POLICYBRIEF

Transforming Water Conflicts into Collaborative Watershed Management Solutions — Lessons from the Greater Himalayan Region

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Highlights

Water has been a cause of conflict in many Asian countries since ancient times, primarily due to the tensions between increasing demand and decreasing availability and, lately, due to poor planning and uneven institutional arrangements that have led to social and economic fractures.

Recommendations:

- Create and maintain an information network engaging line ministries, departments, and local stakeholders responsible for the management of aquatic ecosystems and their services to people and communities.
- Promote a financial regulatory mechanism for intra-watershed conflict resolution to emphasise mutual benefits for both upstream and downstream communities.
- Develop long-term technical strategies for water resource management that bridge traditional and nature-based solutions to ensure a reliable water supply and eliminate water-induced risk.
- Integrate local indigenous knowledge to achieve inclusive water governance and resolve conflicts.

Political Fragmentation & Water Disputes: Challenges for Watershed Management

Sustainable management of water resources is a central element of the three global policy agendas adopted in 2015: the Paris Agreement on Climate Change, the Sendai Framework for Disaster Risk Reduction, and the 2030 Agenda for Sustainable Development. These global agendas recognise the need for an integrated approach to water resource management, applying best practices for protecting water under climate change to ensure sustainable and inclusive service (Harmancioglu 2017).

The purpose of integrated watershed management (IWM) is to maintain watershed functions, boost community engagement and ownership through a participatory approach, and implement tailored arrangements for water governance (Colloff et al. 2019). It also takes into account internal (i.e., upstream and downstream) and external (i.e., interaction with natural and non-natural factors) watershed boundaries (Wang et al. 2016). Water regulations and source protection are integral to IWM plans but are often faced with several bordering jurisdictions and require interventions in relatively small geographic areas. In those areas, numerous actors influence different dimensions of the water system, including land and water management.

Upstream–downstream challenges may, however, occur regardless of political boundaries if there are dispersed water users in the same watershed (Yoon et al. 2015). Institutional complexities — often characterised by high internal fragmentation and overlapping responsibilities — can impede efforts to effectively manage natural resources, reducing the efficiency of service provision and, in the long term, may result in social and economic fractures.

Because of the natural gradient of water flow, it is assumed that full responsibility for water management lies with the upstream communities, while benefits are enjoyed downstream. Addressing the urban water crisis requires a balance in use and protection of the resource between upstream and downstream users within and outside the urban watershed (Singh et al. 2019). This requires communities living upstream of urban centres to bear the main responsibility to conserve the natural ecosystem, but financial assistance is needed to support such efforts.

Studies on governance of water resources have focused on international river basins and how to achieve efficient, equitable, and reasonable sharing in terms of economic benefits, water-related interests, and political power between upstream and downstream countries (Lundqvist & Falkenmark 2000). Less is known about social conflicts arising at the watershed level within national borders. In this regard, the role of local stakeholders is essential in identifying problems and pursuing conflict resolution in political, social, and economic terms.

This policy brief provides recommendations for addressing such conflicts through collaborative watershed management, highlighting the need for a multi-stakeholder approach in which the role of local experts is prioritised. It draws upon the case of Kaski District in Nepal, which illustrates the importance of synergy between leaders to understand problems, communicate needs, and identify potential solutions.

Water Management & Governance as a Public Concern in the Greater Himalayan Region

The fragile environment of the Greater Himalayan region has been placed under increasing pressure in recent decades with regard to water insecurity attributed to a high level of pollution, weak institutional arrangements, and insufficient investments in water management and infrastructure, causing impediments to affordable, reliable, and accessible water.

Within the region, Nepal faces considerable challenges in ensuring water security for multiple and interconnected social, economic, and political reasons. In the case of Kaski District, Nepal, disputes over equally legitimate water-related interests are arising because of different views, as well as expectations and responsibilities of users and stakeholders. This is threatening the watershed management and the sustainability of water resources. As one example, there is an emerging geographical dispute over a dam built mid-stream to ensure reliable water supply to downstream communities. There are rising concerns that, due to increased debris deposits threatening upstream communities, the risk of flooding is also increasing.

Public opinion sees the cause as weak institutional and regulatory coordination among primary agencies, i.e., line ministries, departments, and the local administrative units, as well as poor planning and communication among upstream and downstream local stakeholders. This discontent can be ascribed to the current federal governance system in Nepal, in which decentralisation and devolution of power is critical for implementation and management (Regmi and Shrestha 2018).

Policy Recommendations

These recommendations are intended to reconcile upstream with downstream interests and to increase social benefits from water resources. For sustainable development across various economic sectors and communities, it is important to consider the unique characteristics of the environment including socio-political dynamics and relations, the cultural representation and identity of communities, and the in-stream water and ecological functions and services. The following recommendations are of equal importance.

1. Create Information Networks for Planning & Managing Water Resources

Generally, the division of tasks and responsibilities in governance arrangements are the main obstacle in managing a river basin, especially when water and land are regulated separately. To facilitate integrated watershed management and identify pathways for involving communities and stakeholders, it is necessary to shift away from the traditional administrative approach by creating information networks.

This approach is an opportunity for horizontal engagement of the parties involved, rather than the conventional vertical structure — i.e., top-down or bottom-up approaches.

The concept of solidarity between various stakeholders, including upstream and downstream water users, needs to be defined (Lundqvist & Falkenmark 2000) as the main collaborative aim of the network. It embeds the concepts of responsibility and transparency, wherein rights and needs are explicitly defined and adjusted according to institutional and legal frameworks. Moreover, the general public must be engaged in discussions in order to develop a sense of ownership of the network and support its sustainability.

2. Adopt Financial Regulatory Approaches

Taking into consideration the economic implications of integrated watershed resource management — in terms of cost-benefit analyses — financial regulatory approaches should be explored as a solution for intra-watershed conflict. The suggested method relies on the application of game theory to reveal mutual benefits for both the upstream and downstream parties through cooperative strategies (Jack 2009). This involves identifying the relative costs and benefits for each party in order to assess the power balance within the political-environmental conflict.

Although cooperation without mutual benefit is difficult to achieve, financial incentives such as payment for ecosystem services (PES; USAID 2007) can be used for internalising the positive externalities provided by upstream land managers to downstream water users in the watershed context. In many regions, PES has improved the sustainable development of upstream rural regions by incentivising proactive strategies outside the PES scheme itself.

As the implementation of such schemes can be challenging with high operating costs, it is important to ensure long-lasting cooperation, collaboration, and ownership, as evidenced by some watershed management projects in Nepal (IUCN 2013). PES schemes are often compromised by self-organised private deals with limited geographical coverage and reduced involvement of local stakeholders. As a consequence, these schemes should be institutionalised at the local level, and need to be more inclusive, transparent, and include results-based monitoring to avoid failure in their implementation.

3. Implement Technical Solutions: Traditional & Nature-based Infrastructure

Long-term strategies are needed to ensure sustainable and reliable water, and to secure well-being. Traditional solutions include building structures aimed at diverting or storing water, which are essential to ensure reliable water supply from upstream to downstream communities.

Nature-based approaches can also be effective — as in the case of Nepal, where they are included in policies on watershed management (IUCN 2018). In this context, nature-based infrastructure has been implemented with great success but there is a lack of market integration. A promising option for addressing this is sharing the benefits of PES to support operationalisation and involvement of the private sector.

Simulating the water environment by employing water modelling may be an efficient complementary tool to analyse the nonlinear nature of water in order to better target engineering and managerial solutions upstream and to respond to water quantity and quality concerns downstream. Although such models have limited utility for understanding the complexity of socio-environmental and ecological systems, they are critical for accelerating political action as they illustrate immediate causal relationships and consequences in the long run.

4. Capture & Integrate Local Knowledge

Low engagement of local communities in planning and implementation processes often occurs due to complex solutions that are poorly communicated and coordinated, leading to unsuccessful results and heightening social conflicts. Uptake of solutions is greater when they are co-developed with local parties, when indigenous knowledge is assimilated, and when the project is self-sustaining with low maintenance costs.

The inclusion of local inputs and knowledge is pivotal for resolving community fractures and increases the social benefits of water resources. In addition, it can promote the survival of cultural values and heritage, local traditions, and beliefs developed over hundreds of years living close to water (Ndimele 2019).

Environmental uncertainty is one of the most significant challenges for watershed management. Policymakers should act by the precautionary principle — a political and ethical approach to protect the environment from uncertain risks, consequences, or interactions that may cause harm to people and their well-being.

Based on hands-on experiences of water systems and understanding of risks and uncertainties, indigenous knowledge can help policymakers identify new issues and challenges and find local and feasible solutions that reduce water degradation impacts for future generations.

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Note

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