer structure. Instead of its apex going to 3,900 ft asl (river bed is at 3,182 ft asl) it should have a crest level of below 3,660 ft asl. The upstream Raikot HPP (1800 MW) becomes possible when DBD's height is reduced in line with the 1987 MONENCO study. Its cost reduces to about half. The time to build also reduces dramatically. Remember all basic construction materials including sand have to be transported to site. Equally important lower height will allow a stronger CFRD arch dam instead of the proposed RCC light structure with a PVC membrane, for seepage control. Building on RCC dam at this height is extremely hazardous.

VI) Pakistani nation has to negate the repeated declaration by India that Pakistan's Northern Areas, Gilgit & Baltistan, are a part of Greater Kashmir. She does this to block or delay any infrastructure work including major hydro projects on the Indus Main. She cleverly misuses the policy of the World Bank which prohibits multi-lateral financing for infrastructure projects in the so-called "Greater Kashmir" disputed region. Pakistan must clear this misconception and travesty; convince the multi-laterals that its Northern Areas were indeed administered by Srinagar during the reign of Maharaja Ranjit Singh. However, the Northern Areas are inhabited by the Balti-civilization having no linguistic & ethnic similarity with the Kashmiri people. Thank you Maj Brown for having kicked out Brig Ganzara Singh from the Northern Areas in 1947 when he claimed it on behalf of the Raja of Kashmir. The claim of RSS Chief Mohan Bhagwat on AJK, Gilgit & Baltistan is on record.

VII) A 70 years' history of Indian Water Aggression, is genocide in slow motion. Let us unite in thought & action to salvage the remaining waters of the Indus Basin for the common good of our children and coming generations. Let one organization within the country speak about Kashmir & the Indus Basin endowment. This national organization must be able to again map the seriously sick GW resource (it was last done in 1980.) It must provide us practical solutions for its recharge. It must breathe life into the PCRWR. Strengthen the vital PCIW organization and WAPDA as well. It must map our hydrology in real time. It must be 100% trusted by all patriots in Pakistan. Let us call it CIBSA Commission for Indus Basin Strategic Analysis. Our response to the Indian ICID &ICIW. Our economy in 40 years has taken a hit of nearly a trillion USD equivalent due to these anti dam lobbies. The losses are snowballing and the hemorrhage has to be stopped asap. No more illusions. Let us rise to the challenge belatedly and build the Indus Cascade with its 29, 870 MW hydro power capacity translating into 126,000 GWh of electrical energy (which is more than the total electric energy generated in

Pakistan during 2019.) A program of about 25 years to keep our nation moving ahead with low cost hydro energy, additional irrigation water & more potable water.

Professor John Briscoe was born on July 30, 1948 in South Africa. An environmental engineer who did his B.Sc. (first class honors) in Civil Engineering from University of Cape Town, South Africa in 1969. An M.S. in Environmental engineering in 1972. In 1976 he was conferred his Ph.D. in Environmental Engineering by Harvard University. Before coming to Harvard, he worked as an engineer in the government water agencies of South Africa and Mozambique; an epidemiologist at the Cholera Research Center, in Bangladesh; a professor of water resources at the University of North Carolina; and, at the World Bank, where he helped oversee projects in water resources, irrigation, hydropower, and sanitation. He has consulted on water issues for nonprofits, governments, nongovernmental organizations, and businesses. John Briscoe while serving in New Delhi as Sr. Water Advisor for the World Bank was appalled by the Indian water aggression against Pakistan, the lower Riparian. He resigned from the World Bank after serving 20 years (1989-2009) and joined Harvard School of Public Health. He was known as "Mr. Water" to environmental economists. At Harvard, Briscoe held appointments at the Harvard School of Engineering and Applied Sciences (SEAS) as Gordon McKay Professor of the Practice of Environmental Engineering. He focused his efforts on the developing world to successfully manage and preserve water as a precious resource. At Harvard, John launched the university-wide Harvard Water Security Initiative, which focuses on major challenges in countries around the world, including the ability to provide people with safe drinking water and food, to produce energy and sustain economic growth, and to enhance environmental quality. He displayed great empathy for the Pakistani nation as soon as he had realized they were in an untenable hydrological trap resulting from an unnatural; rather a cruel and cynical demarcation of the international border between West Pakistan and independent India.

In addition, he led groups of students from across the university in collaborative research on water management in the Colorado, Indus, Mississippi, Murray-Darling, and Sao Francisco basins. John Briscoe had worked on water issues in the subcontinent for 35 years. He lived in Bangladesh in the 1970s and Delhi in the 2000s. He superficially struck a balance in his intellectual grasp of the Pak-India water imbroglio; his over 120 articles in refereed professional journals and eight books had the focus on India, Pakistan and Brazil. His writings on Pakistan displayed a deep sensitivity as he understood the dynamic at play. “Pakistan’s Water Economy Running Dry” (2006) involved eighteen months of intensive work by the World Bank staff and an eminent group of Pakistani and foreign consultants. It received financial support of the Netherlands Government. A great testimony of John Briscoe’s depth and foresight; his sympathy for Pakistan’s plight is immortalized in his saintly article: War or peace on the Indus? The Indian mindset and collusion with imperial Britain was clear. John Briscoe obviously saw enough of this during his tenure as a world bank executive at New Delhi. Regretfully one saw great disparity in Pakistan’s focus compared to the Indian modus-operandi. An open opposition to Pakistani dams. In early 2014, he received the Stockholm Water Prize - the “Nobel Prize of Water" for "unparalleled contributions to global and local management of water contributions covering vast thematic, geographic, and institutional environments-that have improved the lives and livelihoods of millions of people worldwide.” He lost his struggle with cancer that same year. It was obvious why John Briscoe was for his peers “A water-resource expert who championed dams” says his obituary in The Washington Post (Nov 17, 2014.) Pakistan seems not to have realized the gravity of our loss. We have lost saintly hydrologists and environmentalists who are irreplaceable in our context.

How climate change is driving water scarcity in Asia: The Tibetan Plateau, also known as the "Water Tower" of Asia, supplies freshwater to nearly 2 billion people. Experts fear that the region could see a near-total freshwater storage collapse by 2050. By the middle of this century, the entire Tibetan Plateau, also known as the "Water Tower" of Asia, will lose a substantial part of its water storage, a study has revealed. The study is the most comprehensive research on the issue to date, and was published in the Nature Climate Change journal.

The Amu Darya basin which supplies water to central Asia and Afghanistan shows a decline of 119% in water-supply capacity. The Indus basin which supplies water to northern India and Pakistan shows a 79% decline in water-supply capacity. Combined together, this impacts a quarter of the world's human population. A team of scientists from Penn State, Tsinghua University and the University of Texas at Austin found that climate change in recent decades has led to a severe depletion in terrestrial water storage (TWS), which includes all of the above- and below-ground water, to the tune of 15.8 gigatons per year in certain areas of the Tibetan Plateau. Based on this pattern, the team has predicted that under a moderate carbon emissions scenario SSP 2-4.5 emissions, the entire Tibetan Plateau could experience a net loss of 230 gigatons and going upto 8,000 gigatons by the mid-21st century. "The prognosis is not good," said Michael Mann, professor of atmospheric science at Penn State.

'Need for a bold climate policy': Earlier, the absence of reliable future projections of TWS (Terrestrial water storage) limited guidance on policymaking over the climate change hotspot. "By examining the interactions between climate change and the TWS, this study serves as a basis to guide future research and the management by governments and institutions of improved adaptation strategies," said researcher Di Long. The Tibetan Plateau is sometimes called "the roof of the world" and it contains a rich network of streams and rivers that supply drinking water to a large portion of Asia. "Even in a best-case scenario, further losses are likely unavoidable, which will require substantial adaptation to decreasing water resources in this vulnerable, highly populated region of the world," said Mann.

Seven river basin systems were studied in the research, supported by the National Natural Science Foundation of China and the Second Tibetan Plateau Scientific Expedition and Research Program.

The Amu Darya basin, Indus, Ganges–Brahmaputra, Salween–Mekong, Yangtze and Yellow rivers were selected for this analysis because of large populations and water demand in the downstream areas. It was found that in the Ganges–Brahmaputra, Salween–Mekong and Yangtze basins, total water demand in the downstream areas can be met by other factors. sHowever, in the Amu Darya and Indus basins, the changes in the upstream TWS will seriously threaten downstream water availability.

The Coming deluge from Tibetan Plateau Melt: Climate change and global warming have caused increasingly severe melting of the Tibetan Plateau's glaciers in recent decades. Scientific projections estimate that by 2050, these glaciers could lose approximately 8,000 gigatons of ice mass. This loss has significant implications for water resources, ecosystems, and regional climate patterns in Asia, as the plateau is often referred to as the "Third Pole" due to its vast ice fields and their importance in supplying freshwater to surrounding regions.

Geopolitical conflicts facilitate crisis: The issue of dam construction over shared water resources, aggravated by climate change, could result in potential conflicts between the countries. Although the latest study informs about the climate-induced water crisis in West and South Asian countries, several studies in the past have documented the impacts of dam building on rivers originating from the

Tibetan Plateau. The Mekong also springs up from the Tibetan Plateau and flows to the South China Sea through Myanmar, Thailand, Laos, Cambodia, and Vietnam. Around 60 million people depend on the river for fishing, farming and transportation. Hundreds of hydropower dams have been built up and down the river since 2010, and most of them are in China and Laos.

"China's eleven-dam cascade blocks half of the sediment flow in the Mekong — half of the 165 million tons of sediment per year. There is no mitigation that can allow the sediment to flow forward," said Bryan Eyler, Southeast Asia Program Director at the Stimson Center. The water shortages could result in geopolitical conflicts. "We fear there will be a full-scale issue in the coming years between India and China with glaciers melting in the Tibetan plateau. Tibet's geography and ecological importance should be understood by India and China both," said Tenzin Lekshey, spokesperson for the Central Tibetan Administration, the Tibetan government-in-exile in India led by the Dalai Lama. Water could fast emerge as a potential flashpoint between India and China, two of the world's most populous countries. But it has far-reaching consequences for the entire continent.

In Pakistan, we need to construct at least 10 new reservoirs with a cumulative storage capacity of 40 MAF, in addition to the existing 10 MAF storage, which is projected to be depleted by 2050. Our survival now hinges on a bold and decisive effort to counter the anti-dam lobby in Pakistan. The ICID Prabhu Report of 1998 has created 32 flood control dams distinct from conventional reservoir construction for energy and agriculture. An overview of new dams in India: We started with 170 MAF water availability and now reduced to 110 MAF. They started with 750 MAF and have maintained.

Existing Dams in India

- **Total Large Dams (Completed): 6,138** as per the National Register of Large Dams (NRLD-2023) 12.
- **Under Construction: 143** large dams 12.
- **Age Breakdown:**
- **224 dams** are over **100 years old**.
- **1,065 dams** are between **50–100 years' old**

Future & Proposed Dams
Planned Hydroelectric Projects:

- **Pakal Dul, Ratle, Kwar, Kiru** (under construction in J&K)
- **Sawalkot, Bursar, Kirthai-II** (planned)
- **Ujh Dam** (on Ravi River, to reduce water flow to Pakistan)
- Shahpurkandi Dam (completed in 2024, diverts Ravi water)

Dam Rehabilitation Program (DRIP):

- 736 dams **across 19 states are being rehabilitated under** DRIP Phase II & III

We must recognize that without confronting the anti-dam Mafia of (KP) and Sindh, we will become a barren and arid desert. It is the absolute eleventh hour of reckoning. We must wake up and crush the 5th column and anti-dam conspirators.

Be aware that Water Resource Development Council presented its DBD Compilation 2020 to select readers in Pakistan. In February 2021 a 20-page Primer was included on the technology of large Dams; as an annexure to the Compilation that incidentally comprised 88 pages. The first 3 pages form the introduction. On 9 Feb, 2025 WRDC has celebrated 27 years since its launch event held at Islamabad: "The Conference on Reservoirs in the national economy". Moving spirits were Lt. Gen. (R) Dr. Ghulam Safdar Butt and Maj. (R) Nadir Pervez (SJ & bar). In 2021 ICOLD changed the parameters for large RCC Dams in seismic zones; it is to have a major impact on the cost of Diamer Basha Dam planned as the world's tallest RCC Dam. Refer to the summary page 3 of the preamble comparing cost of CFRD (Rock Filled) & RCC (Concrete) designs. WAPDA had only discussed the main Civil Works contract (MW-1). Cost of project must be all inclusive. The design switch from CFRD to RCC in 2004 was severely criticized by Gen. Dr. Butt and High Dam expert Claudio Vissa. Simply said the RCC Dam option will be many times more expensive. As observed in the DBD project consultant's selection very little knowledge has been shared by WAPDA with the nation. NESPAK the lead consultant also bears responsibility to educate the people of Pakistan. After all, DBD is planned as the world's tallest RCC structure in one of the world's most hazardous seismic terrains. DBD is a project on the "Upper Indus" in the Northern Areas of Pakistan which our nemesis managed to link with the Jammu & Kashmir issue. This blocked all shades of multi-lateral financing for the project. Did we critically review costs based on the revised RCC design and commercial financing? Can we afford another disaster on the lines of Neelum Jhelum Hydropower project? Of course DBD needs ten times more commercial finance.

WRDC had demanded a design review of DBD in 2020. Hydrology now also needs to be reviewed in light of latest analyses that convey the alarming news about the accelerated melting of Himalayan, Karakorum and Tibetan Plateau glaciers. The October 8, 2005 earthquake had an impact on the hydrology of the Indus and its Tributaries. Reports say: "the Indus will be reduced to a mere stream before 2050." The Indians had foreseen consequences of "Global Warming" and launched their massive NRL (Northern River Link) the largest irrigation project in the world. Conceived by the ICID's Prabhu Report of 1998 it was completed at a cost of over USD 212 billion. It includes 32 flood control Dams; beside linking all major reservoirs of India. The Indus Basin the only major basin located in Pakistan is shared with Upper Riparian India. Tragically the Pakistani nation is since +40 years internally squabbling over the critical KBD its only significant flood control project on the Indus river. Is our nation doomed to be wiped out by a seismic event, that will destroy all structures on the Indus or is it doomed to be washed away by a gigantic flood in the Indus? Could we ever be able to rebuild? We need to analyze, deliberate and rise. Fight the internal enemies; our 5th Column.

Pakistan Paindabad