

## Challenges in solving the transboundary water disputes in India under a changing climate and environment

**K. SHADANANAN NAIR**

*Nansen Environmental Research Centre – India, Gopal Residency II Floor, Thottakkat Road, Kochi 682011, Kerala, India*

[nair59@yahoo.com](mailto:nair59@yahoo.com)

Changing climate and rising water demands make water management a challenging issue. Disputes over water allocation have halted development activities in India for decades, affecting the national economy, food production, power generation and the lives of millions that depend on agriculture. Even today, the major challenge in water resources management is the amicable settlement of disputes. Though India faces problems at both the domestic and international levels, the domestic disputes are more difficult to solve because of social and political factors. The Indus, Ganges and Brahmaputra share transboundary water with neighbouring countries. International disputes have led to better bilateral cooperation. However, tension is mounting over India's projects in the Indus and Brahmaputra rivers with Pakistan and Bangladesh, respectively (Fig. 1). Claims of the upper riparians and the falling availability of reliable water due to changes in climate and anthropogenic activities such as encroachment into water bodies, pollution and overuse led to disputes over allocation. Disputes also arose due to environmental and safety issues. Problems are more serious in urban centres. Urban migration as a result of setbacks in rural agriculture make urban water management more and more complicated. In most of the urban centres the timely availability of adequate amounts of safe water is still a dream. Water related protests often turn violent (Nair, 2009).



**Fig. 1** Location of major transboundary river disputes in India.

Changing climate has a large impact on water resources. Studies on the changes in water availability due to the changing climate based on the water balance method (Thornthwaite & Mather, 1955), point towards a considerable reduction in pre-monsoon runoff and water availability. Increasing rainfall seasonality makes the dry season longer and reduces groundwater recharge. High seasonality and intensity of rainfall in the Western Ghats mountain region cause erosion of already degraded soil. Sedimentation in rivers reduces reservoir capacity and river flow. Some of the major river disputes are in this region. Extremes in climate always aggravate the disputes. The Cauvery River dispute, one of the oldest and most serious disputes in the world, always becomes hot when the monsoons fail. Retreat of the Himalayan glaciers, increasing demands associated with fast rising population, industrial development, rapid urbanisation, birth of new states and administrative divisions, and the ongoing river linking project are likely to worsen the existing disputes and ignite new issues in the near future. Constitutional limitations, vested political interests and weak and corrupt administration are hurdles in resolving disputes and in controlling mis-use of water and degradation of water resources. Under the constitution water is a state matter, and central government has limited power to interfere. However, with the consent of Parliament, the Centre can interfere in the case of disputes; Parliament has not made much use of this constitutional provision, mainly due to political reasons. Water-rich states always oppose amendments. Opposition parties in states try to make political gains by creating an impression that the ruling party is incapable of protecting state's interests. National water policy and climate policy do not provide an amicable solution to disputes. Though theft, overuse and misuse of surface water and groundwater by the growing industrial sector is a serious matter, all rules and regulations become a farce because of their political and financial influence.

All disputes over allocation and environmental issues can be solved through effective negotiations, unless there are attempts to keep political, regional and vested interests. To solve the issues and to adapt with changing climate and environment, states should approach the problem with a positive attitude. There are options like joint investments in projects for agriculture or power generation so that changes in climate can be beneficially utilised. Improved management practices and conservation techniques are necessary to overcome the water crisis. Wise and timely political decisions, strict implementation of the environmental protection act, community management of water, self-regulation and recharge of groundwater, etc., can solve most of the problems. India also needs a frequently-updated national water policy and a national water commission with judicial power, free from politics and representing different geographical regions. Existing policies and strategies are inefficient and their implementation often fails due to various social, economic and environmental factors. Water is to be considered as a national asset and the constitution needs to be amended to bring it under the direct control of the central administration. Resolving the conflict can result in better management of resources, economic and social development and better cooperation among different class of people. Coming to the international issues, a strong regional cooperation like the European Union can lead to overall development of the region. Governing water wisely is a key to peace.

## REFERENCES

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