

disputes within India may make India's international approaches to water sharing more erratic. What is clear is that India has serious internal as well as external issues related to river water disputes; some innovative and alternative options are required to deal with future challenges.

#### EXPLORATION OF ALTERNATIVES

Both India and Bangladesh are conscious of climate change and have been trying to address the issue. One promising example is Bangladesh's plan to construct the "Ganges Barrage," which would divert water from the Padma, as the Ganges is known in Bangladesh, into southwest Bangladesh. First suggested by Pakistan in 1963, India then opposed this idea, arguing that large areas of Indian territory in the state of West Bengal would be submerged under backwater. Following the 1996 Ganges Treaty, however, India agreed to the construction of the barrage by Bangladesh, and Bangladesh subsequently agreed to change the barrage's location from the Hardinge Bridge over the River Padma near the Indian border further away to Pangsha, 90 miles west of Dhaka. This was confirmed in the joint communiqué of the 32d JRC meeting held in 1997. The communiqué stated that the Commission accepted the proposal of Bangladesh to implement the Ganges Barrage project and also agreed to provide technical assistance through India's Water and Power Consultancy.<sup>47</sup>

The Ganges Barrage Project, which has been in the planning stage for many years, would preserve the river water during the monsoon and release it during the dry period. The barrage is expected to help irrigate about 1.9 million ha of arable land in the greater Kushtia, Faridpur, Jessore, Khulna, Barisal, Pabna, and Rajshahi Districts of Bangladesh.<sup>48</sup> The study suggests that the flows in all tributaries and other rivers in the southwest region would be augmented with the Ganges Barrage. Fisheries, groundwater, forested areas, navigable waterways, and human health more broadly should benefit greatly from the barrage's supply of upland water flow and reduced salinity.

India's National Water Mission (NWM), as part of the National Action Plan on Climate Change, has prioritized the documentation and modeling of surface and groundwater resources in each of the country's river basins. The

47. "The Ganges River," in *Conflict and Cooperation on South Asia's International Rivers* (2002), p. 187.

48. "Ganges Barrage Work from 2012," *Daily Star* (Dhaka, Bangladesh), October 6, 2010.

NWM has also suggested that a comprehensive map of the country's aquifers be prepared, with their storage and transmission characteristics at a watershed scale, e.g., managing water only at its source.<sup>49</sup> This will not only help crop-water budgeting within India but will also generate a positive spillover effect to riverine neighbors like Bangladesh. Related planning should lead to increased water flows to the Farakka Barrage, and India will be in a better position to assist Bangladesh in conducting sustainable water development projects if asked. Impending climate change requires such measures.

As a lower riparian nation, Bangladesh has always been concerned with dam construction along the upper sections of the Ganges. According to the Uttarakhand (India) Hydropower Corporation, 45 hydro-projects are already in operation, and around 200 more projects are proposed.<sup>50</sup> With the flood in 2012 that led to mass destruction across Uttarakhand, a small state bordering Nepal northeast of Delhi, the Indian as well as provincial state governments have decided to revisit decisions on proposed dam construction projects. The effect would be to further control the river's flow at Farakka, allowing water stored during the monsoon season to be released during the dry period.

Another positive development has been the deepening of the hydrological relationship between India and Bangladesh. For example, in 2011–12 India invited Bangladesh to be a partner in the proposed Tipaimukh Dam in the far northeastern Indian state of Manipur and other hydro projects.<sup>51</sup> If the joint funding partnership succeeds, this will certainly help with extending the Ganges Treaty beyond 2026. Furthermore, India's environment minister has announced that all hydroelectric projects on the Ganges will be asked to reduce their power generation—possibly up to 50% of capacity—in an effort to provide a clean and continuous flow of the river's waters through India and along to Bangladesh, with the presumption that short-term costs will be offset by the benefits of cautious approaches to dam building later. The minister has

49. National Action Plan on Climate Change, <[http://pmindia.nic.in/climate\\_change\\_english.pdf](http://pmindia.nic.in/climate_change_english.pdf)>, accessed October 20, 2012.

50. Ankur Paliwall and Ravi Bajpai, "New Dams to Burden Uttarakhand, Heighten Disaster Risk," *Down to Earth*, July 1, 2013, <<http://www.downtoearth.org.in/content/new-dams-burden-uttarakhand-heighten-disaster-risk>>, accessed July 24, 2013.

51. Sandeep Dikshit, "India Invites Dhaka's Stake in Dams on Common Rivers," *The Hindu* (Delhi, India), January 30, 2013.

also proposed setting up a new Ganges Commission to better monitor activities affecting water flow on the ground.<sup>52</sup>

## CONCLUSION

The Ganges River water sharing issue between India and Bangladesh is complex. The future of the Ganges Treaty in 2026 will depend not only on the availability of river water but also on the socioeconomic and political transformation of the region. This transformation includes the extent to which people who rely on the water from the Ganges, along with its tributaries and distributaries, participate in environmentally sustainable practices. The main stumbling block in negotiations prior to 1996, evident in the need for the JRC to hold six meetings between June 1974 and June 1975, was the augmentation of Ganges River flow across the Farakka Barrage. Though the 1996 treaty mentions the augmentation of the Ganges, this issue has largely been eclipsed by concerns with the urgency for a long term treaty. This marks a profound positive development in the politics surrounding water sharing, moving past the augmentation issue that neither government could agree upon despite a quarter century of negotiations.

However, despite the general perception that the issue of Ganges River water sharing between India and Bangladesh was resolved with the treaty signing, many issues remain. The 1996 treaty may be considered a stopgap measure in a persistent river water dispute. The arrival of 2026 will force the stakeholders—the government of India, the government of Bangladesh, the West Bengal government, and all concerned political parties—to make important decisions regarding one of the world's most important rivers in a situation further aggravated by climate change and innumerable political developments that are impossible to predict.

52. "Ganges Hydro Projects May Be Asked to Reduce Their Power Generation," *The Hindu* (Delhi, India), May 31, 2012. A detailed alternative approach to deal with new challenges of the river water issue has been discussed by Ben Crow and Nirvikar Singh in their article, "The Management of International Rivers as Demands Grow and Supplies Tighten: India, China, Nepal, Pakistan, Bangladesh," *India Review* 8:3 (2009), pp. 306–39; idem, "Impediments and Innovation in International Rivers: The Waters of South Asia," *World Development* 28:11 (2000), pp. 1907–25.