



# Ethiopia's Gibe III Dam

## SOWING HUNGER AND CONFLICT

Three generations of Kwegu stand alongside the Omo River. The Omo's flow is the lifeblood of their food security. ©Alison M. Jones/www.nowater-nolife.org

The Omo River is a lifeline for 500,000 indigenous people living in eastern Africa. If completed, Ethiopia's Gibe III Dam will regulate and reduce the Omo River's flow, increasing hunger and fueling conflict throughout the basin. The dam could push Kenya's Lake Turkana – the world's largest desert lake – toward ecological collapse. Opposition to the project in Ethiopia has been muted by the government, but in Kenya, Lake Turkana communities have been steadfast in their opposition to the project, sparking legal action and an international debate. Given the project's massive social and environmental impacts, Gibe III Dam should be stopped immediately.

### UNRAVELING ETHIOPIA'S LOWER OMO VALLEY

In 2006, Ethiopia began construction on its largest infrastructure project to date, the Gibe III Dam. Unless stopped, the dam is on track to be one of Africa's worst development disasters. The

dam will bring major hydrological changes to a very fragile ecosystem, to which local people have adapted over millennia. By eliminating the Omo River's natural flood cycle, the dam will put the Dassanech, Mursi, Nyangatom, and other indigenous



## Fast Facts: Gibe III Dam

<b>Location</b>	300 km (190 miles) southwest of Addis Ababa, on the Omo River
<b>Cost</b>	€1.55 billion (at current exchange rate, about US\$2.11 billion). Project costs have increased 11% since 2006.
<b>Dam Design</b>	Roller Compacted Concrete (RCC) gravity dam 243 meters (787 feet) tall – the tallest dam in Africa
<b>Reservoir</b>	<b>Storage capacity:</b> 11.75 billion m <sup>3</sup> (415 billion ft <sup>3</sup> ) <b>Surface:</b> 211 km <sup>2</sup> (84 miles <sup>2</sup> ) <b>Length:</b> 151 km (94 miles)
<b>Transmission Line</b>	A 65-km-long (40 mile) 400 KV transmission line; a new substation will be built.
<b>Electricity</b>	1,870 MW (6,500 GWh/yr), more than doubling the country’s current installed capacity.
<b>Original Timeline</b>	2006: Construction began    2011: First power    2012: Fully completed

peoples at great risk. At least 100,000 people depend on food cultivated in the river’s flooded banks, a practice known as flood-retreat cultivation. The river’s harvest helps support an additional 100,000 people through local trading practices between farmers and herders. This traditional food system is crucial for these communities because they live in one of the poorest, most remote parts of Ethiopia and have long been politically marginalized. The flood also supports the renewal of grazing lands for herders, and signals migratory fish species to begin spawning.

A questionable artificial flood has been designed by the dam’s planners as a way to restore some water to the dam-stressed system. The artificial flood would last only 10 days, failing to mimic the natural flood’s gradual build-up over several months. This truncated 10-day flood would not reach all the areas now nurtured by annual flooding, and would fall far short of supporting current agricultural productivity. Experts believe the artificial flood would fail to maintain the local ecology, livelihoods and economy.

There is also concern that the artificial flood may not be maintained. In a hydrology study on the dam commissioned by the African Development Bank (AfDB), Kenyan hydrologist Dr. Sean Avery notes, “What assurance is there that the releases will be sustained given the conflict of interest with power generation? There are concerns that there is past experience that any ecological flow rules may be disregarded to suit other more pressing national needs. For instance, an environmental audit of the Gibe I project, undertaken by Ethiopian professionals, reported that although compensation flow releases had been stipulated for that scheme, no compensation flows were being released.”

### DRAINING KENYA’S LAKE TURKANA

Lake Turkana, the world’s largest desert lake, receives up to 90% of its water from the Omo River. For 300,000 people living near it, Lake Turkana is their best defense against hunger and conflict.

Gibe III Dam (which will be Africa’s tallest) will reduce the available river flow to Lake Turkana in several important ways. First, the lake will be particularly vulnerable during the filling of dam’s reservoir, which is expected to take several years.

According to the AfDB hydrology study, “The water volume to fill Gibe III reservoir would deprive the lake of 85% of its normal annual inflow in one year... The potential impact on the lake is significant. The filling of the dam has the potential to dry up the most productive fishing area of the lake.”

After the dam is built, Lake Turkana will remain vulnerable to reduced Omo River flows. The AfDB study notes that the reservoir will “forever capture” sediment transported by the river, leading to downstream erosion, changes in water quality, and reduced water tables. Studies of the reservoir area have been insufficient to determine seepage losses, though one independent study by the African Resources Working Group suggests that 50-75% of impounded water could be lost through porous ground. Much water will also evaporate from the reservoir. Finally, the government of Ethiopia intends to take water for large-scale irrigation schemes throughout the Omo Valley. “None of these impacts have been quantified” in project documents, says Dr. Avery.

## Gibe III Dam: Who's Who

Despite aggressive efforts by the Ethiopian government, a number of international funders have avoided entangling themselves in this destructive project. In 2007, the Italian export credit agency, **SACE**, rejected the Italian contractor's request for a project-related guarantee. In 2007, **JP Morgan Chase** was reportedly approached for a commercial loan to support the project that never materialized. In 2010, the **African Development Bank**, **World Bank** and the **European Investment Bank** halted project consideration after Ethiopia withdrew its funding requests.

Here is a summary of the players who remain actively involved in Gibe III:

The state-owned utility, **Ethiopian Electric Power Corporation (EEPCo)**, is responsible for development and oversight of the Gibe III Dam. EEPCo awarded the project's no-bid contract in July 2006. In 2008, EEPCo floated its first-ever corporate bond, backed by the Commercial Bank of Ethiopia, to raise equity from the Ethiopian Diaspora for support of the Gibe III Dam. Ethiopia plans to pay \$572 million from its national budget toward the project.

In 2006, Italian construction giant **Salini Costruttori** was awarded the Gibe III project contract by EEPCo. Salini received similar, no-bid contracts for the Gilgel Gibe 2 hydropower tunnel scheme and Tana Beles Dam. Salini has long enjoyed a profitable role in Ethiopia's infrastructure sector.

In 2010, China's largest bank, **Industrial and Commercial Bank of China (ICBC)** became the premier project backer by underwriting a \$500 million contract for

the electro- and hydro-mechanical works that had been awarded to Chinese state-owned company **Dongfang Electric Corporation**. The loan will damage ICBC's reputation as a diligent, environmentally responsible bank. International groups are now calling on ICBC to cancel its loan, and calling on other banks to stay out of Gibe III Dam. In July 2009, a \$34 million sub-contract was also awarded to Chinese company **TBEA**, for the project's transmission line. It was expected to be financed by **China Exim Bank**, although there is no confirmation at this time.

The **Government of Italy** has been asked to provide approximately \$341 million in development aid to support the Gibe III Dam. To date, it has not made a formal decision. Italian civil society groups have lobbied their government not to support the project. In 2004, Italy provided a similar credit, its largest ever, for Gibe II. The Gibe II loan decision created controversy in Italy, including parliamentary questions and a criminal investigation.

The **Government of Kenya** is deeply involved in the Gibe III Dam. It is a potential buyer of the dam's electricity. In 2006, a Memorandum of Understanding was signed between Ethiopia and Kenya for the purchase of 500 MW from the dam. An \$800 million grid connection between Kenya and Ethiopia is also planned, but has yet to be financed.

The **East African Power Pool (EAPP)** was launched in 2005 to facilitate the trade of electricity between countries. Gibe III is expected to be a priority project in the next EAPP regional power master plan.



Yet the impact of Gibe III on Lake Turkana is barely acknowledged in the project’s impact assessment, and is dismissed with claims that the dam will benefit, not harm, the lake. Project preparation has fully ignored Kenya’s customary downstream water rights in this shared river basin.

In recent years, the lake has been shrinking and becoming progressively more salty. If the water level continues to fall, the lake’s fragile balance could be destroyed, affecting hundreds of thousands of fishers and pastoralists.

### TEARING FRAGILE PEACE APART

The communities of the Lower Omo Valley and Lake Turkana inhabit an isolated region void of modern infrastructure. Neighboring tribes have a long history of conflict, which worsens when food and other resources are scarce. By changing the river flow, the dam would exacerbate food insecurity for downstream indigenous communities. Scarce food will escalate violent conflicts between tribes struggling over shared resources.

But the dam is just one factor in a perfect storm brewing in the cross-border region. Automatic weapons distributed from southern Sudan have become a basic accessory for those living in this insecure region. Droughts are increasing in frequency and length, reducing resources. In Ethiopia, the government is taking traditional indigenous lands for

large-scale agriculture and biofuel schemes and exploring for oil and minerals. The region is also home to a volatile area of disputed national borders between Ethiopia, Kenya and Sudan, known as the Ilemi Triangle. As traditional resources diminish and government land use increases, latent tensions could erupt.

### OPPOSITION TO THE PROJECT

Although Ethiopians are hampered from speaking out against the project, a report on the project’s flawed consultation process, prepared for the AfDB, leaves no question about strong opposition to Gibe III by the affected people around Lake Turkana. It states that “hostility to the project made it very difficult to discuss any ideas on mitigation,” and notes that “some of the communities suggested that Kenya should fight with Ethiopia” over Gibe III.

“We oppose any current push towards development that is driven predominantly by commercial interest and which undermines our indigenous economies and denies us the little control we have over our already undermined survival,” Lake Turkana communities – the Turkana, Dassanach, Rendille, Gabbra, Samburu and Elmolo people – have stated in a declaration.

Kenya-based Friends of Lake Turkana has been actively campaigning to stop the dam on behalf of the Lake Turkana

## Beyond the Reservoir: Downstream Affected People

Downstream Affected Peoples	Population	Indigenous and Other Ethnic Groups
Indigenous peoples in Ethiopia’s Lower Omo Valley directly engaged in flood-retreat cultivation	100,000	Bodi, Daasanach, Kara (Karo), Muguji (Kwegu), Mursi, Nyangatom
Indigenous peoples in Ethiopia’s Lower Omo Valley who also depend on the floods (for grazing lands or trade with farmers for flood-retreat produced agriculture)	100,000	Bashada, Bodi, Hamar, Mursi, and Nyangatom
South Omo administrative zone in Ethiopia, including the Lower Omo Valley (90% rural)	500,000	Amhara (Ethiopia’s dominant ethnic group), Arbore (Hor), Ari, Atse, Banna, Basketo, Birale (Ongota), Bodi, Daasanach (Galeb), Dime, Hamar, Kara (Karo), Konso resettled in Sala Mago Wereda, Maale, Muguji (Kwegu), Murile, Mursi, Nyangatom (Bume), Tsamai, Tsemako
Population supported by Kenya’s Lake Turkana	300,000	Dassanach, Elmolo, Gabbra, Rendille, and Turkana



peoples, and with its international partners has brought global attention to the dam's potential impacts on the lake. The group has worked to educate lawmakers on the dam's impacts, gone to court to stop Kenya from purchasing power from the dam, and filed a complaint with the AfDB when the bank was still considering funding the project. The complaint led to an independent study of project impacts to the lake, and meetings with communities in Kenya, who had never been consulted on the project. At this writing, Friends of Lake Turkana is petitioning Chinese funders to stay away from the project.

### **ETHIOPIA: DAMS HAVEN'T BROUGHT DEVELOPMENT**

Land-locked, densely populated and known for its chronic food insecurity, Ethiopia is one of the world's poorest countries. Even after several years of rapid economic growth, the vast majority of Ethiopians are family farmers. Just 15% of Ethiopia's 80 million people have access to electricity, mostly in cities. For most, electricity will remain out of reach for years to come. The reasons are complex, but one key factor has been poor planning and mismanagement by the electricity sector.

Ethiopia has completed three hydro dams in recent years. The dam boom has been marked by a lack of sound studies and fast-tracked construction. Two of Ethiopia's most recent hydro projects were completed two years late after encountering costly, technical delays, which may have been averted with proper preparation and oversight. Tekeze Dam was poorly sited, and major landslides have already eroded the slopes around the reservoir, requiring costly reinforcement. And proper hydrological studies were waived for the Gibe II hydropower project, which suffered a tunnel collapse two weeks after project completion. Tunnel repairs took nearly a year to complete. Gibe III has been marred by similar poor planning and ill-advised shortcuts, putting it at similar risk for costly problems.

For example, a 2010 report on the problems that beset Gibe II, written by independent Ethiopian engineers, raises alarms about the poor seismic studies for Gibe III. The engineers say that the Gibe III study minimizes actual risk to the project, calling it "erroneous but also reckless," and note that large earthquakes have occurred in the project area. "Neglecting the risks posed by seismic hazards in such a



A farmer in his fields in the Lower Omo Valley. Some 500,000 pastoralists who call the area home could be harmed by changes to the river from the Gibe dam development. ©Alison M. Jones/www.nowater-nolife.org

region with recorded history of significant seismic events, we believe, has tremendous negative consequences in the future usefulness of these projects," they state.

Poor rainfall has also reduced hydropower availability, causing power outages and shutting down factories. In 2003, Ethiopia experienced six months of drought-induced power cuts which cost the economy an estimated \$200 million. In 2008, Ethiopia twice experienced drought-induced power cuts. Without improving dam standards and addressing its over-reliance on hydropower, Ethiopia's growing energy sector will remain very vulnerable.

Bringing modern energy services to the majority in Ethiopia will require more aggressive investments smaller, decentralized power plants nearer to unelectrified communities. Yet the government has geared its energy investments toward building large dams to export electricity, and hopes to make hydroelectricity its most valuable export. A recently proposed plan would increase the national power supply six-fold, to more than 13,000 MW, by 2015. Ethiopia's national budget already depends heavily on development aid, and the capital cost of multiple megadams will require enormous amounts of international funding – and could create mountains of debt.

### **IGNORING LAWS AND BEST PRACTICES**

The Gibe III Dam violates the following domestic laws, international agreements and best practices:

**Ethiopia's Procurement Law:** Large public works projects are one of the world's most corrupt sectors, and no-bid contracts are an open invitation to corruption. In July 2006, the government of Ethiopia directly awarded the Gibe 3 project contract to Italian construction company Salini. The contract, worth more than \$2 billion, violated Ethiopia's Federal Public Procurement Directive, which requires international competitive bidding – a process that could have lowered the overall project cost and improved quality of the work.

**Ethiopia's Environmental Law:** Construction began in 2006 without an approved Environmental and Social Impact Assessment (ESIA), violating Ethiopian environmental law. In 2008, Ethiopia's Environmental Protection Authority approved the project ESIA, despite the report's lack of scientific study and analysis. The ESIA did not include sufficient geological studies or baseline health studies. It neglected to assess the impact of daily water releases, which would speed up erosion of riverine forests. Project alternatives are covered in a simplistic one-page analysis. Arguably the most extreme example of project negligence is the ESIA's statement that the dam will benefit Lake Turkana by aiding its restoration. A number of independent analyses have underscored the ESIA's poor quality. (We learned in Jan. 2011 that the Kenya Electricity Transmission Company Ltd has hired a team of consultants to do another ESIA on the project. A member of that team reports that the study will look at the cumulative effects of Gibe I, II, and III. No other details were available at press time.)

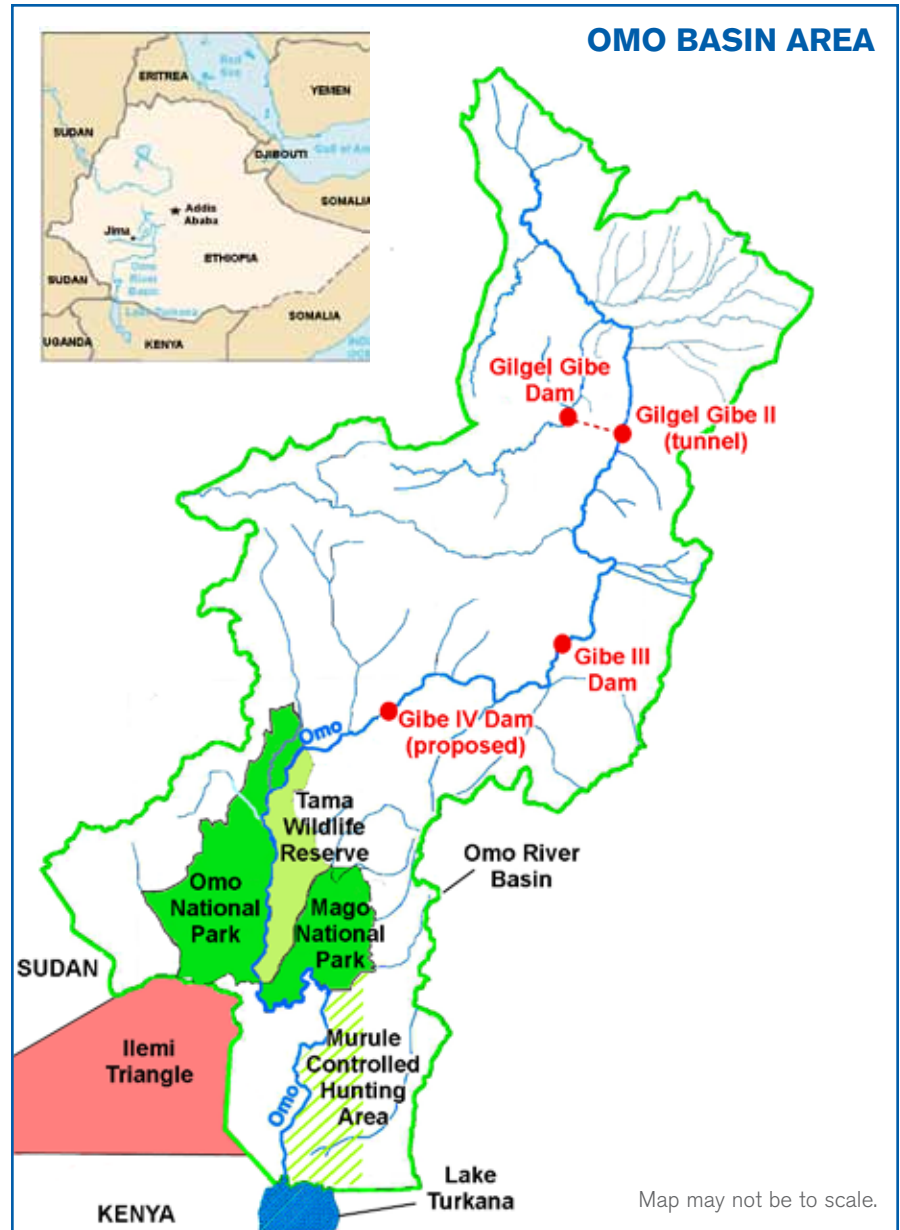
**Ethiopia's Constitution:** According to the ESIA, consultations occurred after construction began, and less than 100 affected people were consulted. The lack of consultation violates the constitutional rights of affected peoples.

**Kenya's Constitution:** Kenya's new constitution, adopted in 2010, protects Kenyan citizens' right to a clean and healthy environment. A lawsuit has been filed against the government for violating this right of the Lake Turkana communi-

ties by entering agreements to purchase electricity produced by the Gibe III Dam.

**UN Declaration of Indigenous Peoples:** This project violates the rights of indigenous peoples to give free, prior, informed consent to developments on their land, and the rights of indigenous peoples to determine the use of their lands and other resources.

**UN Convention on Biological Diversity:** The Gibe III Dam's transboundary impacts to Lake Turkana violate Articles 8J



and 10C, which refer to indigenous rights, and Article 14, which refers to adverse environmental impacts.

**African Charter on Human and Peoples' Rights:** In 1998, Ethiopia ratified the African Charter on Human and Peoples' Rights, which protects all people's rights to decisions over their wealth and natural resources.

### A LESS RISKY DEVELOPMENT PATH

Extreme hydro-dependence leaves Ethiopia's power sector vulnerable to drought, an increasingly likely scenario due to climate change. Yet analysis of drought and climate change impacts has not been undertaken for Gibe III or for Ethiopia's electricity sector. Adapting to climate change requires flexibility, but Ethiopia is putting all its eggs in the big-dam basket, and exposing its people and economy to great risks.

*Diversity and Security in the Ethiopian Power Sector*, a 2009 study commissioned by Ethiopian NGOs and the Heinrich Boell Foundation, notes that Ethiopia already depended on hydropower for 95% of its electricity; current plans would push it toward 100% dependency. "A hydro-dominated strategy makes the power system and the economy vulnerable to climatic variations, geo-hazards, economics and politics. Ethiopia is highly prone to climatic variability; variability is increasing while at the same time there is gradual decline in rainfall." The report goes into detail on how Ethiopia could diversify its energy system away from big hydro.

Developing renewable energy supplies will diversify the national energy supply and reduce its vulnerability to climate change. Studies have confirmed that Ethiopia has immense

*"The lake is our heart.  
When the heart stops beating,  
there is nothing but death."  
– Turkana fisherman from  
the western lakeshore*

solar, wind, small hydro and geothermal energy resources. Ethiopia and its neighbors also have huge scope to reduce energy losses through ageing transmission systems, and other ways of cutting energy demand.

Given growing repression in Ethiopia, a public debate about the country's energy sector planning is impossible today. This comes at a cost to all Ethiopians. Increasing transparency for Ethiopia's major energy projects would improve the quality of projects going forward.

Ethiopia has huge potential for hydropower, and should be able to come up with much better projects than the disastrous Gibe dams. The country could benefit from adopting the guidelines of the World Commission on Dams, which among other things call for a thorough assessment of options for meeting energy needs before specific dam projects move forward. Ethiopia should strive to develop hydropower projects that impose the fewest impacts on its people and the environment, and ensure that future projects are well-designed, sufficiently studied, publicly debated, and follow domestic laws and regulations. Such steps would reduce the risk of development disasters like Gibe III in future.



Kenya's Lake Turkana is at the heart of the lives of 300,000 people. If Gibe III is completed, the lake could shrink dramatically. Photo: Friends of Lake Turkana

## RESOURCES

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### MEDIA

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### ORGANIZATIONS

Bank Information Center [www.bicusa.org](http://www.bicusa.org)

Campagna per la Riforma della Banca Mondiale [www.crbm.org](http://www.crbm.org)

Friends of Lake Turkana [www.friendsoflaketurkana.org](http://www.friendsoflaketurkana.org)

International Rivers [www.internationalrivers.org](http://www.internationalrivers.org)

Indigenous Peoples of Africa Coordinating Committee [www.ipacc.org.za](http://www.ipacc.org.za)

Solidarity Movement for a New Ethiopia [www.solidaritymovement.org](http://www.solidaritymovement.org)

Survival International [www.survival-international.org](http://www.survival-international.org)