Arab Reform Initiative

EGYPT POLICY DIALOGUES

EGYPT'S WATER POLICY AFTER THE CONSTRUCTION OF THE GRAND ETHIOPIAN RENAISSANCE DAM

Sherif Mohy El Deen

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About the Author

Sherif Mohy El Deen is A non-resident Scholar on Egypt & North Africa Cross Border IssuesA non-resident Scholar on Egypt & North Africa Cross Border Issues at the Malcolm H. Kerr Carnegie Middle East Center.

PHOTO: Minister of Water, Irrigation and Electricity of Ethiopia Dr. Seleshi Bekele (R), Minister of Water and Irrigation of Egypt, Dr. Mohamed Abdul Ati (C) and Minister of Water and Electricity of Sudan Muataz Musa meet to discuss ways to continue delayed studies on Grand Ethiopian Renaissance Dam (GERD), in Addis Ababa, Ethiopia on October 18, 2017. ©AA/Minasse Wondimu Hailu.

March 2022

Executive Summary

Egypt is one of the driest countries in the world. It is also the country that is most dependent on a single source of water: The Nile. The Nile River provides over 93% of Egypt's water needs, according to Egyptian government documents. However, the water crisis discussion mainly focuses on the extent to which previous water agreements with other Nile Basin countries are binding, or on the truthfulness of the current news on the filling and operation of the Grand Ethiopian Renaissance Dam. Hence, this discussion is not addressing the main issue, which is the extent to which operating the Dam would affect the annual water use per capita in Egypt at present, as well as in the near and distant future.

The Renaissance Dam crisis is recent, as it began when Ethiopia unilaterally decided to build the Dam in a border region between Ethiopia and Sudan. However, it is a main factor that could exacerbate and deepen the problem of water scarcity in Egypt. Other factors affecting water use per capita in Egypt include exponential population growth and increasing climate change.

This policy brief aims to shed light on the main causes and background of the water crisis in Egypt. It will briefly discuss some examples of recent or upcoming projects by the Egyptian government under the new Water Resources Management Strategy (20162050-). Finally, the paper will highlight the importance of conducting comprehensive and constant feasibility and impact assessments of these projects. These assessments should focus not only on the water dimension, but also on the economic, social, environmental, cultural, and political dimensions. This paper also provides some recommendations and lessons learned from the "Jonglei Canal," an Egyptian-Sudanese water megaproject that launched nearly five decades ago.

Introduction

In 2011, Ethiopia took a unilateral decision to build the Grand Renaissance Dam in a border region between Ethiopia and Sudan. Egypt opposed the project because of its possible repercussions on its water share of the Nile water. In fact, Egypt heavily depends on the Nile water, as 85% of its water comes from the Blue Nile, which originates in Ethiopia, and less than 7% of its water comes from other resources. Egypt's total share amounts to 55.5 billion cubic meters per year. In addition, 7.3% of Egypt's total energy production comes from the hydroelectric energy.[1]

One decade after its construction began in 2011, the Ethiopian dam became a reality. It is therefore imperative for all water strategies and policies to address its possible consequences on water use per capita in Egypt, as well as its various consequences on the country. However, it has proved challenging to conduct in-depth studies to assess these consequences, mainly due to the hurdles placed by the Ethiopian government to prevent Egypt and Sudan, the downstream countries, from participating in committees that oversee the Dam's operation and filling.

In light of the imminent threat of Ethiopia's unilateral operation of the Dam without an agreement that takes into consideration the interests of both Egypt and Sudan's populations, it is important to look at the water policies adopted by successive Egyptian governments, keeping in mind that the risks are not only limited to the potential impact of the Grand Renaissance Dam.

Water Policies in a Dangerous Context

Egypt relies on century-old international agreements to claim its share of the Nile River water. The 1929 Egyptian-British agreement was among the first such agreements, followed by the 1959 Egyptian-Sudanese agreement, concluded 3 years after Sudan's independence from the joint Egyptian-British rule. Under this agreement, Egypt's yearly share increased to 55.5 billion cubic meters, and Sudan's share increased to 18.5 cubic meters.[2] Ethiopia rejects these agreements, claiming that they are not binding because it was colonized when the 1929 agreement was concluded and it is not a party to the 1959 agreement.

Water poverty and threats to water sustainability in Egypt is an old discussion that has recently resurfaced. Egypt had been suffering from water poverty years before Ethiopia started building the Grand Renaissance Dam, as the water use per capita reached 740 cubic meters in 2007. Meanwhile, the global water poverty threshold is one thousand cubic meters per capita annually. The yearly average water use per capita in Egypt is estimated at 556 cubic meters by 2025, according to the Egyptian Ministry of Water Resources and Irrigation.

Hence, water poverty in Egypt is not a direct result of the Ethiopian Grand Renaissance Dam and its effects on the share of Nile water per capita. Three main factors and reasons have exacerbated Egypt's water poverty:[3]

1. Exponential popular growth: Population growth in Egypt is one of the most dangerous phenomena affecting nearly all facets of life, including water policy. Since Egypt is already the first Arab nation and the third African nation in terms of population after Ethiopia and Nigeria, the exponential population growth will only exacerbate the water crisis.

2. The Grand Renaissance Dam: Although the effects of operating and filling the Renaissance Dam are yet to be known, Ethiopia's unilateral decision to operate and fill it without guaranteeing to downstream countries that it will respect their water needs, raises concerns. Negotiations have also reached a stalemate after the issue was referred to the Security Council and the African Union.

3. Egypt's exposure to climate change: Additional studies are needed to truly understand the effects of climate change on different water resources and the extent to which water policy can respond to this phenomenon or be redesigned accordingly.

Compared to the annual water use per capita in 1959, which stood at 1,893 cubic meters, the exponential population growth has a detrimental effect on water security. Furthermore, even if we were to theoretically remove all the repercussions of building and operating the Grand Renaissance Dam on water use per capita, Egypt would continue to suffer from acute water poverty.

Egypt began prioritizing on water policy in its legislations, particularly with regard to the Nile River, with the issuance of Law No. 481982/, which was the first law on the protection of the Nile River and other waterways from pollution. However, these legislations lacked a strategic dimension, which is the community's engagement in water policy-making. A long-overdue remedy was adopted by the end of 2016, when the Ministry of Water Resources and Irrigation developed the

1 The 2050 Water Resources Management Strategy, p.8.

2 The Dam That Broke Open an Ethiopia-Egypt Dispute Sherif Mohyeldeen https://carnegie-mec.org/2021/02/12/dam-that-broke-open-ethiopia-egypt-dispute-pub-83867.

3 Kareem Mostafa, Mariam Allam, Sarah El-Fiky, Seba Issa, Sherif Mohyeldeen, Water Security in Egypt: Issues and Perspectives, Policy Brief No. 8, the American University in Cairo, the Faculty of Global Affairs and Public Policy, June 2021.

Water Resources Management and Development Strategy. In fact, the Ministry is tasked with formulating appropriate water policies "to guarantee that agricultural, industrial, water, and navigation needs are met."

A thorough reading of the 2050 Water Resources Management and Development Strategy reveals that Egypt's water needs (110 billion) are almost twice the available water resources (59.25 billion). Although the Ministry is tasked with formulating water policies, several governmental bodies and ministries intervene in this issue as stakeholders. Ten Egyptian ministries have overlapping jurisdictions, mandates, and interests in the water issue, which requires close coordination to avoid conflicts. In addition, there is no indication that the tools of social dialogue or engagement of different stakeholders – especially citizens – are used in strategy-making, which can be considered a weakness. The strategy also lacks measurable goals and focuses on mapping water usage in Egypt, as well as presenting other water-related data. While this information should be available to the public, it is not sufficient by itself.

The water usage map shows that agriculture and irrigation account for 80% of water use in Egypt, which contradicts the common belief that drinking water, or household or industrial uses, are the main uses of water in Egypt.[4] Although these figures are issued by the Ministry of Water Resources and Irrigation, a thorough examination of the Ministry's publications – particularly the 2050 Water Resources Strategy – shows that 1530%- of the total water needs of the industrial sector are derived from the drinking water supply network. It should be noted that according to the strategy, the overall needs of the industrial sector stood at 5.40 billion cubic meters in 2015 – without taking into consideration cooling water for power generation.

New Water Projects for Better Governance

After clarifying the main threats to water security, it is important to ask how successive governments dealt with water policy, whether by finding alternatives (such as seawater desalination projects), reducing water waste (such as canal lining projects), taking decisions to stop the growing of water-consuming crops, or developing the pre-paid drinking water network in Egyptian households. Are these measures part of a bigger water policy?

Since the January 2011 Revolution and the transfer of power between governments and regimes in rates not seen in Egypt for decades – after former President Mouhammed Hosni Mubarak had ruled for three decades (19812011-) – the management of several strategic issues, including water policy, has changed significantly.

In the past, this issue was under the mandate of sovereign security bodies, while civil ministries addressed minor parts of it, such as preventing water and environmental pollution. However, after the Revolution, civil ministries, particularly the Ministry of Water Resources and Irrigation, have played a larger role in this regard.

The management of this issue has long been characterized by confidentiality and inaccessibility to the public. It has also been reactive, rather than proactive, as well as responsive to events and developments, the announcement of ambitious projects without implementing the majority of them, and the lack of clear and predictive plans. After the January 2011 Revolution, the situation changed to a certain extent, be it as a direct result of the Revolution's momentum or due to associated but indirect results.

By highlighting four characteristics observed in the developments of water policy-making during the period following the January Revolution, we notice some relative progress in the following areas:

New Legislations, Agreements, and Predictive Strategies

President Abdel Fattah al-Sisi signed the 2015 Khartoum Declaration of Principles with Sudan and Ethiopia. It is a goodwill Declaration of Principles on the Nile's common water between the three countries. It also stipulated that Egypt recognizes the Grand Renaissance Dam and included guarantees that no harm will be made to the interests of downstream and upstream states.

In December 2016, the Ministry of Water Resources and Irrigation made the Water Resources Management Strategy available to the public for the first time. The strategy aims at increasing water resources by desalinating 1.5 billion cubic meters of water by 2030 to use as drinking water. This quantity is set to double by 2037.[5] Making water strategies and details of projects available to the public is undoubtedly important, and progress has been made in this regard. However, there is still a gap, not only in the community's awareness of water policies, but also in its engagement in policy-making.

In September 2021, a new law on water and sanitation was promulgated to preserve water and avoid water waste.

4 Youm7: Ministry of Irrigation: 80% of our Water Share in the Nile River Goes to Agriculture, 10 February 2019. https://bit.ly/3ntXoM0

5 State Information Service, the National Canal Lining Project, 26 April 2021, https://bit.ly/3AiYAJD

The current Prime Minister, Dr. Mustafa Madbouly, had previously submitted the draft law when he was Minister of Housing, Utilities, and Urban Communities in January 2016.

The increase in promulgated laws and the announcement of water strategies is part of the Egyptian regime's policy, adopted since July 2013, to manage all sectors and areas, including technology and digital rights, which suffered from neglect and legislative delay over the decades.

Implementation of Water Projects

Under the presidential term of Abdel Fattah al-Sisi, several water policy projects were launched. According to our statistics, there are 30 projects in total, 27 of which were truly implemented, whereas the remaining three are ongoing – namely, the modernization project for the systems and spillway gates of Esna Barrage, Toshka Barrage, and the seawater desalination project in Matruh Governorate.

The National Canal Lining Project is one of the biggest water projects in Egypt. According to the Egyptian State Information Service, which is a government-run media authority, the first phase of the project will cost approximately EGP 2.8 billion and covers 398,000 acres. Sixty percent of the required funding is from local allocations, 25% from external loans, and 15% from grants given by international financial institutions, which support a number of modern irrigation system programs and water use optimization methods in developing countries.[6]

The National Canal Lining Project aims to reduce wasted water on the Nile's banks by 15 to 19 billion cubic meters per year due to Egypt's old canal system. This system was built in the era of Muhammad Ali, almost 200 years ago. It is also formed of clay, which is permeable. This project's goal is to replace clay with concrete to line the new canals built in the Sinai Peninsula.

As for the Toshka Barrage, it costs nearly EGP 5 billion. The following table shows the cost of several water projects executed between 2014 and 2021, based on the estimates of different Egyptian government authorities (the State Information Service, the Ministry of Water Resources and Irrigation, and the website of the Presidency of the Republic):

6 State Information Service, National Canal Lining Project, 26 April 2021.

Project	Governorate	Cost	Implementation Status	Surface
Water Desalination Plant in al-Hamam	Matruh	USD 140 billion	Ongoing	
Water Desalination Plant in Arish	North Sinai		Completed	
Karm Abou Najila Water Lifting Station	North Sinai	EGP 75 million s	Completed	
Development and Cleaning of North Lakes	Cairo	EGP 88.5 million	Completed	
Completion of Infrastructure to develop North Sinai	North Sinai	EGP 9 billion	Completed	
Canal and Drain Lining in several Governorates	Cairo and several governorates	EGP 207.5 million	Completed	
Development of the Integrated Water Resources Plan	Cairo	EGP 2.5 billion	Completed	
Canal and Watercourses Lining and Rehabilitation in several Governorates	Cairo	EGP 1.6 billion	Completed	
Development and Restoring the efficiency of Lake Mariut	Alexandria		Completed	
Development of Sources of the Nile River Basin	Cairo	EGP 435 million	Completed	
Use of Solar Power to Run Well Pumps	Cairo	EGP 110 million	Completed	

Urgent Plan in Western Delta to Mitigate Risks of Floods	Cairo	EGP 1.25 billion	Completed	
Rehabilitation of Ibrahimiya Canal Spillway Gate	Asyut		Completed	
Protection and Development of Egyptian Coastlines and Beaches	Cairo		Completed	
Drilling and Preparation of Wells in different regions	Cairo		Completed	
Drilling of 50 wells in Farafra in New Valley Governorate	New Valley	EGP 152.939 million	Completed	
Canal Lining Projects in Beni Suef Governorate	Beni Suef	EGP 531 million	Completed	272 km
Canal and Storm Water Drains Rehabilitation and Lining in Minya Governorate	Minya	EGP 1.373 billion	Completed	492 km
Sheikh Suef Canal Lining Project	Asyut	EGP 18 billion	Completed	7790 km
Bahr al-Baqr Drain Plant	Port Said	USD 1.2 billion	Completed	
Wastewater Treatment Plant in Abu Rawash	Giza	EGP 6.2 billion	Completed	600 Km2
Inauguration of Waste Water Plant in Dafrah	Gharbia	EGP 100 million	Completed	50 km long
Toshka Barrage	Aswan	EGP 4.934 billion	Ongoing	333 billion m
Sarabium Siphon	Ismailia	EGP 1.3 billion	Completed	400 m
The flow-through dam in Hurghada	Red Sea		Completed	
the Modernization Project of Systems and Spillway Gates of Esna Barrage	Qena	EGP 100 million	Ongoing	
Developing of Bardawil Lake in North Sinai	North Sinai	EGP 120 million	Completed	595 km2
Use of Solar Power for 25 wells in Dakhla Center	New Valley		Completed	
Protection from the risk of floods	Cairo	EGP 2 billion	Completed	324 utilities
Enhancing the Efficiency of Surgan Canal in Damietta	Damietta		Completed	750 m

Lessons Learnt and Ongoing Assessment of Water Policy

Progress monitoring and regular assessments are essential factors for the success of water projects and policies. In the context of Egypt's water policies, several recommendations come to light, including:

- Water strategies should include tangible, measurable goals and real figures – not vague and general statements. The current strategy has been lacking in this regard. Instead, it included figures and a general description of ambitious, yet unmeasurable goals. For example, the general goal of the strategy is to "achieve water security in Egypt through a sustainable management of water resources," but there is no definition of water security or how it can be achieved while the water share per capita is shrinking yearly and the country's exponential population growth is expected to exceed 175 million people by 2050. Although the strategy stipulates that "scientific, realistic, and achievable water strategies" are needed, many of the goals were neither time-bound or measurable, including as the strategy's main goal (i.e. achieving water security).

- The public is the primary stakeholder in water management. Hence, raising awareness on the threats of increasing water scarcity and poverty in Egypt has become more important, and efforts are being deployed to strengthen the engagement of citizens and civil society in water policy-making and awareness.

- Egypt has been investing in targeted water resources outside the country as part of its water policy. These projects are located in the Upper Nile and include the Jonglei Canal Project, Bahr el Ghazal Project, and the Mashar Swamps Project. Although these projects are ambitious and innovative, they face increasing challenges, some of which are beyond the control of Egyptian decision makers. For example, the Jonglei Canal Project, based on the 1959 Nile Agreement between Egypt and Sudan, was interrupted several times and did not achieve its intended goal.

- Jonglei Canal can be considered a case study, from which we can draw lessons and experiences that will help us determine the necessary factors to assess and study the feasibility of ambitious water policy projects that the Egyptian government is implementing.

Case Study and Impact Assessment of the Jonglei Canal Project

The bilateral agreement of 8 November 1959, still in force in Egypt, stipulates that projects to reduce wasted water from the Nile shall be implemented in the swamps of Sudd, Bahr el Ghazal and its branches, the Sobat River and its branches, and the While Nile Basin – provided that the benefits and costs are divided equally between Sudan and Egypt.

- July 1976: French companies CCI and CFE assigned to implement the Jonglei Canal Project. In fact, 265 km of the 360 km-long canal were excavated, meaning that 70% of the project was implemented.

- In 1983: The drilling was suspended temporarily due to the unrest in South Sudan.

- February 1984: Works were completely suspended after insurgent groups attacked and destroyed the Sobat Camp and the companies' equipment, leading them to seek arbitration.

- In 1988: The arbitration body issued a judgement in favor of the companies, forcing the Sudanese Ministry of Irrigation to pay compensation.

- 12 March 1991: The Supreme Court of the United Kingdom issued a ruling to implement the judgement.

- In 1992: An agreement between the companies and Sudan was concluded by virtue of which Sudan had to pay USD 17.5 million through installments based on a predetermined timeframe.

- In 2000: Egypt and Sudan had paid equal shares of the USD 7.5 million owed to the companies, with a remaining sum of $10 million.

- 24 July 2000: An annex to the 1992 compensation agreement was signed, rescheduling the remaining debt. The last payment became due in 31 March 2007 rather than 30 June 2003.

However, the Sudanese Republic did not pay its share, leading the companies to demand the sum of 37,415,768 euros (approximately 37.5 million euros), which is the entire due amount plus interest.

This demand was followed by the freezing of the accounts of the Sudanese Ministry of Water Resources and Irrigation in three French banks.

As a result, the Public Prosecutor in Sudan appealed the court's ruling on confiscating the funds of the Sudanese Ministry of Water Resources and Irrigation. His appeal was

based on two arguments:

1- The due payment should be equally divided between Egypt and Sudan.

2- Given the cessation of South Sudan, there are some arrangements that both parties should make (the Government of Sudan and the State of South Sudan) regarding Sudan's external debts.

- 28 February 2018: The State Council's General Assembly of Legal Opinion and Legislation Departments confirmed that the Arab Republic of Egypt will pay the remaining costs of the Jonglei Canal Project to the French companies.

Note: The data mentioned in this table was collected from the State Council's Judicial Opinion No. 303 of 28 February 2018 to the Egyptian Prime Minister.

Conclusion

Water projects implemented during the past decade (20112020-) in Egypt have had significant positive impact, specifically the agricultural and irrigation projects, as the agricultural sector accounts for 75% of total water needs.[7] The National Canal Lining Project is one of the most prominent projects launched by President Abdel Fattah al-Sisi, who has expedited the implementation of this project and changed its previous plans. In fact, President Sisi issued instructions to complete the project, which was due in 2030 – in two years, rather than ten.

However, water policies still need to take into account the economic, social, and environmental aspects, rather than solely focusing on the goals of water security, i.e. the balance between available water resources and needs. From an economic perspective, several factors should be considered, such as not sacrificing future generations or overburdening the general budget with internal and external loans. In addition, it is important to integrate several economic goals and factors, such as reducing unemployment rates and creating more jobs in water and energy projects.

While water security is under threat in Egypt, it should not be the only focus of the discussion when it comes to water issues. Policies should tackle other key dimensions, such as water justice. The price of water should not be increased for the most economically and socially vulnerable. Alternatively, it is possible to adopt consumer segments and impose taxes on consumer industries and luxury products that rely on the drinking water network, as 30% of the industrial sector's water needs are covered through the drinking water network.

Egyptian diplomatic efforts and rapprochement, as well as the memoranda of cooperation with the Nile Basin countries, constitute a first step forward and give us reason to be optimistic. Yet, sustainability is a dynamic factor that should be considered so that these efforts do not become mere formalities. Egypt's projects are ambitious, but require measurable goals and criteria, a clear timeline, and well-defined responsibilities for each relevant ministry and government body.

7 Ministry of Water Resources and Irrigation, 2050 Water Resources Management Strategy.

About the Arab Reform Initiative

The Arab Reform Initiative is an independent Arab think tank working with expert partners in the Middle East and North Africa and beyond to articulate a home-grown agenda for democratic change and social justice. It conducts research and policy analysis and provides a platform for inspirational voices based on the principles of diversity, impartiality, and gender equality.

About Women for Justice Foundation

Women for Justice Foundation is a Canadian non-profit organization, aiming at developing and implementing activities that enhance women's participation, boost community development and promote rights, social justice, peace and dialogue through advocacy, networking and researching.

contact@arab-reform.net
Paris - Beirut - Tunis