



The Grand Ethiopian Renaissance Dam and the Blue Nile: Implications for transboundary water governance

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This article provides an overview of Ethiopia's plans to build a major dam on the Blue Nile. The Ethiopian government sees the dam as a major driver for national development, but downstream countries are concerned about possible negative impacts. A potential transboundary cooperation framework exists in the Nile Basin, but Egypt and Sudan have expressed a lack of willingness to fully engage and relinquish earlier veto powers over upstream developments.

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In 2011, the Ethiopian Government announced plans to construct a hydroelectric

dam on the Blue Nile, 45km east of its border with Sudan, which has been named the Grand Ethiopian Renaissance Dam. This ambitious project is planned to generate over 5,000MW of electricity. It will create a lake with a volume of over 60 billion cubic metres, and its costs have been estimated at nearly \$5bn. The project is part of a wider scheme by the Ethiopian Government to expand its hydroelectric power capacity. However, the scheme faces many technical and financial problems, as well as opposition from its downstream neighbours.¹

The motivation for Ethiopia is clear. It has been described as the "Water-Tower" of Africa, with rainfall from the Ethiopian Highlands feeding the Blue Nile, and the wider Nile downstream. It has abundant water resources and significant hydropower potential.

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However, as of 2001, only 3% of its hydropower potential had been developed. It has been reported that 83% of Ethiopians lack access to electricity, with the overwhelming majority of the population relying on biomass fuel for cooking and heating, which creates other health and environmental problems.²

The Ethiopian Government has argued that as well as supplying Ethiopians with electricity, the dam would generate surplus energy for export to neighbouring countries, benefitting the wider region. Although economic studies have shown that the expansion of hydropower capacity would be beneficial, there are numerous sources of uncertainty that could change these conclusions.² Water management on the Nile is complicated by its high variability, and climate change could compound these difficulties. There is significant uncertainty over its impact on flows in the Nile, although a recent study has shown observed and projected decreases in runoff in the Blue Nile as a result of reduced rainfall.^{3,4} Ethiopia's heavy reliance on hydropower may be a risky strategy.

Ethiopia also lacks water storage facilities, and as a result has been described as “hostage to its hydrology”.⁵ In a study by the World Bank, the cost of hydrological variability has been estimated at over a third of its annual GDP, yet it has only 1% of the reservoir storage

capacity of North America to manage this variability.⁶ The World Bank has argued that increased investment in multipurpose water infrastructure would make Ethiopia more “water-resilient”, and promote long-term economic growth. Such multipurpose infrastructure could include hydropower production facilities, irrigation systems, and storage capacities that could mitigate the impacts of both droughts and floods. However, the Grand Ethiopian Renaissance Dam is primarily to be used for electricity generation, and therefore, may not present an optimal investment choice. To date, the World Bank and other international donors have refused to support the project, and the Ethiopian Government is attempting to finance the project through a national bond.⁷

In addition to these difficulties, the dam also faces opposition from neighbouring states. The Nile River is the transboundary river *par excellence* (Figure 2). At 6700km long, its basin of over 3 million km² consists of 11 countries: Burundi, Democratic Republic of Congo, Egypt, Eritrea, Ethiopia, Kenya, Rwanda, South Sudan, Sudan, Tanzania, and Uganda. As the populations and economies of these countries are projected to grow, pressures on water resources are likely to increase. The main source of tension involves Egypt, Sudan and Ethiopia, with Egypt and

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Sudan being highly dependent on flows that originate in Ethiopia. Although figures vary, it has been estimated that the Ethiopian Highlands provide 86% of the Nile flow, with 70% of that flow coming from the Blue Nile.⁸

The concern for Egypt and Sudan is that their available water resources will be reduced by the construction of the dam. However, there is limited understanding of how the dam would affect downstream flows. In September 2011, the creation of a trilateral team of experts from Egypt, Ethiopia and Sudan was announced to assess the impact of the dam on the Nile flow.

These disputes over the management of the Nile have a history that precedes the Grand Ethiopian Renaissance Dam, and two important agreements stand out in this history. In 1929, Egypt and the United Kingdom, on behalf of Sudan, agreed to allocate minimum flows to the two countries. This agreement declared their natural and historic rights to water from the Nile, and also stated that upstream nations had to consult them over construction projects in upstream countries. In 1959, following tension over the construction of the High Aswan Dam in Egypt, Egypt and Sudan were allocated 55.5 km³ per year and 18.5km³ per year of water respectively. These agreements excluded upstream countries, who have increasingly

argued for their rights to use water from the River Nile.⁸

In recent years, there had been a promising move towards basin-wide co-operation, particularly with the launch of the Nile Basin Initiative in February 1999. Its vision was to “achieve sustainable socio-economic development through the equitable utilization of, and benefit from, the common Nile basin water resources.”⁹ It was only intended to be a transitional agreement while the member nations could form a more formal agreement. However, in 2010, the Cooperative Framework Agreement was signed only by the upstream countries, with strong opposition from Egypt and Sudan, who wish to retain veto powers over upstream developments.¹⁰ This dispiriting lack of basin-wide agreement reflects changes in the balance of geopolitical powers in the region. The discrepancy between the socio-economic development of Egypt and its upstream neighbours is decreasing, and Egypt’s historical hegemonic position is being challenged by emerging regional powers such as Ethiopia.

It is clear that water resource management in the Nile Basin will become increasingly complex as a result of climate and socio-economic changes. The need for countries in the Nile Basin to use water resource

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sustainably and to expand their water infrastructure is understandable. However, basin-wide agreements present the most promising way to manage water resources. Cooperation over water is essential if countries are to develop and reduce their

vulnerability to climate change. It is essential that this cooperation includes all parties. The unilateral decision making, represented by the proposed Grand Ethiopian Renaissance Dam cannot provide a fruitful route to future water security for all.

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