

Undermining a just transition: MDBs and the myth of renewable large hydropower in Pakistan

By Indus Consortium

Indus Basin, River, and Delta: the lifeline of Pakistan

The Indus Basin covers 47% of Pakistan, and together with the Indus River and Delta, forms Pakistan's lifeline. The Basin collects water from rainfall, snow and glaciers, channelling it into the Indus River and its tributaries. The river, over 3,000km long, flows from Tibet through India into Pakistan, providing water for crops like wheat, rice, cotton, and sugarcane and supporting 90% of the country's population.^{1,2} Its mouth forms the world's fifth largest delta, a wetland that supports 200,000 people through fishing, farming and livestock grazing.^{3,4}

Water has hence played a vital role in the country's history, and Pakistan's dependence on hydropower traces back to the 1960 Indus Waters Treaty (IWT). The treaty, brokered by the World Bank, allocated the rivers between India and Pakistan. To offset lost irrigation from the eastern rivers, the Bank financed major canal and dam projects that, however, triggered interprovincial disputes and accelerated the ecological decline of the delta.⁵

Decades later, the treaty itself has become contested: In April 2025, India suspended the IWT after tensions in Kashmir, raising alarm over Pakistan's water security, agriculture, and hydropower capacity. This episode underscores how fragile water-sharing agreements can come under geopolitical strain, with direct consequences for local communities, especially women and youth, and energy systems.

¹ *Indus Basin* (2025). In Wikipedia. https://en.wikipedia.org/wiki/Indus_Basin

² Butt, N. (2024, July 19). Pakistan is the 5th most populous country with a population of 241.49m. *Business Recorder*. <https://www.brecorder.com/news/40313328>

³ *Mangroves*. (n.d.). Forest Department, Government of Sindh. Retrieved September 8, 2025, from <https://sindhforests.gov.pk/page-mangroves>

⁴ *Indus Delta*. (2011). Ramsar Site Information Service. <https://rsis.ramsar.org/ris/1284>

⁵ Creyke, T.; Liefstinck, P.; Sadove, R. A. (1968). *Water and power resources of West Pakistan*, 1, 334. <http://documents.worldbank.org/curated/en/182331468758759382>



How the World Bank has shaped hydropower development in Pakistan

Ever since the IWT, the World Bank's involvement has continued to shape Pakistan's energy sector. Through technical assistance (TA), policy influence and financial support, the Bank has kept large hydropower as part of Pakistan's energy mix (currently 24.4%).⁶ For example, in 2021, the WB approved a \$400m development policy loan for the Pakistan Program for Affordable and Clean Energy (PACE), a programme that aims to reduce power generation costs and 'green' the energy mix. The conditions required Pakistan to develop a least-cost generation plan with 63% renewable energy (RE) in the mix by 2030.

However, the WB's Country Partnership Framework (CPF) for Pakistan classifies hydropower under 'renewables', unlike Pakistan's own policies. The proposed CPF 2026–2035 states that renewable energy, including hydropower, will be supported by the WB, IFC, and MIGA.⁷ Specifically, MIGA will support both existing and new private investments in hydropower and transmission & distribution. Yet Pakistan's Alternative and Renewable Energy (ARE) Policy 2019⁸ explicitly defines renewable energy as solar, wind, bagasse and other non-hydro technologies, and expressly excludes hydropower (both large and small) from the definition of renewables. As large hydropower development in Pakistan poses a barrier to achieving a truly renewable energy path and carries serious ecological and social risks, this approach does not align with a just energy transition or a climate-conscious strategy.

The human cost of large hydropower: lost livelihoods and dignity

A development solution which leaves people in misery is a false solution. In Pakistan, large hydropower has left vast populations in desolation. The Indus Basin, River, and Delta are interdependent and vulnerable: changes upstream directly impact ecosystems and livelihoods downstream. Reduced freshwater flow due to large-scale upstream hydro projects has imposed far-reaching damage to the Indus Delta. MDBs have played a role in this pattern by financing major hydro schemes such as Tarbela Dam (supported repeatedly by the World Bank since the 1960s), the planned Diamer-Bhasha Dam (with World Bank and ADB involvement in technical and preparatory support), and proposals such as Kalabagh Dam.⁹ These projects illustrate how MDB financing for large hydropower has reinforced ecological harm and social displacement, rather than advancing a just energy transition.

"The coastal areas around the River Indus, especially the communities on the right bank, have been more severely affected. Water from the River Indus used to reach this area, and there were approximately 100 wetlands here that remained filled with freshwater. Due to climate change and the construction of dams, the flow of water has now reduced by up to 75%," says Iqbal Haider, a local community activist from Badin.

Reduced water flow directly impacts livelihoods in a region where agriculture, livestock grazing and fishing are the major sources of income.

"People here used to farm around the river, but that's decreased. Fodder for livestock is scarce because the forests on both sides of the river are gone," explains Gulaab Shah, a resident of Keti Bander.

In addition, the mangrove forests, a fertile breeding ground for fish and shrimps, have declined. This impacts livelihoods and increases the risk of floods and tsunamis in the delta. Women, the backbone of these families, are most deeply impacted.

"Fisherwomen were involved in everything from catching fish and shrimp to their cleaning, sorting, and packaging. Women also used to weave fishing nets and collect wood from the forests. Women were empowered — they used to make their own clothes, buy their own gold. But due to the decline in fish stock, they are now forced to work as labourers in homes and industries, where the income is lower, and whatever little they earn ends up going into household expenses," says Fatima Majeed, a local community woman from Ibrahim Hyderi.

⁶ Yousafzai, F. (2025, June 10). Pakistan's renewable energy capacity nearly doubles amid shift toward greener power mix. *The Nation*. <https://www.nation.com.pk/10-Jun-2025/pakistan-s-renewable-energy-capacity-nearly-doubles-amid-shift-toward-greener-power-mix>

⁷ Country Partnership Framework. (2025). World Bank Group. <https://documents1.worldbank.org/curated/en/099121324161568318/pdf/BOSIB-b41eaf79-84ac-40db-ba1c-85f902892917.pdf>

⁸ Country Partnership Framework. (2025). World Bank Group. <https://documents1.worldbank.org/curated/en/099121324161568318/pdf/BOSIB-b41eaf79-84ac-40db-ba1c-85f902892917.pdf>

⁹ World Bank. (2014). *Pakistan – Tarbela 4th Extension Hydropower Project*. World Bank Project Appraisal Document. <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/263221468288617518/pakistan-tarbela-4th-extension-hydropower-project>

Environmental decline leads to forced migration

Reduced freshwater flow has led to seawater intruding into the villages of the delta: 88.3% (11,540.4km²) of the surface is affected.¹⁰ This has forced nearly 1.2 million people to migrate in the last few decades.¹¹

"Many people in Rehri Goth have migrated from the delta, including youth. They had to abandon their education. Here, they didn't get jobs. Mental health issues have increased, and many young people have fallen into drug addiction," explains Fatima Majeed from the community of Ibrahim Hyderi.

Besides migration, promises of land compensation and employment were not met.

"People were given low compensation for their land taken. There is no skill development in the area, especially for youth and women. No jobs given to locals," added Umer Javed.

MDBs' continued support for dam construction poses a serious threat to already distressed communities.

Economic costs, missed opportunities in solar energy

Large hydropower financing risks undermining Pakistan's potential for Variable Renewable Energy (VRE) — technologies such as solar and wind that can be integrated flexibly into the grid.¹² At the same time, large hydropower projects backed by MDBs also carry significant economic costs, raising questions about whether such investments truly serve a just and sustainable energy transition. Government-owned hydropower plants are set to receive \$1.58bn in capacity payments — an unjust financial burden that consumers are bearing.¹³ Pakistan's circular debt in the energy sector already exceeds \$9.8bn, and continuing large-scale hydro investments will deepen the economic crisis and burden the already distressed consumers.¹⁴ In addition, an estimated \$2bn loss per year to the delta has been documented in a report by the WB.¹⁵

Meanwhile, solar energy is emerging as a credible alternative to large hydropower in Pakistan. In 2024, the country saw an estimated 16GW of solar panel imports and 4.9GW of net-metered connections installed.¹⁶ This rapid, community-driven shift is already reducing reliance on the national grid and large hydropower. The trend is reinforced by economics: The levelised cost of electricity (LCOE) from utility-scale solar in Asia fell to around \$0.04 per kWh in 2021, compared with \$0.12–0.18 per kWh for new large hydropower projects.¹⁷ For households, rooftop and net-metered solar systems are helping to cut electricity bills and buffer families from the spiralling costs of fossil fuel imports. Civil society organisations in Pakistan also report that decentralised solar has improved access for women-led households, particularly in rural areas, by reducing time spent collecting biomass or enduring load-shedding blackouts.^{18,19}

In this situation, MDBs' support for large hydro projects risks becoming obsolete. The WB itself notes that a fraction (0.071%) of Pakistan's land could meet total power needs through solar.²⁰ However, current policy contradictions on hydro classification make real RE solutions like solar and wind harder to achieve.

Political costs of hydro power fuelling resource sharing conflicts between communities

Resolving the debates around hydropower and moving swiftly towards promoting solar and wind energy isn't simple. The debate over hydropower has always remained a bone of contention among the provinces, and the MDBs' hydro

¹⁰ Solangi, G. S., Siyal, A. A., & Siyal, P. (2023). *Indication of subsurface seawater intrusion into the Indus delta, Sindh, Pakistan*. Mehran University Research Journal of Engineering and Technology, 42(1), 9. <https://doi.org/10.22581/muet1982.2301.02>

¹¹ Siddiqui, Z. (2025, June). *Once a Thriving Ecosystem, Pakistan's Largest River Delta Is in Peril*. *New Lines Magazine*. <https://newlinesmag.com/essays/once-a-thriving-ecosystem-pakistans-largest-river-delta-is-in-peril/>

¹² International Renewable Energy Agency. (2022). *Renewable power generation costs in 2021*. <https://www.irena.org/Publications/2022/Jul/Renewable-Power-Generation-Costs-in-2021>

¹³ Power sector capacity payments surge to Rs2.14trn for FY25. (2024, October 1). *Profit*. <https://profit.pakistantoday.com.pk/2024/10/01/power-sector-capacity-payments-surge-to-rs2-14trn-for-fy25>

¹⁴ Anwar, A. (2025, July 11). *Circular debt of Pakistan: Understanding the crisis*. *The Express Tribune*. <https://tribune.com.pk/story/2555372/circular-debt-of-pakistan-understanding-the-crisis>

¹⁵ Young, W., Anwar, A., Bhatti, T., Borgomeo, E., Davies, S. W., Garthwaite III, W. R., Gilmont, E. M., Leb, C., Lytton, L., Makin, I., & Saeed, B. A. (2019). *Pakistan: Getting More from Water*. World Bank Group. <http://documents.worldbank.org/curated/en/251191548275645649>

¹⁶ Pakistan Bureau of Statistics. (2024). *Pakistan Energy Imports Data 2024*. Government of Pakistan.

¹⁷ International Renewable Energy Agency. (2022). *Renewable power generation costs in 2021*. <https://www.irena.org/Publications/2022/Jul/Renewable-Power-Generation-Costs-in-2021>

¹⁸ Alliance for Rural Electrification. (2023). *Women and the solar energy transition in South Asia*. <https://www.ruralelec.org>

¹⁹ Solar surge reshapes Pakistan's power sector: report. (2025, May 11). *The News International*. <https://www.thenews.com.pk/print/1310356-solar-surge-reshapes-pakistan-s-power-sector-report>

²⁰ *Expanding Renewable Energy in Pakistan's Electricity Mix*. (2020). World Bank Group. <https://www.worldbank.org/en/news/feature/2020/11/09/a-renewable-energy-future-for-pakistans-power-system>

financing has only deepened this conflict. The core conflict revolves around resource sharing between the upper and lower riparian provinces. Despite the Water Apportionment Accord of 1991, concerns persist about the upstream dams reducing the flow of the delta.²¹

Recent disputes over Net Hydel Profit payments²² and hydropower asset control have further intensified the resource-sharing conflicts among the provinces and the federation).²³

Recommendations for MDBs to prioritise people over profit in development projects:

1. MDBs should stop considering high-risk investments like large hydropower as part of renewable energy, especially when such projects are causing harm to communities. All forms of support for large hydropower projects should be halted.
2. The WB should prioritise and promote alternative renewable energy sources such as wind and solar in their Country Partnership Frameworks (CPF) which can bring clean and cheap electricity to remote and underserved areas.
3. MDBs should conduct comprehensive assessments of past projects, programmes and technical assistance. They should provide remedies to communities harmed by hydro projects. A special grant-based programme should be initiated to restore ecosystems, make a resettlement plan for displaced populations, and create job opportunities.
4. MDBs should ensure that all new programmes fully consider environmental and social factors as well as the political, social and cultural contexts. They must remain sensitive to existing conflicts between upper and lower riparian communities and provinces, avoiding interventions that could exacerbate these tensions.

The WB should conduct a comprehensive, cumulative study on the losses and damages suffered by the communities of the Indus Delta. This should include an assessment of mangrove degradation, loss of livelihoods, the extent of land degradation due to sea intrusion, the number of people displaced, and the damage caused to wetlands as a result of upstream dam construction.

²¹ Anwar, A. (2016, July 28). Pakistan's provincial water disputes: a way forward. *Dawn*. <https://www.dawn.com/news/1273760>

²² It is a compensation paid by the federal government to the province where a hydropower project is located, in return for using that province's natural water resources for electricity generation.

²³ Kiani, K. (2025, July 25). Govt mulls delinking hydel profit from tariff. *Dawn*. <https://www.dawn.com/news/1924851/govt-mulls-delinking-hydel-profit-from-tariff>



Tarbela Dam in Khyber Pakhtunkhwa, Pakistan
Photo by USAID