

## Research Article

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# Water-Energy Nexus in Shared River Basins: How Hydropower Shapes Cooperation and Coordination

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**Abstract:** The construction of hydropower plants on transboundary rivers is seldom done with equal benefits to all riparians, and therefore presents coordination and cooperation challenges. Without a supra-national authority in charge of transboundary river basins, coordination between sectors (water, energy and environment) and cooperation between countries largely depends on willingness of the individual nation states and the power relations between these countries. This paper discusses how the interests and relative power positions of actors in transboundary water management shape the outcomes, and what roles are played by River Basin Organisations and foreign investors (especially in hydropower development). These issues are illustrated with examples from the Mekong river in Southeast Asia (Laos, Thailand, Cambodia and Vietnam), the Euphrates-Tigris (Turkey, Syria, Iraq, Iran and Kuwait) and the Çoruh in Turkey and Georgia.

**Keywords:** Nexus, Energy, Hydropower, River, Basin

## Introduction

On shared river basins, hydropower projects pose challenges for both cooperation between riparian states and coordination between sectors (water, energy and environment). Each country in shared river basins tries to valorise their water resource potential not only for hydropower providing energy for domestic consumption and export, but also to expand irrigated agriculture. However, hydropower development influences rivers,

ecosystems and other riparians: by altering river flows, water availability and quality, water uses (agriculture, industry, household) and related services (fisheries, navigation). Through these changes, hydropower can also have an effect on the water use and related socioeconomic development of riparian communities and countries and on riverine ecosystems or flora and fauna (biodiversity).

To provide insight into the power relations that influence cooperation and coordination of hydropower in transboundary basins, this paper discusses examples of the Mekong river basin (the second most bio-diverse river in the world after the Amazon), the Euphrates-Tigris, and the Çoruh, as well as the mandates of River Basin Organisations (RBOs) in transboundary basins.

## Summary of key question

Normative beliefs and elite interests determine what sectors are given preference when deciding on water resources infrastructure. Structures determine the position of actors, allowing them to pursue their interest more or less successfully. For instance, when looking at the hydropower development in the Lower Mekong basin (Xayaboury dam, first of nine dams planned to build in Laos on the Mekong), it becomes clear that although Laos and its downstream riparians Vietnam and Cambodia all have a pre-dominant interest in hydropower, the impact on ecosystems and related food systems will mainly be felt in Vietnam and Cambodia. Laos has chosen bilateral negotiations, leaving the Mekong River Commission (MRC) out of the discussions. Both the Lao government and the downstream countries allied with external parties and involved foreign consultants to create power and legitimacy for their perspectives. Although the MRC has continued to play roles in supporting the assessment of downstream impacts, in reconciling different interests and improve cooperation. This case shows that the involvement of regional private actors (hydropower constructor companies) can change power relations of countries and the norms applied to dam design and construction.

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In Turkey, there are different experiences with cooperation regarding hydropower in which politics on local, regional and global level play a key role. Since the 1970s, Turkey, Syria and Iraq all focused on hydropower development, particularly as a reaction to the fluctuation of the world oil prices. There are now 32 existing major dams on the Euphrates and Tigris. Eight dams are reportedly under construction and at least 13 more are planned. (A. Kibaroglu, presented at the conference on ‘Sustainability in the Water-Energy-Food nexus, Bonn, 19-20 May 2014). Social and environmental aspects of dams receive little attention and major donors have been ineffective in implementing improved norms for dam design and construction. While there have been disputes and disagreements regarding impacts and benefits of dams, cooperation among the riparians is difficult due to mistrust. However, “benefit-sharing” as a concept has helped to stimulate cooperation. For instance, the “Joint Friendship Dam” on the Asi/Orontes was designed to benefit both Turkey and Syria for electricity generation, flood protection, irrigation.

In the case of a dam on the Çoruh river with Turkey as upstream and Georgia as downstream riparian, regional cooperation and integration on electricity eclipsed social and environmental concerns. The involvement of international companies has contributed to carrying out Environmental Impact Assessments, but without sufficient compensation measures. While good cooperation was established under umbrella of regional electricity trading agreement, the interest of both countries in electricity has left the issue of coastal erosion as a result of sediment trapping by the dam insufficiently dealt with.

Over 100 River Basin Organizations (RBOs) have been established in transboundary basins worldwide to increase cooperation between riparians. Tasks and mandates of these RBOs vary, and RBOs are often caught between conflicting interests pushed by the different riparians. Many RBOs, in spite of being asked to manage challenging situations in transboundary river basins, lack the appropriate institutional design for doing so. In terms of benefit-sharing, very few RBOs provide effective mechanisms; especially at the transboundary level. For example, non-monetary benefit-sharing like hydropower for flood control is extremely rare and often unilateral development takes place, especially when combined with power imbalances. Also, more than 25% of all the RBOs lack clear dispute-resolution mechanisms. RBOs should be further strengthened in order to better carry out their role to enhance the cooperation between riparian nations.

## Key messages and recommendations

Countries use their relative power positions to forward their own interests in the construction of hydropower dams. Cooperation can take place if countries share their interest in hydropower and reach agreements on electricity sales, flood prevention and irrigation. However, negative environmental and social consequences run the risk of being neglected if the focus is on electricity production only. The cooperation between riparian states and coordination between sectors are still incapable of reconciling all conflicting interests.

Even though many RBO have been established around the world in transboundary river basins, their capacity in balancing trade-off and managing conflicting interests is limited. However, they are often limited by their mandate which may not include activities related to hydropower, benefit-sharing or dispute resolution mechanisms. It is important to note that external parties such as donors, NGOs, and investors influence the negotiations by introducing alternative norms and solutions and by altering the relative power position of riparian states. To understand the forces that shape coordination and cooperation around hydropower development in transboundary basins, the role of all of these actors deserve attention.

To maximize or optimize the benefit from water-energy nexus in shared river should:

- focus on good cooperation with riparian states and coordination between sectors;
- have a clearly development river basin plan and transparency the implementation with the participation from riparian states;
- formulate on time a suitable and rigorous agreement by validating from riparian countries;
- care about the benefit and cost from negative impacts of riparian countries by opening the negotiation and the intervention from the external actors such as foreign diplomats, international bilateral and multilateral donors, NGOs, arbitrators, etc.;
- strengthen the existing RBOs such as to play more the role in shared river basin development such as information sharing, joint knowledge development. etc.

## Reference to session

This report is based on the Special Session “The Water-Energy Nexus in Shared River Basins - How Hydro-

Power Shapes Cooperation and Coordination” at the International Conference Sustainability in the Water-Energy-Food Nexus. Synergies and Tradeoffs: Governance and Tools at various Scales held in Bonn, Germany 19th and 20 of May 2014

Session chair: Waltina Scheumann, German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE)

Speakers:

1. “The power of norms in hydropower. Building the Xayaboury Dam on the Lower Mekong” presented by: Oliver Hensengerth, University of Northumbria, Newcastle, UK

2. “Turkish Foreign Policy and Water: Reflections on the Euphrates-Tigris Case” presented by Aysegül Kibaroglu, Okan University Istanbul

3. “Empowered to govern hydropower? The role of River Basin Organizations in ensuring sustainable hydropower development at the basin level” presented by Susanne Schmeier ,Gesellschaft für Internationale Zusammenarbeit, Frankfurt, Germany.

4. “Hydropower development on the Çoruh River shared between Turkey and Georgia” presented by Waltina Scheumann, German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE),