

## The Nile and the Grand Ethiopian Renaissance Dam: Is There a Meeting Point between Nationalism and Hydrosolidarity?

Dalia Abdelhady<sup>1</sup>, Karin Aggestam<sup>2</sup>, Dan-Erik Andersson<sup>1</sup>, Olof Beckman<sup>3</sup>, \*Ronny Berndtsson<sup>1,4</sup>, Karin Broberg Palmgren<sup>5</sup>, Kaveh Madani<sup>6</sup>, Umut Ozkirimli<sup>1</sup>, Kenneth M. Persson<sup>3</sup>, and Petter Pilesjö<sup>7</sup>

<sup>1</sup>Centre for Middle Eastern Studies, Lund University, Lund, Sweden, <sup>2</sup>Peace & Conflict Studies, Lund University, Lund, Sweden, <sup>3</sup>Human Rights Studies, Lund University, Lund, Sweden, <sup>4</sup>Department of Water Resources Engineering, Lund University Lund, Sweden, <sup>5</sup>Occupational and Environmental Medicine, Lund University, Lund, Sweden, <sup>6</sup>Centre for Environmental Policy, Imperial College, London, UK, <sup>7</sup>GIS Centre, Lund University, Lund, Sweden

\*Corresponding Author

**Abstract:** The soon-to-be completed Grand Ethiopian Renaissance Dam (GERD), which will be the largest hydroelectric power plant and among the largest reservoirs in Africa, has highlighted the need for expanding traditional integrated water resources management to better include the cultural, social, and political complexities of large water infrastructure in development projects. The GERD will store a maximum of 74 billion cubic meters of water corresponding to approximately the average annual outflow of the Nile from the Aswan high dam. Undoubtedly, the GERD will be vital for energy production and a key factor for food production, economic development, and poverty reduction in Ethiopia and the Nile Basin. However, the GERD is also a political statement that in one stroke has re-written the hydropolitical map of the Nile Basin. The GERD has become a symbol of Ethiopian nationalism or “renaissance” (hidase in Amharic). A contrasting concept to nationalism is hydrosolidarity. This concept has been put forward to better stress equitable use of water in international water management challenges that would lead to sustainable socioeconomic development. We use the opposing notions of nationalism and hydrosolidarity at three different scales, everyday politics, state policies, and interstate and global politics to analyse some aspects of the new hydropolitical map of the Nile Basin. We argue that nationalism and national interests are not necessarily negative standpoints but that there may instead be a meeting point where regional and national interests join with hydrosolidarity principles. We believe that this meeting point can maximize not only the common good, but also the good from a national interest point of view. For this, it is important not increase collaboration instead of being locked in to the historical narrative of nationalistic culture and historical discourse. This would benefit and improve future sustainability.

**Keywords:** Nile, Egypt, hidase, Ethiopian nationalism, conflict, transboundary, water

The Nile River plays a crucial role in the economics, politics, and cultural life of its eleven riparian countries and more than 370 million inhabitants. The population of these countries is expected to double within the next three to four decades. This means that an astonishing three-quarter of a billion people will be dependent on the Nile for their livelihood. In 2025, Egypt’s population is expected to reach about 97 million and Ethiopia’s, 127 million. Both countries will then

experience physical water scarcity (Egypt by about 630 m<sup>3</sup> and Ethiopia by about 840 m<sup>3</sup> per year and capita). Ethiopia and the upper Blue Nile generate about 85% of the total Nile River flow. The 1959 agreement between Egypt and Sudan, however, has allocated 75% of the total flow to Egypt and 25% of the flow to Sudan. Several regional developments in 2011 and 2012 have added to the complexity of the situation. Popular uprisings in a number of Arab countries, especially Egypt, brought hope

for improvement in the Middle East and North Africa (MENA) region regarding democracy and human rights standards. In 2011, Sudan was divided into two countries. At the same time, Ethiopia launched the construction of the Grand Ethiopian Renaissance Dam (GERD). Approximately 30% of the funding for the dam was secured from China (The Economist 2011), and the remainder is funded by the Government of Ethiopia through the selling of bonds and donations, both within Ethiopia and internationally (Water Technology.net 2014). Earlier, Egypt threatened war if Ethiopia tried to block the Nile flow and the response from Ethiopia stated that no country could prevent its use of the Nile waters (Time 2013). However, Ethiopia's economic development requires better use of the hydropower and irrigation potential of the Nile (the Harmon doctrine). Egypt, whose only water source is the Nile, in turn declared that it would not give up its share of the river's waters. After the sudden death of the Ethiopian Prime Minister Meles Zenawi in 2012, however, a joint Egyptian, Sudanese, and Ethiopian committee was formed to evaluate the downstream effects of the dam. At the same time, neither Egypt, nor Ethiopia has chosen to sign and ratify the UN Convention on the Law of the Non-Navigational Uses of International Watercourses, which entered into force on 17 August 2014.

The objective of this paper is to use the opposing notions of nationalism and hydrosolidarity at three different scales namely, everyday politics, state policies, and interstate and global politics to analyse some aspects of the new hydropolitical map after creation of the GERD in the Nile Basin. We briefly first introduce the concepts of nationalism and hydrosolidarity as two mechanisms at play in the Nile Basin. Then, we discuss common drawbacks of the traditional integrated water resources management principles and difficulties involved in applying such principles in, for example, the Nile Basin, followed by a discussion on the role of scales in nationalism and hydrosolidarity in the Nile Basin. We close with summarizing comments.

## Nationalism vs. Hydrosolidarity

The construction of GERD is part of the larger Millennium Project initiated by the current Ethiopian People's Revolutionary Democratic

(EPRDF) regime. The EPRDF took power in 1991 with a view to creating a "national consensus", i.e., "to enable the whole society to have a shared vision with respect to national issues on development and building a democratic system" (EFDR 2005). As such, the project represents a shift from a "politics of difference", associated with ethnic federalism, to emphasizing "unity in diversity", and is designed to bring together the country's more than 80 ethno-linguistic groups. Hence, GERD has become a symbol of Ethiopian nationalism or "renaissance" (*hidase*; a newly coined word in Amharic, linking the Ethiopian initiative with wider Neo Pan-Africanist ideas of African revival; Orłowska 2013; Arsano 2007; see also Clapham 1995 and Belachev 2009). After its completion, GERD will be the largest hydroelectric power plant and one of the largest reservoirs in Africa. Water is vital for energy production and a delimiting factor for food production, economic development, and poverty reduction in Ethiopia and the Nile basin. The GERD will generate 6000 MW per year and store a maximum of 74 billion cubic meters of water (mean annual inflow to the Aswan dam is ~84 billion cubic meters of water). At the same time downstream countries have raised concern regarding the changed streamflow and effects on environment and ecology that the dam will induce. In spite of its potentially huge impact on downstream conditions, studies on environmental and ecological effects of the dam have been scant. Egypt, Ethiopia, and Sudan agreed to set up a Tripartite National Committee (TNC) of four members from each country to follow up and conduct the studies recommended by the International Panel of Experts (IPoE; Ethiopian Ministry of Foreign Affairs 2014). The IPoE recommended two studies to be conducted by the TNC; a water resources/hydropower system simulation model and a transboundary environmental and socioeconomic impact assessment (Horn Affairs 2014). The Tripartite National Council recently held its second meeting in Cairo (October 2014). It has been stated that at present about 40% of GERD is completed (Ahram 2014). The first stage of the dam will be operational from June 2015 and will produce 700 megawatts of electricity.

As opposed to "*hidase*" or nationalism that can be seen as a top-down national-scale ideology, the notion of hydrosolidarity has been launched as a

way to guarantee water access from an equitable standpoint (Lundqvist 1999; Gerlak et al. 2009; 2011). Hydrosolidarity builds on human ethics and person to person empathy which is a bottom-up approach and implies that water use will not jeopardize the use of water by downstream riparians (Falkenmark 2005; Falkenmark et al. 2009). Moreover, hydrosolidarity aims to ensure that the outcomes of new water infrastructure as well as water management are “socially and environmentally sustainable, promote economic development and ensure community cohesion within a decision-making process that makes the necessary local compromises transparent” (Bjornlund and McKay 2003). In essence, the notion of hydrosolidarity correlates with a good faith interpretation of the principle of equitable and reasonable utilization and participation as expressed in article 5 of the UN Convention on the Law of the Non-Navigational Uses of International Watercourses:

“Watercourse States shall in their respective territories utilize an international watercourse in an equitable and reasonable manner. In particular, an international watercourse shall be used and developed by watercourse States with a view to attaining optimal and sustainable utilization thereof and benefits therefrom, taking into account the interests of the watercourse States concerned, consistent with adequate protection of the watercourse.”

Solidarity in general is significant in producing cooperation between different groupings in order to meet the needs of their members (e.g., Grey and Sadoff 2007; Sadoff and Grey 2008). Sustainability needs to be taken into consideration as it protects future generations and guards intergenerational fairness.

Both Ethiopian nationalism and the hydrosolidarity concept emphasize the need for cooperation at present while also upholding the significance of sustainability, but from different viewpoints, as mentioned above. As such, they offer effective starting points for investigating present-day conditions of environmental concern and also future-oriented policies and actions. It should be noted that we do not regard nationalism as a negative standpoint in this paper. The “*hidase*” is a uniting element that works partly as a top-down national-scale process, but partly also as a bottom-

up uniting process. This is exemplified by the GERD funding in which the Ethiopian Government has issued bonds targeted at Ethiopians in the country and abroad (The Economist 2011). Without a broad, bottom-up unifying process this funding would not have been possible. Thus, nationalism and the national interests both in Ethiopia and Egypt should be seen as a starting point for negotiating the ways both countries can reach their economic goals by maximizing the total benefits of the Nile River water. For this to occur it is not a matter of either nationalism or hydrosolidarity. Hydrosolidarity should not necessarily be seen as a benefit that is given away due to solidarity principles. Instead, hydrosolidarity, with its emphasis on recognition of water use as a multinational issue, should be viewed as a way to expand the benefits available to each riparian nation, carrying water management beyond simple advocacy of national interests alone. Thus, national interests and hydrosolidarity have an important meeting point. In the case of GERD this would be to highlight benefits to Egypt that would not have happened without the dam construction. A practical example of this is the decrease in evaporation occurring in the Ethiopian highlands. By collaboration and by minimizing evaporative losses for the entire Nile Basin storage system, the completed GERD could actually mean larger long-term inflow to the Aswan Dam as compared to the situation before the GERD (e.g., Mulat and Moges 2014). Thus, the agreement of Egypt for construction of the GERD and the cooperation of both countries in handling the short-term risks and negative effects during the filling of the dam could lead to long-term and sustainable benefits to both Egypt and Ethiopia that otherwise would not have been possible. On the other hand, for this to occur greater collaboration between the countries and increased tolerance for short-term national costs and inconveniences is necessary in order to reach these sustainable long-term benefits.

## **Integrated Water Resources Management (IWRM)**

The case of GERD highlights a number of questions that have great importance beyond the dam itself, such as water sharing in transboundary rivers, collective claim making processes, and

global economic development. Large hydraulic projects in transboundary river basins suffering from water scarcity naturally lead to contest surrounding water management. For example, in the Nile Basin there is a historical, nationalistic rivalry between Egypt and Ethiopia on the one hand, and on the other, uniting historical and cultural elements such as the relationships between the Coptic Church and the Orthodox Ethiopian Church (e.g., Rubenson 2009). The overarching question is how ideas about water management and economic development are generated, transformed, and reconfigured in the face of economic, social, and political realities in the Nile countries. Integrated water resources management (IWRM) has been brought forward during the recent decades to solve the intricacies of all water resources related planning and management. However, it is more and more acknowledged that the monolithic, complicated structure of IWRM does not work in practice for complex international river basins with a multitude of hierarchies (e.g., Biswas 2010). The main weakness of IWRM is its tendency to tackle water policy and related conflicts from a commodity perspective, to a great extent overlooking the human and social dimensions of the process. Water disputes are not just over commodities and property rights, but also closely linked to aspects of justice and fairness (Anand 2007). Furthermore, dam-based development is a process with important gender based social consequences regarding relations, identities, and distribution of resources (e.g., Mehta 2011). Lately, the working model of transboundary, bi- and multilateral governmental cooperation has been discussed as a potential approach for situations involving the multitude of authority structures present in large and complex water basins (e.g., Cascao et al. 2012; Earle et al. 2010). There is, however, still no comprehensive working methodology that can systematically attempt to bridge ethnical and religious borders while also considering differing cultural and historical values. Thus, there is an urgent need to explore different ways in which multinational social realities, expressed through economic, cultural, and political realms, may be combined with integrated water resources management principles. The interconnectedness of economic development has to be considered alongside social, cultural, and political dynamics that shape sustainability and

ultimately nationalism and/or hydrosolidarity in the Nile Basin. Historical, social, political, and institutional processes are often at play in river water disputes (e.g., Elimam et al. 2008; Madani and Hipel 2007). These interconnected processes foster the ways individuals and organizations perceive their claims on river water, the extent to which individuals partake in collective action to influence the state or other institutional actors, the ways state policies relate to the collective interests of different groups, and the interest of various states in recognizing and dealing with the claims of other states (Anand 2007). As such, management of water resources is linked to macro policy issues like global security, environmental protection, good governance, poverty eradication, and human rights. At the same time, water management issues connect to micro dynamics of daily social interactions, gendered impact, identity constructions, and cultural repertoires.

The strengthening of the Nile identity and highlighting the cultural heritage of the Nile together with increased dialogue and poverty eradication could be an approach to better bring about a just water allocation as compared to the traditional IWRM approach (Tvedt 1998; University of Bergen 2012). Common heritage, history, and cultural identity most likely play strong roles at the village level as well as at the national level. Also, religion is at the centre of everyday life on an individual, family, and village level. Traditionally, these aspects have been given very small space in practical water problem solving, yet are often important reasons why water projects are not successful. Thus, there is a need to further explore these issues and factor them into traditional IWRM approaches.

### **Scales in Nationalism and Hydrosolidarity in the Nile Basin**

In the Nile River basin, the role of negotiation of nationalism and hydrosolidarity can be said to have effects at three levels of scale: everyday politics, state politics, and interstate and global politics.

(1) At the individual everyday level, the political identity shapes and is shaped through religious beliefs, national narratives, and cultural perceptions of the right to the Nile water. Local water organizations have an important role in water

negotiations among community members and claim making vis-à-vis state policy institutions. Large dam constructions often lead to internal forced migration and affect the daily lives of many communities. Thus, structural forces are likely to shape the daily realities of water refugees. There is no specific estimate of the number of people that have been/will be resettled to make room for dams and reservoirs in Ethiopia. Estimates for GERD vary between 5,000-20,000 people that need to be relocated around the construction site of the GERD (e.g., International Rivers 2008). Relocated people are reportedly being compensated, but it is not clear to what degree. According to Veilleux (2013) locals express hope that the GERD project will bring them benefit. They appear, however, to be unsure of what a dam actually is, though they understand that it will cause the river to flood the valley. Community meetings for affected people are informing about the impacts of the dam on their livelihoods.

Large reservoirs need comprehensive health management components not to increase the number of water borne and water related diseases in the area (WHO 2015). The area around the Grand Renaissance reservoir will consist of a 5 km buffer zone for malaria control that will not be available for settlement. There are also other health issues related to GERD that are not yet resolved. Parasitic diseases are the second most frequent cause of outpatient morbidity in Ethiopia (e.g., Fentie et al. 2013). The nearby Lake Tana is experiencing large problems with water related diseases. Hookworm is the predominant intestinal parasite, followed by *Ascaris lumbricoides*, and *Schistosoma mansoni*. About 30% of all children are stated to have multiple parasitic infections in areas close to Lake Tana. Without precautionary planning, similar health problems may result from the construction of the GERD.

Dams such as GERD affect men and women in significantly different ways, as they are likely to aggravate gender inequality (e.g., Mehta 2011). The displacement of vulnerable communities disrupts their traditional social ties and economic activities (Farmer 2006). Reportedly, this increases incidents of domestic violence, limits women's mobility and reduces their control over resources (Ibid). Such consequences often trigger mass mobilizations of people, especially women, to oppose dams and

related development policies (Shiva 2006).

Globally, NGOs are the guardians of water as a social and cultural good. Within the context of economic development, NGOs have an important role in empowering marginal groups, strengthening local capacity, and promoting cooperation. At the same time, they are part of the symbolic and political order in which they operate (e.g., Tvedt 1998). The World Commission on Dams (2000) underlines that development needs should be formulated through an open and participatory process and that comprehensive assessment of all options should be made giving social and environmental aspects the same weight as technical, economic and financial factors. Large-scale development projects such as the GERD often take place without the consultation of women or assessing the gendered impact of the project (Obbo 2011). So far in the GERD case, participatory processes are non-existent, and a social impact assessment has not yet been undertaken. The absence of participatory mechanisms hampers a gender-sensitive development that is known to provide perspectives that meet the needs of affected communities and individuals at large (Ibid.). NGOs promote the advance of democracy, mass mobilization, poverty alleviation, and social justice in many countries of the Nile Basin, and are thus important actors in constructing perceptions and attitudes towards development and social change. Particularly, NGOs have an important role in bringing attention to the impact of large development projects on women. Local water management organizations are an important arena to assess the social impact of GERD and investigate the ways they attempt to alleviate the negative consequences of GERD on individuals and communities. As sites where water and environmental policies are formulated and implemented, these local organizations provide avenues to analyse the inter-linkages between global discourses of rights and freedoms, regional inter-state conflicts over water, national policies and discourses related to GERD, and everyday practices related to sustainable development and social cohesion. Moreover, local water organizations are also appropriate sites for promoting a vision of just, democratic, and ecologically sustainable use of water resources. Additionally, NGOs are regional and global players who have a significant role to play in the promotion of social and environmental

justice and sustainable development at the local level in the Nile Basin. Finally, NGOs can partake in shaping a global discourse on environmental justice and hydrosolidarity. Hydrosolidarity may be relevant even considering authoritarian regimes. In the example of the GERD, the NGO International Rivers has highlighted several potential safety issues, negative environmental impacts and consequences for the downstream flow. The Nile Basin Initiative, an organisation for the Nile's riparian states, advocates a more equitable allocation of the water and has tried to moderate Egypt's historical control.

(2) At the state level, processes of negotiation in formulating and implementing water-related policies become more important. These include interactions between state institutions and policies of economic development on one hand, and between these institutions and local organizations and interest groups that are affected by state policies on the other hand. The role of international development assistance in shaping water-related policies needs is also important. National cultures and identities play an important role in shaping attitudes towards the Nile in general and shaping the risk of emerging conflict between Egypt and Ethiopia in particular. The Nile has been the connecting link between Egypt and Ethiopia for thousands of years. Starting from the 3<sup>rd</sup> century A.D., the Nile connected early Ethiopian Christianity with the Alexandrian Coptic Church that has continued uninterrupted for 1600 years (Ayele 1986; Erlich 2002). Consequently, despite their differences, Ethiopia and Egypt have several similarities. Both societies have witnessed millennia long constructive relations between different religions. In Egypt, the Coptic Church has played a significant role within the Muslim majority society. An example of this is the mediating role that the church has taken over the dispute on the Renaissance Dam (Al Monitor 2014). In Ethiopia, some of the oldest Muslim and Jewish communities live side by side with communities of the Orthodox Ethiopian Church. Their long history, however, has also been filled by disputes. Ayele (1986) notes that during a 7-year famine period, 1066-1072 A.D., in Egypt, the Egyptian Khalifah believed that Ethiopia might have deflected the course of the Nile. Thus, he sent emissaries and gifts to the Ethiopian king to persuade him to let the Nile return to its course (Wallis Budge 1934). The long history between

these two main balancing powers of the Nile Basin is pitted with similar incidences, and the historical Egyptian fear over changes in the river course of the Nile has now become a reality through construction of the GERD. The exact impact of the dam on downstream countries is not presently known. Assumedly, during the filling of the reservoir, 11 to 19 km<sup>3</sup> of water per year could be lost. This could cause two million farmers to lose their income during the period of filling the reservoir (Al Jazeera 2013).

In response to these concerns, Ethiopia, Egypt, and Sudan agreed to form an international Panel of Experts after the construction of GERD began, in order to review the GERD's social and environmental impacts on downstream nations. The 10-member panel submitted its first report to the governments in June 2013. The panel found need for more details in the impact assessment of the GERD (International Rivers 2014). In January 2014, after a series of high-level meetings between the three governments, discussions broke down. In April 2014, Ethiopia's Prime Minister invited Egypt and Sudan to another round of talks over the dam. In August 2014, a Tripartite Ministerial-level meeting agreed to set up a Tripartite National Committee (TNC) meeting over the dam. The first TNC meeting took place in September 2014 in Ethiopia (All Africa 2014). At present, Egypt, Ethiopia, and Sudan have agreed to select two European advisory offices to carry out technical studies on the Renaissance Dam and its effects on the Nile water share of the downstream countries (All Africa 2015). Consequently, technical cooperation is leading to increasing political partnership at state level.

(3) At the interstate and global level, nationalism and hydrosolidarity may shape the role global water discourses and politics play in the Nile Basin. Particularly, political processes of deliberation and negotiation in the shaping of general principles and legal norms governing the relationship between riparian states in view of environmental effects and climate change need to be addressed. In economic terms, Ethiopia will most likely see a much needed development boost. The unavoidable expropriations for construction and flooding will, however, increase the urgency of agenda items such as property rights, livelihood, individual petitioning and access to legal remedies. Similarly, culturally motivated land rights

and rights of indigenous populations will inevitably challenge the response capacity of the Ethiopian government to ensure the rights of protected minorities. Once completed, the economic added value generated by the dam will pose a challenge with regard to claims of local social and economic rights and their relationship to foreign investors and loan providers. As a developing country, Ethiopia is under international legal obligation to ensure the economic, social and cultural rights of their citizens progressively and to the maximum of their available resources. Moreover, while multiple stakeholder perspectives are increasingly emphasized in the general discourse on water management and water rights, international agreements provide limited or no legal standing for entities other than states. The paradigm on water management has changed in many respects, but the existing formal framework remains profoundly conservative. Meanwhile, the building of GERD is undertaken in an uncertain international situation. The major actors, Egypt and Ethiopia, subscribe to incompatible legal regimes regarding the Nile. Egypt refers to the 1959 agreement and historically based arguments of custom. In contrast, Ethiopia rejects both the validity and applicability of such claims, referring to the colonial taint of the agreement and the fact that it did not include Ethiopia at its origin. The situation is potentially dangerous as there is virtually no agreement on anything apart from the diplomatic inventions between Egypt, Sudan, and Ethiopia during the last year.

Over the past 40 years, human rights have become a significant part of the established political vocabulary of international actors. In international relations, protecting human rights is a mainstreaming tool and a common denominator capable of bridging different political standpoints. This notion can be both upheld and criticized on a number of different grounds, depending on the choice of perspective. While economic, social, and cultural rights easily can be held to mutually reinforce the most common notions of development, more individually oriented rights can potentially pose a challenge to broader socio-economic development. The utility aspect of development often becomes difficult to reconcile with diligent legal protection of individual human rights. This normative tension between individual human rights based claims and the political

priorities of development will be further accentuated with increasing emphasis on sustainability in the discourse, when solidarity with unborn generations is pitted against the immediate needs of today's poor.

## Summarizing Comments

We argue that the seemingly divergent concepts of nationalism and hydrosolidarity can be used together to better understand cultural, social, and political aspects of water management challenges and how these relate to sustainable development. The GERD highlights a number of questions that have relevance beyond the dam itself, such as water sharing in transboundary rivers, collective claim making processes, and economic development globally. Using the GERD as a case study, we identify three different scales for the role of politics in nationalism and hydrosolidarity; everyday politics, state policies, and interstate and global politics. At the individual everyday level, the identity shapes and is shaped by religious beliefs, national narratives, and cultural perceptions of the right to water. Local water organizations as well as NGOs have an important role in water negotiations among community members and claim making vis-à-vis state policy institutions. At the state level, processes of negotiation in formulating and implementing water-related policies become important. These include interactions between state institutions and policies of economic development on one hand, and between these institutions and local organizations and interest groups that are affected by state policies on the other hand. At the interstate and global level, nationalism and hydrosolidarity can shape the potential for global water discourses and politics at play in the Nile basin. Particularly, political processes of deliberation and negotiation in the shaping of general principles and legal norms governing the relationship between riparian states are important.

We also argue that national interests and hydrosolidarity have an important meeting point. For this meeting point to occur we believe that short-term negative implications of water management decisions have to be carefully managed by intensified collaboration in order to reach the more long-term sustainable goals. Thus, the meeting point between

national interests and hydrosolidarity means that advantages and benefits from cooperation to a great extent exceed the benefits that otherwise would have been reached by not collaborating. In case of GERD there is a severe lack of collaboration between Egypt, Sudan, and Ethiopia. Only intensified collaboration and detailed studies on the management of the GERD can bring out benefits that can potentially improve living conditions in all countries within the Nile Basin.

## Acknowledgements

Funding from the MECW project at the Center for Middle Eastern Studies, and the Hydrosolidarity in the Nile Basin project at the Pufendorf Institute for Advanced Studies, Lund University, is gratefully acknowledged.

## Author Bio and Contact Information

**DALIA ABDELHADY** is senior researcher at the Centre for Middle Eastern Studies (CMES), Lund University (Dalia.Abelhady@cmes.lu.se).

**KARIN AGGESTAM** is professor in Political Sciences (Karin.Aggestam@svet.lu.se).

**DAN-ERIK ANDERSSON** is senior lecturer in human rights and with a background of ethics and co-director of the CMES (Dan-Erik.Andersson@cme.lu.se).

**OLOF BECKMAN** is assistant professor of Human Rights Studies at Lund University (Olof.Beckman@mrs.lu.se).

**RONNY BERNDTSSON** is professor at Department of Water Resources Engineering, Lund University (Ronny.Berndtsson@tvrl.lth.se).

**KARIN BROBERG-PALMGREN** is associate professor at Occupational and Environmental Medicine, Lund University (Karin.Broberg\_Palmgren@med.lu.se).

**KAVEH MADANI** is lecturer in Environmental Management at the Centre for Environmental Policy, Imperial College, London (K.Madani@imperial.ac.uk).

**UMUT ÖZKIRIMLI** is professor at CMES, Lund University (Umut.Ozkirimli@cme.lu.se).

**KENNETH M. PERSSON** is professor at Department of Water Resources Engineering, Lund University and head of research at VA SYD a regional water supply and sanitation company (Kenneth\_M.Persson@tvrl.lth.se).

**PETTER PILESJÖ** is professor and the head of the GIS centre at Lund University (Petter.Pilesjo@gis.lu.se).

## References

- Ahram Online. 2014. 40% of Grand Ethiopian Renaissance Dam Completed: Ethiopian President. Available at <http://english.ahram.org.eg/NewsContent/1/64/112299/Egypt/Politics/-of-Grand-Ethiopian-Renaissance-Dam-completed-Ethi.aspx>. Accessed April 16, 2015.
- All Africa. 2014. Ethiopia: The First Meeting of the Tripartite National Committee On the Grand Ethiopian Renaissance Dam Concludes. Available at <http://allafrica.com/stories/201409230392.html>. Accessed April 16, 2015.
- All Africa. 2015. Egypt, Ethiopia, Sudan Select Advisory Offices On Renaissance Dam. Available at <http://allafrica.com/stories/201504120028.html>. Accessed April 23, 2015.
- Al Jazeera. 2013. Death on the Nile. Available at <http://www.aljazeera.com/programmes/insidestory/2013/05/201353081623734349.html>. Accessed April 16, 2015.
- Al Monitor. 2014. Church mediates Egypt-Ethiopia dispute over Renaissance Dam. Available at <http://www.al-monitor.com/pulse/politics/2014/04/egypt-ethiopia-church-mediation-renaissance-dam.html>. Accessed April 23, 2015.
- Anand, P. 2007. Capability, sustainability, and collective action: An examination of a river water dispute. *Journal of Human Development* 8: 109-132.
- Arsano, Y. 2007. *Ethiopia and the Nile: Dilemmas of National and Regional Hydropolitics*. Center for Security Studies, Swiss Federal Institute of Technology, Zurich.
- Ayele, N. 1986. The Blue Nile and hydropolitics among Egypt, Ethiopia, Sudan, the Nile and the Blue Nile in perspective. In: *Proceedings of the Ninth International Congress of Ethiopian Studies*, A.A. Gromyko (Ed.). Nauka Publishers, Moscow.
- Belachev, G. 2009. Ethiopian nationalism: An ideology to transcend all odds. *Africa Spectrum* 44: 79-97.
- Biswas, A. 2010. Cooperation or conflict in transboundary water management: Case study of South Asia. *Hydrological Sciences Journal* 56: 662-670.
- Bjornlund, H., and J. McKay. 2003. Elements of an institutional framework for the management of water for poverty reduction in developing countries. *Natural Resource Management and Policy* 25: 87-110.
- Cascao, A., K. Mørck Jensen, and R. Baadsgaard Lange. 2012. Report from the Seminar on Unilateralism, Bilateralism and Multilateralism in Transboundary

- Water Cooperation. Stockholm International Water Institute and Danish Institute for International Studies. Available at <http://www.swedishwaterhouse.se/swh/resources/1323872154238Introduction%20SIWI%20and%20DIIS.pdf>. Accessed June 1, 2015.
- Clapham, C. 1995. Nationalism, Nationality and Regionalism in Ethiopia. Published as an Occasional Paper by The Anglo-Ethiopian Society. Available at <http://www.anglo-ethiopian.org/publications/articles.php?type=O&reference=publications/occasionalpapers/papers/nationalismethiopia.php>. Accessed April 17, 2015.
- Earle, A., A. Jägerskog, and J. Öjendal (Eds.). 2010. *Transboundary Water Management, Principles and Practice*. SIWI (Stockholm International Water Institute), Stockholm.
- EFDR (Federal Democratic Republic of Ethiopia). 2005. Comprehensive Justice System Reform Program: Baseline Study Report. Ministry of Capacity Building, Justice System Reform Program Office. Available at <http://www.cilc.nl/cms/wp-content/uploads/2014/11/CILC-Ethiopia-D-05-0103.pdf>. Accessed April 17, 2015.
- Elimam L., D. Rheinheimer, C. Connell, and K. Madani. 2008. An ancient struggle: A game theory approach to resolving the Nile conflict. In: *Proceedings of the 2008 World Environmental and Water Resources Congress*, R.W. Babcock and R. Walton (Eds.). ASCE, Honolulu, Hawaii. DOI: 10.1061/40976(316)258. Accessed April 17, 2015.
- Erlich H. 2002. *The Cross and the River: Ethiopia, Egypt, and the Nile*. Lynne Rienner, Boulder, Colorado.
- Ethiopian Ministry of Foreign Affairs, EFDR. 2014. Second meeting of the Tripartite National Committee on GERD in Cairo. A Week in the Horn of Africa. Available at <http://www.mfa.gov.et/weekHornAfrica/morewha.php?wi=1548#1548>. Accessed April 17, 2015.
- Falkenmark, M. 2005. Towards Hydrosolidarity: Ample Opportunities for Human Ingenuity: Fifteen Year Message from the Stockholm Water Symposia. SIWI, Stockholm.
- Falkenmark, M., J. Rockström, and L. Karlberg. 2009. Present and future water requirements for feeding humanity. *Food Security* 1: 59-69.
- Farmer, P. 2006. Suffering and structural violence. In: *Beyond Borders: Thinking Critically about Global Issues*, P. Rothenburg (Ed.). Worth Publishers, pp. 368-393.
- Fentie, T., S. Erqou, M. Gedefaw, and A. Desta. 2013. Epidemiology of human fascioliasis and intestinal parasitosis among schoolchildren in Lake Tana Basin, northwest Ethiopia. *Transactions of the Royal Society of Tropical Medicine and Hygiene* 107(8): 480-486. DOI: 10.1093/trstmh/trt056. Accessed April 17, 2015.
- Gerlak, A. K., R. G. Varady, and A.C. Haverland. 2009. Hydrosolidarity and international water governance. *International Negotiations* 14: 311-328.
- Gerlak, A.K., R.G. Varady, O. Petit, and A.C. Haverland. 2011. Hydrosolidarity and beyond: Can ethics and equity find a place in today's water resource management? *Water International* 36: 251-265.
- Grey, D. and C. Sadoff. 2007. Sink or swim? Water security for growth and development. *Water Policy* 9: 545-571.
- Horn Affairs. 2014. Briefing: 1st meeting of Tripartite National Committee on Renaissance Dam, Posted on Monday, September 29, 2014, 7:29 pm by Editor, <http://hornaffairs.com/en/2014/09/29/briefing-1st-meeting-of-tripartite-national-committee-on-renaissance-dam/>. Accessed April 24, 2015.
- International Rivers. 2008. *What Cost Ethiopia's Dam Boom?* pp. 17-21.
- International Rivers. 2014. The Grand Ethiopian Renaissance Dam Fact Sheet. Available at <http://www.internationalrivers.org/resources/the-grand-ethiopian-renaissance-dam-fact-sheet-8213>. Accessed April 17, 2015.
- Lundqvist, J. 1999. Towards upstream/downstream hydrosolidarity. *Water International* 24: 275-277.
- Madani K., and K.W. Hipel. 2007. Strategic insights into the Jordan River conflict. In: *Proceedings of the 2007 World Environmental and Water Resources Congress*, K.C. Kabbes (Ed.). ASCE, Tampa, Florida. DOI: 10.1061/40927(243)213. Accessed April 17, 2015.
- Mehta, L. 2011. No Plot of One's Own: How Large Dams Reinforce Gender Inequalities. World River Reviews, March 8, 2011. Available at <http://www.internationalrivers.org/world-rivers-review/world-rivers-review-focus-on-women-rivers-and-dams-march-2011>. Accessed April 17, 2015.
- Mulat, A.G. and S.A. Moges. 2014. Assessment of the impact of the Grand Ethiopian Renaissance Dam on the performance of the High Aswan Dam. *Journal of Water Resource and Protection* 6: 583-598. Available at <http://dx.doi.org/10.4236/jwarp.2014.66057>. Accessed April 17, 2015.
- Obbo, B. 2011. Where are Women's Voices in Uganda's Dam Planning? World River Reviews, March 2011.

- Orlowska, I. 2013. Forging a nation: The Ethiopian millennium celebration and the multiethnic state. *Nations and Nationalism* 19: 296-316.
- Rubenson, S. 2009. The European impact on Christian-Muslim relations in the Middle East during the nineteenth century. The Ethiopian example. In: *The Fuzzy Logic of Encounter: New Perspectives on Cultural Contact*, J. Sünne (Ed.). Waxmann Verlag, Münster, pp. 118-127.
- Sadoff, C., and D. Grey. 2008. Why share? The benefits (and costs) of transboundary water management. In: *SHARE - Managing Water Across Boundaries*, C. Sadoff, T. Greiber, M. Smith, and G. Bergkamp (Eds.). IUCN, Gland, Switzerland, Chapter 2.
- Shiva, V. 2006. In: *Beyond Borders: Thinking Critically about Global Issues*, P. Rothenburg (Ed.). Worth Publishers. pp. 22.
- The Economist. 2011. The River Nile, A dam nuisance - Egypt and Ethiopia quarrel over water. Available at <http://www.economist.com/node/18587195>. Accessed April 17, 2015.
- Time. 2013. Ethiopia's Plan to Dam the Nile Has Egypt Fuming, Time online, By William Lloyd George / Addis Ababa. <http://world.time.com/2013/06/28/ethiopias-plan-to-dam-the-nile-has-egypt-fuming/>. Accessed April, 23, 2015.
- Tvedt, T. 1998. *Angels of Mercy of Development Diplomats?: NGOs and Foreign Aid*. Africa World Press, Oxford, England.
- University of Bergen. 2012. *Nile Basin Research Programme*. University of Bergen. Available at <http://www.uib.no/rg/nbrp>. Accessed April 17, 2015.
- Veilleux, J. 2013. Another view on the Nile: An interview with Jennifer Veilleux. <http://catherinepfeifer.blogspot.com/2013/07/another-view-on-nile-interview-with.html>. Accessed April 17, 2015.
- Wallis Budge, E. A. 1934. *From Fetish to God in Ancient Egypt*, Oxford University Press, Oxford and London.
- Water Technology.net 2014. Grand Ethiopian Renaissance Dam Project, Benishangul-Gumuz, Ethiopia. Available at <http://www.water-technology.net/projects/grand-ethiopian-renaissance-dam-africa/>. Accessed April 17, 2015.
- WHO. 2015. Health and social impacts of large dams, WHO. Available at <http://www.who.int/hia/examples/energy/whohia020/en/>. Accessed April 23, 2015.
- World Commission on Dams. 2000. *Dams and Development: A New Framework for Decision-Making*. Earthscan Publications Ltd, London and Sterling, VA.