

Springer Geography

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The Grand Ethiopian Renaissance Dam on the Blue Nile

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Preface

Global population growth is putting stress on land, water resources and the environment. Deforestation, soil loss, desertification and climate change compound the challenges in the Nile basin. Population growth and increase in food, water and energy demand and associated internal social pressures will inevitably lead to water conflicts within countries and between countries. Transboundary or international basins and rivers have potential for conflict between countries which share the resources. Transboundary water rights vary from basin to basin and water right is a function of power order. Indus River, India and Pakistan; Colorado River, United States and Mexico; Mekong River, China, Myanmar, Thailand, Laos, Cambodia and Vietnam; Parana River, Brazil, Paraguay and Argentina; Euphrates River, Turkey, Syria and Iraq; Ganges River, Nepal and India; and other transboundary river basins water rights are unique that developed through time. It should also be noticed that land and water conflicts within entities in a country are equally important. There are 261 transboundary basins covering 45% of the global land surface. About 146 countries share transboundary basins. The Nile basin lies within eleven countries with total population of over 450 million that will reach 700 million in less than 25 years. The Nile basin growing land and water demand is not limited to the population in the river basin. In the absence of water resources use and basin management agreement in the Nile basin, unilateral water control and use projects will continue to advance to mitigate food and power shortage and relieve social pressure in each riparian country. The water control projects include out of basin water transfer and may include water trading. Each country cites legal basis or treaties that support its water claims. The Grand Ethiopian Renaissance Dam (GERD) is a reflection of current stressors in the basin with far-reaching conflict potential within Ethiopia and with riparian countries. The current political system and constitution of Ethiopia are based on regional ethnic federal structure with constitutional right to secede. This arrangement creates internal water right issues as currently observed inter-ethnic conflicts on land and borders. The GERD has potential for ethnic conflict from inequitable sharing of benefits from trans-ethnic waters, the construction economy of the dam, its operation and associated economic outputs. vii Egypt's concern on potential flow reduction is demonstrated throughout the dam-related dealings between Ethiopia, Egypt and Sudan. Sudan appears indifferent or supporting the dam as it will benefit in many ways. Will there be enough water for all? The three countries have agreed for two French companies to undertake hydraulic and environmental studies to forecast the impact of the dam on downstream. The result of the study has the potential to ignite the conflict between Ethiopia and Egypt. One of Egypt's concerns is the number of years of initial filling of the dam as it will be a time of historical flow reduction unless the filling years are wet years. The longer the filling years, the lesser the flow reduction will be but the economic value of the dam will diminish. The dam is already overdue, and longer filling period could make it economic loss with all factors considered. Drought condition during filling will exasperate disagreements. Optimal power generation of the dam is questionable with unresolved upstream and downstream water right issues. In this book, the hydrology of the Blue Nile basin is presented. The Nile River transboundary water rights; land and water rights in the Blue Nile basin, in Ethiopia; the GERD site and Ethiopian internal condition; GERD design analysis; GERD initial dam filling; dam operations for hydropower and upstream and downstream water rights; dialogue and diplomacy through GERD construction; finance sources of GERD; and aquatic weed potential on GERD reservoir are covered. This book is beneficial for students, academics, sociologists, engineers, policy-makers, water resources and environment professionals, the people of the Nile basin and everyone with interest on global land and water stress, population growth and water conflict.

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