

The Grand Ethiopian Renaissance Dam Fact Sheet

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Ethiopia is building one of the largest dams in the world, the Grand Ethiopian Renaissance Dam (GERD), on the River Nile near the Sudan border. The dam will flood 1,680 square kilometers of forest in northwest Ethiopia (an area about four times the size of Cairo), displace approximately 20,000 people in Ethiopia, and create a reservoir that will hold around 70 billion cubic meters of water – equivalent to the entire annual flow of the Blue Nile at the Sudan border. The project's projected electricity capacity of 6,000MW seems to have been exaggerated.

Poor Planning

Although it is Africa's biggest dam project and will have lasting impacts on its longest river, the GERD has been developed under a veil of secrecy. The dam will impact Ethiopians and downstream neighbors, yet its planning process has been top-down and unilateral. The public and dam-affected people have not been given a meaningful opportunity to critique the project or process. The Ethiopian government has stated it will not make changes to the project.

Even donor governments were taken by surprise when the project was suddenly begun. Norway, which had been designing two Nile dams for the Ethiopian government, was blindsided by the GERD project, which nullifies the work already done on the other two dam projects. *Development Today* magazine reports that Norway wasted about US\$2-3 million in work done on the now-obsolete projects.

Damming a shared river in a secretive and unilateral fashion goes against best practices for managing shared rivers. Says Mohamed Allam, former minister of irrigation and water resources in Egypt: "This is not just about Egypt and Sudan. International rivers are governed by laws and conventions, in accordance with which any action that affects water quotas requires advanced notice and guarantees against possible harm."

After construction began, Ethiopia agreed to the formation of an international Panel of Experts, with members from Egypt and Sudan, to review the GERD's social and environmental impacts on downstream nations. The 10-member panel submitted its report to the governments in June 2013; International Rivers received a leaked copy of the report in March 2014, which we published with our summary. The panel found numerous important gaps in the project documentation, and noted: "The (hydrological study) is very basic, and not yet at a level of detail, sophistication and reliability that would befit a development of this magnitude, importance and with such regional impact as GERD."

Egypt is calling for a new "neutral" panel to adjudicate differences over the project's downstream impacts. In January 2014, after a series of high-level meetings between the three governments, talks broke down. At this writing, Egypt was reportedly considering taking the dispute to the UN Security Council, and construction continues at a fast clip.

FAST FACTS: GRAND ETHIOPIA RENAISSANCE DAM

Where: Blue Nile, about 20 miles from Sudan border

Dam size: 145m high, 1,708m long

Reservoir size: Floods 1,680 sq km; holds about 70 bn cubic meters of water (equivalent to annual flow of Blue Nile at Sudan border)

Resettlement: At least 20,000 people

Dam Cost: US\$4.8bn (equal to about 15% of Ethiopia's GDP in 2012, and about 60% of the annual budget). One Egyptian dam experts believes the cost could expand to \$7bn.

Water Security Concerns

Although Ethiopia says the dam will benefit downstream neighbors and will have no ill effects on their water supply, there is no denying that the dam will give the upstream country greater control over the river's flow. A major concern is how filling the huge reservoir will affect water security in Egypt, which relies almost totally on the Nile for its water supply. Depending on how long it takes to fill the reservoir (it has been estimated it will take from 5-7 years), the Nile flow into Egypt could be cut by 12-25% during the filling period. One hydrologist estimates that the reservoir could evaporate 3bn cubic meters of water a year – three times Egypt's annual rainfall, and enough to meet the basic needs of up to half a million people. A major shortcoming is the lack of gauges on the Blue Nile in Ethiopia, which means data on the river's flow is inadequate.

According to a Bloomberg reporter who has reviewed the Panel of Experts report, the project document concludes that "Egypt faces a 6% reduction in the High Aswan Dam's electricity-generating capacity and no water loss if the reservoir is filled during years of average or high rainfall. If the reservoir is filled in a dry year it would 'significantly impact on water supply to Egypt and cause the loss of power generation at High Aswan Dam for extended periods'." The Panel is calling for a "comprehensive" additional study of the dam's impact on water resources, stating: "The analysis presented is very basic, and not yet at a level of detail, sophistication and reliability that would befit a development of this magnitude, importance and with such regional impact."

Climate change risks are another concern. Dams in Ethiopia are not being evaluated for how they will be impacted by climate change, nor for how reducing water and other natural resources for downstream users will affect their ability to adapt to a changing climate. According to a US Bureau of Reclamation economist who has studied proposed dam projects on the Blue Nile, "Climate change influences could play a major role in determining the success or failure of the proposed hydropower and irrigation projects.... Climate change scenarios indicate potential for small benefit-cost increases, but also reflect the potential for noteworthy decreases, relative to historical climate conditions."

Engineers' Concerns

A number of experts believe the dam is not going to produce as much power as is claimed, and that the dam should be smaller in size for efficiency and cost. Asfaw Beyene, a Professor of Mechanical

Engineering at San Diego State University (California) says the dam is 300% over-sized. "More than half of the turbines will be rarely used," he says. "GERD's available power output, based on the average of river flow throughout the year and the dam height, is about 2,000 megawatts, not 6,000. There is little doubt that the system has been designed for a peak flow rate that only happens during the 2-3 months of the rainy season. Targeting near peak or peak flow rate makes no economic sense." Beyene notes that that the issue is so highly politicized that "it seems to suppress legitimate engineering inputs and environmental discussions." He suggests that the concerned authorities should make the project transparent, and resize the hydroelectric power output by reducing the number of turbines.

Financing

Ethiopia has not succeeded in getting outside financing for the project, in part due to its lack of competitive bidding for the project's construction contract, and in part because of the project's potential for increasing water conflict in the region. The government says it will finance the costly project itself, and has developed a plan to sell dam bonds directly to citizens at home and abroad, and to private companies. Various reports say bond sales are not meeting expectations, due to "risk perceptions" among investors. Meetings to sell the bonds have met with protests in a number of cities around the world (for example San Diego and Canada).

Pressure to buy the bonds is intense. The Brookings Institute reports: "Government employees have been encouraged to devote as much as one or two months of their salaries to the purchasing of the GERD bonds. Most public workers in Ethiopia earn relatively low wages and face a significantly high cost of living. Hence, they are not likely to be able to sacrifice that much of their salaries to invest in this national project. Nevertheless, many of them have been observed purchasing the GERD bonds, primarily because of pressure from the government and the belief that participation in this national project is a show of one's patriotism."

Unanswered Questions

In addition to concerns about climate change risks, there are many unanswered questions about the project, including:

- How long will it take to fill the reservoir, and how will this disruption in flows impact downstream communities' water security?
- How will the life of the dam be affected by siltation?
- What is known about the ecology and biodiversity in the reservoir area and in downstream reaches?
- What is known about the link between the dams proposed on the Blue Nile and the expansion of land leasing and irrigation in the basin?
- What is known about the region's seismicity? What about the potential for the dam to be overwhelmed during flooding? What is known about dam safety standards in Ethiopia?

The Human Security Dimensions of Dam Development: The Grand Ethiopian Renaissance Dam, By Jennifer Veilleux, 2013 and Triumph and Tragedy: Ethiopia's hydropower binge, seen particularly in the controversial Renaissance Dam, raises questions about the nature of its objectives and their legitimacy, by Hdeel Abdelhady

The Grand Ethiopian Renaissance Dam (GERD or Taehige; Amharic: ታላቁ የኢትዮጵያ ህዳሴ ግድብ? *Tālāqu ye-Ītyōppyā Hidāse Gēdīb*), formerly known as the Millennium Dam and sometimes referred to as Hidase Dam, is a gravity dam on the Blue Nile River in Ethiopia currently under construction. It is in the Benishangul-Gumuz Region of Ethiopia, about 15 km (9 mi) east of the border with Sudan.^[12] At 6,000 MW, the dam will be the largest hydroelectric power plant in Africa when completed, as well as the 11th largest in the world sharing the spot with the Krasnoyarsk Dam.^[13] The storage reservoir has a surface area of 1561 km² at level of 640 m, i.e. 146 m behind the dam which holds a large volume of water equal to 79 billion m³.^{[14][15]} According to the Ethiopian government, as of October 2014, the dam is 40% complete.^[16]

The potential impacts of the dam have been the source of severe regional controversy. The Government of Egypt, a country which relies heavily on the waters of the Nile, has demanded that Ethiopia cease construction on the dam as a preconditions to negotiations, sought regional support for its position, and some political leaders have discussed methods to sabotage it.^[17] Egypt has planned a diplomatic initiative to undermine support for the dam in the region as well as in other countries supporting the project such as China, Italy, and Norway.^[18] However, other nations in the Nile Basin Initiative have expressed support for the dam, including Sudan, the only other nation downstream of the Blue Nile, which has accused Egypt of inflaming the situation.^[19] Ethiopia denies that the dam will have a negative impact on downstream water flows and contends that the dam will in fact increase water flows to Egypt by reducing evaporation on Lake Nasser.^[10] It has accused Egypt of being unreasonable; Egypt is demanding to increase its share of the Nile's water flow from 66% to 90%.^[10]

Background

The eventual site for the Grand Ethiopian Renaissance Dam was identified by the United States Bureau of Reclamation during a Blue Nile survey conducted between 1956 and 1964. The Ethiopian Government surveyed the site in October 2009 and August 2010. In November 2010, a design for the dam was submitted.^[1] On 31 March 2011, a day after the project was made public, a US\$4.8 billion contract was awarded without competitive bidding to Salini Costruttori and the dam's foundation stone was laid on 2 April 2011 by then Prime Minister Meles Zenawi.^[11] A rock crushing plant has been constructed along with a small air strip for fast transportation.^[12] The first two generators are expected to become operational after 44 months of construction.^[13] Egypt, which lies downstream, opposes the dam which it believes will reduce the amount of water that it gets from the Nile.^[14] Zenawi argued, based on an unnamed study, that the dam would not reduce water availability downstream and would also regulate water for irrigation.^[13] In May 2011, it was announced that Ethiopia would share blueprints for the dam with Egypt so the downstream impact could be examined.^[15]

The dam was originally called "Project X", and after its contract was announced it was called the Millennium Dam.^[16] On 15 April 2011, the Council of Ministers renamed it Grand Ethiopian Renaissance Dam.^[17] In March 2012, the Ethiopian government announced an upgrade to the power plant's design, increasing it from 5,250 MW to 6,000 MW.^[18] Ethiopia has a potential for around 45,000 MW of hydropower.^[19] The dam is being funded by government bonds and private donations. It is slated for completion in July 2017.^[1]

Design

The gravity dam will be a 170 m (560 ft) tall, 1,800 m (5,906 ft) long and composed of roller-compacted concrete. The structural volume of the dam will be 10,000,000 m³ (13,000,000 cu yd). Its reservoir will have a storage capacity of 79 km³ (64,000,000 acre-ft) and surface area of 1,561 km² (603 sq mi) when at a normal elevation of 640 m (2,100 ft). The dam will have three spillways, the main one is located to the left of the dam and will be controlled by six sector gates and have a design discharge of 15,000 m³/s (530,000 cu ft/s). Flanking either side of an uncontrolled spillway at the center of the dam will be two power houses. The right will contain 10 x 375 MW Francis turbine-generators and the left will house six of the same turbine-generators.^[20] Supporting the dam and reservoir will be a 5 km (3 mi) long and 50 m (164 ft) high rock-fill saddle dam. To the right of the saddle dam will be a third spillway for emergencies.^{[4][11]}

Cost and financing

The Ethiopian government has stated that it intends to fund the entire cost of the dam by itself. It has issued a bond targeted at Ethiopians in the country and abroad to that end.^[13] The turbines and associated electrical equipment of the hydropower plants costing about US\$1.8 billion are reportedly financed by Chinese banks. This would leave US\$3 billion to be financed by the Ethiopian government through other means.^[21] The estimated US\$4.8 billion construction cost, apparently excluding the cost of power transmission lines, corresponds to less than 15% of Ethiopia's Gross Domestic Product of US\$41.906 billion in 2012.

Construction

The main contractor will be the Italian company Salini Costruttori, which also served as primary contractor for the Gilgel Gibe II, Gilgel Gibe III, and Tana Beles dams. It is expected to consume 10 million metric tons of concrete, the government has pledged to use only domestically produced concrete. In March 2012, Salini awarded the Italian firm Tratos Cavi SPA a contract to supply low- and high-voltage cable for the dam.^{[20][22]} Alstom will provide the eight 375 MW Francis turbines for the project's first phase, at a cost of €250 million.^[23] As of April 2013, nearly 32 percent of the project is complete. Site excavation and some concrete placement is underway. One concrete batch plant has been completed with another under construction.^[24] Diversion of the Blue Nile was completed on 28 May 2013 and marked by a ceremony the same day.^[25]

Benefits

A major benefit of the dam will be hydropower production. The electricity to be produced by the hydropower plant is to be sold in Ethiopia and to neighboring countries including Sudan and possibly Egypt. Selling the electricity from the dam would require the construction of massive transmission lines to major consumption centers such as Ethiopia's capital Addis Ababa and Sudan's capital Khartoum, both located more than 400 km away from the dam. These sales would come on top of electricity that is expected to be sold from other large hydropower plants that are under construction in Ethiopia, such as Gilgel Gibe III.

Alleged over-sizing

The plant load factor of the planned hydropower plant – the expected electricity production divided by the potential production if the power plant was utilized permanently at full capacity – is only 33% compared to 45-60% for other, smaller hydropower plants in Ethiopia. Critics conclude that a smaller dam would have been more cost-effective.^[26] According to Asfaw Beyene, a Professor of Mechanical Engineering at San Diego State University (California), the dam and its hydropower plant are massively over-sized: "GERD's available power output, based on the average of river flow throughout the year and the dam height, is about 2,000 megawatts, not 6,000. There is little doubt that the system has been designed for a peak flow rate that only happens during the 2-3 months of the rainy season. Targeting near peak or peak flow rate makes no economic sense."^{[27][28]}

Environmental and social impacts

It appears that some form of environmental study has been undertaken, since the press reported that an international panel reviewed an environmental study in 2012. The NGO International Rivers has commissioned a local researcher to make a field visit because so little information is available.^[29]

Public consultation about dams in Ethiopia is affected by the political climate in the country. International Rivers reports that "conversations with civil society groups in Ethiopia indicate that questioning the government's energy sector plans is highly risky, and there are legitimate concerns of government persecution. Because of this political climate, no groups are actively pursuing the issues surrounding hydro-power dams, nor publicly raising concerns about the risks. In this situation, extremely limited and inadequate public consultation has been organised" during the implementation of major dams.^[30] In June 2011, Ethiopian journalist Reeyot Alemu was imprisoned after she raised questions about the proposed Grand Millennium Dam. Staff of International Rivers have received death threats. In the meantime, the late prime minister Meles Zenawi called opponents of the project "hydropower extremists" and "bordering on the criminal" at a conference of the International Hydropower Association (IHA) in Addis Abeba in April 2011. At the conference, the Ethiopian state power utility was embraced as a "Sustainability Partner" by the IHA.^[31]

Impact on Ethiopia

Since the Blue Nile is a highly seasonal river, the dam would reduce flooding downstream of the dam, including on the 40 km stretch within Ethiopia. On the one hand, the reduction of flooding is beneficial since it protects settlements from flood damage. On the other hand, it can be harmful, if flood recession agriculture is practiced in the river valley downstream of the dam since it deprives fields from being watered. The dam could also serve as a bridge across the Blue Nile, complementing a bridge that was under construction in 2009 further upstream.^[32] An independent assessment estimated that at least 5,110 people will be resettled from the reservoir and downstream area, and the dam is expected to lead to a significant change in the fishery.^[29] According to an independent researcher who conducted research in the area where the dam is being built, near to 20,000 people are being relocated. According to the same source, "a solid plan (is) in place for the relocated people" and those who have already been resettled "were given more than they expected in compensation". Locals have never seen a dam before and "are not completely sure what a dam actually is", despite community meetings in which affected people were informed about the impacts of the dam on their livelihoods. Except for a few older people, almost all locals interviewed "expressed hope that the project brings something of benefit to them" in terms of education and health services or electricity

supply based on the information available to them. At least some of the new communities for those relocated will be downstream of the dam. The area around the reservoir will consist of a 5 km buffer zone for malaria control that will not be available for settlement. In at least some upstream areas erosion control measures will be undertaken in order to reduce siltation of the reservoir.^[33]

Impact on Sudan and Egypt

The precise impact of the dam on the downstream countries is not known. Egypt fears a temporary reduction of water availability due to the filling of the dam and a permanent reduction because of evaporation from the reservoir. The reservoir volume is about equivalent to the annual flow of the Nile at the Sudanese-Egyptian border (65.5 billion cubic meter). This loss to downstream countries would most likely be spread over several years. Reportedly during the filling of the reservoir 11 to 19bn cubic meters of water per year could be lost, which would cause two million farmers to lose their income during the period of filling the reservoir. Allegedly, it would also "affect Egypt's electricity supply by 25 to 40 percent, while the dam is being built".^[34] However, hydropower accounts for less than 12 percent of total electricity production in Egypt in 2010 (14 out of 121 billion kWh),^[35] so that a temporary reduction of 25 percent in hydropower production translates into an overall temporary reduction in Egyptian electricity production of less than 3 percent. The Grand Ethiopian Renaissance Dam could also lead to a permanent lowering of the water level in Lake Nasser, if floods are stored instead in Ethiopia. This would reduce the current evaporation of more than 10 billion cubic meter per year, but it would also reduce the ability of the Aswan High Dam to produce hydropower to the tune of a 100 MW loss of generating capacity for a 3 m reduction of the water level.

The dam will retain silt. It will thus increase the useful lifetime of dams in Sudan – such as the Roseires Dam, the Sennar Dam and the Merowe Dam – and of the Aswan High Dam in Egypt. The beneficial and harmful effects of flood control would affect the Sudanese portion of the Blue Nile, just as it would affect the Ethiopian part of the Blue Nile valley downstream of the dam.^[36] Specifically, the GERD would reduce seasonal flooding of the plains surrounding the reservoir of the Roseires Dam located at Ad-Damazin, just as the Tekeze Dam, by retaining a reservoir in the deep gorges of the northern Ethiopian Highlands, had reduced flooding at Sudan's Khashm el-Girba Dam.

The reservoir, located in the temperate Ethiopian Highlands and up to 200 m deep, will experience considerably less evaporation than downstream reservoirs such as Lake Nasser in Egypt, which loses 12% of its water flow due to evaporation as the water sits in the lake for 10 months. Through the controlled release of water from the reservoir to downstream, this could facilitate an *increase* of up to 5% in Egypt's water supply, and presumably that of Sudan as well.^[37]

Reactions: cooperation and condemnation

Egypt has serious concerns about the project so that it requested to be granted inspection allowance on the design and the studies of the dam, in order to allay its fears, but Ethiopia has denied the request unless Egypt relinquishes its veto on water allocation.^[38] After a meeting between the Ministers of Water of Egypt, Sudan and Ethiopia in March 2012, Sudan's President Bashir said that he supported the building of the dam.^[39]

A Nile treaty signed by the upper riparian states in 2010, the Cooperative Framework Agreement, has not been signed by either Egypt or Sudan, as they claim it violates the 1959 treaty which gives Sudan and Egypt exclusive rights to the Nile's waters.^[40] The Nile Basin Initiative provides a framework for dialogue among all Nile riparian countries.

Egypt, Ethiopia and Sudan established an International Panel of Experts to review and assess the study reports of the dam. The panel consists of 10 members; 6 from the three countries and 4 international in the fields of water resources and hydrologic modelling, dam engineering, socioeconomic, and environmental.^[36] The panel held its fourth meeting in Addis Ababa in November 2012. It reviewed documents about the environmental impact of the dam and visited the dam site.^[41] The panel submitted its preliminary report to the respective governments at the end of May 2013. Although the full report has not been made public, and will not be until it is reviewed by the governments, Egypt and Ethiopia both released details. The Ethiopian government stated that, according to the report, "the design of the dam is based on international standards and principles" without naming those standards and principles. It also said that the dam "offers high benefit for all the three countries and would not cause significant harm on both the lower riparian countries".^[42] According to Egyptian government, however, the report "recommended changing and amending the dimensions and the size of the dam".^[43]

On 3 June 2013 while discussing the International Panel of Experts report with President Mohammad Morsi, Egyptian political leaders suggested methods to destroy the dam, including support for anti-government rebels.^{[44][45]} Unbeknownst to those at the meeting, the discussion was televised live.^[7] Ethiopia requested that the Egyptian Ambassador explain the meeting.^[46] Morsi's top aide apologized for the "unintended embarrassment" and his cabinet released a statement promoting "'good neighborliness, mutual respect and the pursuit of joint interests without either party harming the other.'" An aide to the Ethiopian Prime Minister stated that Egypt is "...entitled to day dreaming" and cited Egypt's past of trying to destabilize Ethiopia.^[47] Morsi reportedly believes that it is better to engage Ethiopia rather than attempt to force them.^[7] However, on 10 June 2013, he said that "all options are open" because "Egypt's water security cannot be violated at all," clarifying that he was "not calling for war," but that he would not allow Egypt's water supply to be endangered.^[48]

In January 2014, Egypt left negotiations over the dam, citing Ethiopian intransigence.^[10] Ethiopia countered that Egypt had set an immediate halt on construction and an increase of its share to 90% as the preconditions, which were deemed wholly unreasonable. Egypt has since launched a diplomatic offensive to undermine support for the dam, sending its Foreign Minister, Nabil Fahmi to Tanzania and the Democratic Republic of the Congo to garner support. Egyptian media outlets declared the visits productive and that the leaders of those nations had expressed "understanding" and "support" of Egypt's position.^[49] However, the accuracy of such statements are questionable; when Sudanese Foreign Minister Ali Karti criticised Egypt for "inflaming the situation" through its statements on the dam, and that it was considering the interests of both sides Al-Masry Al-Youm declared that Sudan had "proclaimed its neutrality".^{[9][50]} The campaign is intensive and wide-reaching; in March 2014, for the first time, just Uganda, Kenya, Sudan, and Tanzania were invited by Egypt to participate in the Nile Hockey Tournament.^[51] Foreign Minister Fahmi and Water Resources Minister Muhammad Abdul Muttalib planned visits to Italy and Norway to express their concerns and try to compel them to pull their support for the GERD.^[8]

In April 2014 Ethiopia's Prime Minister invited Egypt and Sudan to another round of talks over the dam and Nabil Fahmi stated in May 2014 that Egypt was still open to negotiations.^[52] Following an

August 2014 Tripartite Ministerial-level meeting, the three nations agreed to set up a Tripartite National Committee (TNC) meeting over the dam. The first TNC meeting occurred from 20 to 22 September 2014 in Ethiopia.^[53]

- ☒ "Grand Ethiopian Renaissance Dam Project, Benishangul-Gumuz, Ethiopia". *Water Technology*. Retrieved 7 June 2013.
- ☒ ☒ "Ethiopia's biggest dam to help neighbours solve power problem". *News One*. 17 April 2011. Retrieved 17 April 2011.
- ☒ ☒ "Ethiopia lays foundation for Africa's biggest dam". *ERTA News*. 2 April 2011. Retrieved 19 April 2011.
- ☒ ☒ "Salini will build the biggest dam in Africa". *Salini Costruttori*. 31 March 2011. Retrieved 17 April 2011.
- ☒ ☒ Ahmed, A. T.; Elsanabary, M. H. (13 March 2015). "HYDROLOGICAL AND ENVIRONMENTAL IMPACTS OF GRAND ETHIOPIAN RENAISSANCE DAM ON THE NILE RIVER" (PDF). *Sharm El Sheikh–Egypt: Eighteenth International Water Technology Conference (CNKI)*. Retrieved 9 April 2015.
- ☒ ☒ "40% of Grand Ethiopian Renaissance Dam completed: Ethiopian president". *Al-Ahram*. 3 October 2014.
- ☒ ☒ "Ethiopia official labels Egyptian attack proposals over new Nile River dam 'day dreaming'". *Washington Post*. 5 June 2013. Retrieved 7 June 2013.
- ☒ ☒ "Egypt plans dam-busting diplomatic offensive against Ethiopia". *UPI*. 27 Feb 2014. Retrieved 3 March 2014.
- ☒ ☒ "Sudan Foreign Minister Criticises Egypt Over Ethiopian Dam Dispute". *Sudan Tribune*. Retrieved 3 March 2014.
- ☒ ☒ Hussein, Hassen (February 6, 2014). "Egypt and Ethiopia spar over the Nile". *Al Jazeera America*. Retrieved 3 March 2014.
- ☒ ☒ "Ethiopia Launched Grand Millennium Dam Project, the Biggest in Africa". *Ethiopian News*. 2 April 2011. Retrieved 17 April 2011.
- ☒ ☒ Belete, Pawlos. "Great Millennium Dam moves Ethiopia". *Capital Ethiopia*. Retrieved 19 April 2011.
- ☒ ☒ "Meles Launches Millennium Dam Construction on Nile River". *New Business Ethiopia*. 2 April 2011. Retrieved 19 April 2011.
- ☒ ☒ "Egypt Stays Opposed to Ethiopia's Grand Millennium Dam Project". *EZega*. 11 April 2011. Retrieved 19 April 2011.
- ☒ ☒ "Egypt approves of Ethiopia's Renaissance Dam in principle". *Ethiopia News*. 16 May 2011. Retrieved 29 May 2011.
- ☒ ☒ "A Nation Rallies Behind a Cause". *Grand Millennium Dam*. Retrieved 29 May 2011.
- ☒ ☒ "Council of Ministers Approves Regulation Establishing Council on Grand Dam". *Ethiopian Government*. 16 April 2011. Retrieved 29 May 2011.
- ☒ ☒ "Ethiopia upgrades Africa's biggest dam". *The Africa Report*. 19 March 2012. Retrieved 15 April 2012.
- ☒ ☒ "Egypt & Sudan outraged by Ethiopia's Blue Nile Dam-By Thomas Land". *Hydro World*. 5 February 2013. Retrieved 19 February 2013.
- ☒ ☒ "Grand Ethiopian Renaissance Dam Project". *Salini*. Retrieved 17 January 2014.
- ☒ ☒ The Economist: The River Nile: A dam nuisance. Egypt and Ethiopia quarrel over water, April 20, 2011, Retrieved on April 24, 2011
- ☒ ☒ "Tratos wins contract for 6,800-MW Ethiopian project". *HydroWorld.com*. 2 March 2012. Retrieved 12 April 2013.

- Alstom:Alstom to supply hydroelectric equipment for the Grand Renaissance dam in Ethiopia, 7 January 2013
- "Current Project Status". Office of National Council for the Coordination of Public Participation on the Construction of the Grand Renaissance Dam. Retrieved 12 June 2013.
- "Ethiopia: Blue Nile Diversion Allows Dam Construction to Continue". allAfrica. 29 May 2013. Retrieved 23 June 2013.
- Beyene, Mehari (14 July 2011). "How efficient is The Grand Ethiopian Renaissance Dam?" (PDF). International Rivers. Retrieved 23 July 2011.
- "Why is the hydroelectric dam on the Blue Nile, the Grand Ethiopian Renaissance Dam (GERD), sized for 6000 MW?". Finfinne Tribune. 14 June 2013. Retrieved 13 October 2014.
- "Ethiopia's Biggest Dam Oversized, Experts Say". International Rivers: An Interview with Asfaw Beyene. 5 September 2013. Retrieved 13 October 2014.
- Pottinger, Lori (31 January 2013). "Field Visit Report on the Grand Ethiopian Renaissance Dam". International Rivers. Retrieved 12 April 2013.
- International Rivers: What Cost Ethiopia's Dam Boom?, February 2008, p. 13-14, Retrieved on April 25, 2011
- Bosshard, Peter (13 July 2011). "Sustainable Hydropower – Ethiopian Style". International Rivers. Retrieved 12 April 2013.
- Daily Ethiopia:Longest Ever Bridge In Ethiopia Under Construction, December 31, 2009, Retrieved on April 25, 2011
- Veilleux, Jennifer. "another view on the Nile : an interview with Jennifer Veilleux". catherinepfeifer blog. Retrieved 13 July 2013.
- "Death on the Nile". Al Jazeera. 30 May 2013. Retrieved 13 July 2013.
- "Egypt Overview". US Energy Information Administration. 18 July 2012. Retrieved 13 July 2013.
- "The dam speech". Grand Millennium Dam. 20 May 2012. Retrieved 12 April 2013.
- Salem, Mahmoud. "Regarding the Dam". Daily News Egypt. Retrieved 3 March 2014.
- "Ethiopia won't allow inspection of dam, but ready to negotiate with post-Mubarak Egypt". Almasry Alyoum. 23 April 2011. Retrieved 27 April 2011.
- Tesfa-Alem Tekle:Sudan's Bashir supports Ethiopia's Nile dam project, Sudan Tribune, March 8, 2012, retrieved on April 12, 2013
- Ashenafi Abedje, Voice of America:Nile River Countries Consider Cooperative Framework Agreement, March 18, 2011
- Tesfa-Alem Tekle:Panel pushes study on Ethiopia's Nile dam amid Egypt crises, Sudan Tribune, December 1, 2012, retrieved on April 12, 2013
- "INTERNATIONAL PANEL OF EXPERTS ON GERD RELEASES ITS REPORT". Inside Ethiopia. 1 June 2013. Retrieved 7 June 2013.
- "Ethiopia agrees on recommendations of tripartite committee". Egyptian State Information Service. 2 June 2013. Retrieved 7 June 2013. (link was dead and story could not be found on the ESIS website on July 2, 2013, but a quote can be found at HornAffairs:Egypt: The report modifies renaissance dam's size, dimensions)
- "Caught on tape, Egyptian lawmakers plot Nile dam sabotage". New York Amsterdam News. 6 June 2013. Retrieved 7 June 2013.
- "STRATFOR: Egypt Is Prepared To Bomb All Of Ethiopia's Nile Dams". Business Insider. 13 October 2012. Retrieved 7 June 2013.
- "Ethiopia summons Egypt's ambassador over Nile dam attack proposals". Washington Post. 6 June 2013. Retrieved 7 June 2013.
- "Ethiopia: Egypt Attack Proposals 'Day Dreaming'". Ya Libnan. 5 June 2013. Retrieved 7 June 2013.

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- ② ② "Egyptian warning over Ethiopia Nile dam". BBC News. 10 June 2013. Retrieved 10 June 2013.
- ② ② "Fahmy meets Tanzanian president ahead of Congo visit". Daily News Egypt. Retrieved 3 March 2014.
- ② ② "Sudan declares neutrality in Renaissance Dam problem, offers mediation between Egypt and Ethiopia". Egypt Independent. Retrieved 3 March 2014.
- ② ② "Tanzania Gets Nile Hockey Tourney Invitation". Tanzania Daily News. 1 March 2014. Retrieved 3 March 2014.
- ② ② "Egypt willing to negotiate over Ethiopia's dam: Foreign minister". Ahram Online. 18 May 2014. Retrieved 18 May 2014.
- ② "Ethiopia: The First Meeting of the Tripartite National Committee On the Grand Ethiopian Renaissance Dam Concludes". All Africa. 22 September 2014. Retrieved 17 January 2015.