

Why Is a Large Dam Important for Ethiopia? Experiences from the Danube River

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In the case of Ethiopia, about 90% of the available water is received mainly in three months. Hence, dams could effectively store water during heavy rain seasons between June to September and some extent during the short rainy seasons.

Large water storages are therefore essential. In addition, we can expect the following advantages could be expected from building big dams in the Blue Nile basin: The flood waters are wasted unless large major dams are constructed, Large dams are eminently suited for carrying over storage and thus impart greater reliability and stability to the system, Large dams generate cheap and clean hydropower, Dams provide the most effective way of flood regulation and control.

Large dams are most reliable during drought periods as small storages are fast depleted and suffer excessive evaporation. In drought years, small dams are scarcely reliable. Longevity as large silt pockets, per unit areas stored with large dams, is much less as compared to small dams.

Diversion and transfer of surplus water to water-scarce basins can be an option only through big dams. Employment potential is higher in large dams throughout the year. In the case of small dams, there is little employment potential as seasonal rains affect only small local areas.

The imperatives for large water storage were supported by the former President of the World Water Forum Council who stated that "some 8,000,000 dams (of which 45 000 are major, higher than 15 meters in height) exist around the world delivering energy, flood protection and water for household, industrial and agricultural use"

He further stated that "despite the drawbacks, the world's growing population and their need for greater economic development call for more water, in which demand will exceed availability. More and larger storage will be necessary to meet the challenges of

development and socio-cultural fabric and make sure that those people affected by the development of dams will be better off than the alternative.

While giving special attention to the environmental and displacement aspects, Ethiopia should construct large-scale dams that: increase economic and social productivity and hence increase consumption of goods and services, irrigate 2.2 million hectares identified in the basin, distribute benefits to millions of inhabitants through employment in mechanized agriculture in the basin, provide better settlement, equipped with socially, economically and technically sound services in the basin for millions and change their life; producing complex hydroelectric power for trade with the trans-boundary countries.

Therefore, Ethiopia needs urgent action on matters concerning the building of major dam structures in the Abbay, Baro-Akobo, and Tekezze catchments and other River basin areas in accordance with some detailed studies and engineering designs.

Ethiopia has made many valuable studies and design works without much chance of putting them into action mainly because of lack of funds. To date, Ethiopia is the most minor user of the Blue Nile run-off in the Eastern Nile Basin, compared to Sudan and Egypt. At the national level, economic and institutional capacities are also limited. Despite many hindrances, Ethiopia should concentrate on the modern agricultural development options, focused on the rivers so that these resources could be utilized to realize meaningful irrigation programs.



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Climate Change should concern the Nile Nations

A holistic approach to conservation, protection and utilization of the Nile River basin was sparsely implemented. The long-standing dispute over the Nile River was primarily on the utilization of the waters. But without arriving at a comprehensive governance scheme to address the environmental problems posed against the basin an equitable and reasonable share of the Nile waters would not be secured.

The blame must go to the downstream countries for their reluctant approach to a basin-wide agreement to address the governance challenges including the climate change impacts. Benefit-sharing should come after sharing of burdens on the costs of conservation and

protection of the Nile environment.

Climate change has become a global threat to the environment including watercourses. The globe has launched several international mechanisms to deal with climate change.

The 2015 Paris climate accord was the latest of all initiatives. There is a nationally determined emission reduction to withhold the global warming rate below 2 Degree Celsius. The Nile riparian states are duty-bound to mitigate the environmental problems threatening the water flows of the Nile River.

Their mitigation should be expressed through their cooperation in afforestation programs on the headwaters and tributaries of the Nile River. Those headwaters are located in Ethiopian highlands. Ethiopia has embarked on the planting mission of twenty billion trees within a four-year period.

The downstream countries should participate in this green legacy mission and should cover the conservation and protection costs of the Nile basin. To that end, Ethiopia should offer a call for participation in the green legacy mission to the downstream nations.

For the downstream nations, participating in the greening of Ethiopian highlands would be a mitigation strategy for the millennial damages caused to the Nile River. They have depleted the Nile surrounding area with over-exploitation and mismanagement of the river. With that said, long-term cooperation on the conservation and protection of the Nile River Basin should be governed through basin-wide legal and institutional frameworks. Such a basin-wide arrangement could establish a permanent river basin commission to administer and facilitate cooperation among the riparian nations in the fight against climate change and its adverse impacts on the Nile ecosystem.

Lessons on Governance for Nile Nations from the Danube River

The Danube River Basin Cooperation provides a laudable lesson and example to the nations of the Nile Basin, as there are striking similarities between the two basins. The anticipated lesson to be learned by the Nile Nations from the Danube River Basin Cooperation is the harmonization and integrated management that brought tangible results and ensured peaceful co-existence within that region. Some of the outstanding achievements of integrative development and management approach of the communities of the Danube River Basin and their experiences are summarized below to illustrate the power of harmony and spirit of the shared responsibilities of the ordinary inhabitants of large river basins to the Nile families.



The Danube basin (Licensed under CC BY-SA 4.0)

As mentioned in the study made by Oregan, Sullivan, and Bromley, the Danube is a large river that covers approximately 800,000 square kilometers in the territories of 18 states, with over 80 million inhabitants and 60 large and growing urban centers. The Danube is a slow-moving river with well-developed alluvial plains in its course. The Danube River covers an area of 675,000 ha and is internationally recognized as one of the most important watersheds in Europe.

The basin area covers all of Hungary, most of Austria, Romania, Slovakia, Serbia, and Montenegro; significant parts of Bosnia-Herzegovina, Bulgaria, Croatia, Czech and Moldovan republics, as well as a smaller area of Germany and Ukraine. Albania, Italy, Macedonia, Poland, and Switzerland also have small geographical areas within the basin. The Danube River Basin is spread across countries with very different levels of economic development and social and environmental diversities. Germany and Austria, highly developed nations, are located in the upper basin with longstanding membership of the European Union. In the middle basin Czech Republic, Slovakia and Hungarian are experiencing an appreciable degree of economic growth. Further downstream Romania, Bulgaria, and Ukraine are less developed states in Europe but they are experiencing political and economic transition. Also, within the basin are the Former Yugoslav republics and northeast Moldova, the least developed country in Europe, heavily dependent on agriculture.

Institutional Framework Experience

The development of the Danube River Basin is coordinated through several institutions formed by all member states and policies directed by these bodies. The most important of the European-level policies is the European Water Framework Directive (WFD), which seeks to introduce comprehensive river basin management and environmental protection initiatives across Europe. The Danube River Protection Convention forms the overall legal instrument for cooperation on transboundary water management in the Danube River Basin. The Convention was signed on June 29, 1994, in Sofia (Bulgaria) and came into force in 1998. Based on this document, the International Commission for the Protection of the

Danube River (ICPDR), with 13 cooperating states and the European Union, was established in practice. The ICPDR makes recommendations for improving water quality, developing mechanisms for flood and industrial accident control, agreeing on standards for emissions, and ensuring that these measures are reflected in the cooperating states' national legislations and applied in their policies.

To meet the needs of this single basin-wide management plan, each country is in the process of preparing national reports (roof reports) which give an overview of WFD issues such as the pressures on the surface and groundwater resources and related environmental impacts that will form the basis of the river basin management plan. In the 1990s, countries of the DRB took significant steps to improve the management of the Danube with recognition of the growing regional and transboundary character of water management issues and related environmental issues. In 1991, the Environmental Program for the Danube River Basin (EPDRB) was established in Sofia, Bulgaria by the countries of the DRB, together with international institutions and NGOs, to start an initiative to support and enhance actions required for the restoration and protection of the basin. This was followed by the Convention on Cooperation for the Protection and Sustainable Use of the Danube River Basins signed in June 1994. It was signed by 11 states and the European Union and provided the legal basis for the protection and use of water resources in the basin.

Water Use Practices

The Danube plays an important role in the development of the region, as its communities rely on it for water supply (domestic, agricultural and industrial), power generation, navigation, waste disposal, and recreation. The Danube waters have also been intensively harnessed for hydroelectricity (particularly in Austria and Germany) and irrigation schemes for agricultural developments (especially in the middle and lower basins).

The need for water storage in the face of seasonal variations and to generate hydropower have led to dam building across the basin. Between 1950 and 1980, 69 dams with a total volume exceeding 7.3-billion-meter cube were constructed on the Danube River. Groundwater resources represent as much as 30 percent of the total internal renewable water resources of some DRB countries. Aquifers are the main resources of drinking water while some have permeable aquifers, which are highly vulnerable to pollution from point and nonpoint resources. The extent of hydro-morphological changes for navigation environmental has had a major impact on natural floodplains and their ecosystems. In many places along the river floodplains, meanders have been cut off from the river system. However, as a result, 80 percent of the historical floodplain of the larger rivers of the basin has been lost over the last 150 years. The loss of this area has led to a reduction of flood retention capacity and floodplain habitat. Some of the remaining areas have either received protection status under different national or European legislation or international conventions, while other areas remain vulnerable.

Civil societies and Private Institutions Environmental Experiences

The Regional Environmental For Central and Eastern Europe (REC), and the Danube Environmental Forum (DEF) represent nearly 200 NGOs across the region. The aim is to protect the Danube River and its tributaries, their biodiversity, and resources, through enhancing cooperation among governments, non-governmental organizations, local people, and all kinds of stakeholders towards sustainable use of natural ecosystems. Many of these institutions are participants in the annual Danube Day festivities marking the signing of the

Danube Convention and celebrating the river, its ecology, and its people. Festive events, festivals, public meetings, and educational events take place along the river and Danube Day is described as a powerful tool for enhancing the “Danubian identity of people living in the basin, demonstrating that despite their different cultures and histories they have a shared responsibility to protect their precious resource.”

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