

Water, Land, and Oil:

Drivers of major upheaval in the Lower Omo Valley and Lake Turkana

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Introduction

Major changes are sweeping through the Lower Omo Valley and Lake Turkana in Ethiopia and Kenya. The expansion of commercial agriculture and plans to produce oil and electricity in the region have already caused huge amounts of upheaval. The imminent completion of the Gibe III Dam on the Omo River will cause a drop in Lake Turkana’s water levels and allow the Omo River’s flow to be diverted for irrigation year-round. Downstream of the Gibe III, enormous tracts of land have been set aside for large agricultural plantations growing thirsty crops such as sugar and cotton. Roads and factories are being built to transport and process the crops, large areas of land have been cleared, and extensive irrigation canals now stretch from the Omo River to provide water for fields. Additionally, the discovery of a large aquifer and massive oil reserves in the Turkana region brings another category of risks that typically accompany large-scale resource extraction.

Local people have not had a voice in the development process surrounding these projects, and in many cases are experiencing great harm as their land and livelihoods are taken from them. The implementation of these projects has violated the protection of basic human rights. For many people, especially the most vulnerable people in the region, opportunity is turning into tragedy.

This fact sheet describes some of the changes happening in the Lower Omo Valley and the Turkana region and their implications for people and the environment. Developments are framed within their broader context, and many of the major companies working in the region are identified. Finally, recommendations for the governments of Kenya and Ethiopia are provided.

Gibe III

The cornerstone of agricultural developments in the Omo Valley is the Gibe III Dam on the Omo River. Gibe III will regulate floods and raise dry season river flows, thus providing a year-round source of water and enabling large-scale agricultural development. When completed, Gibe III will be 243 meters high and potentially provide 1,870 MW of electricity, equal to the entirety of Kenya's current electrical generating capacity (Avery, 2013). In September of 2014, the Ethiopia Electric Power Company stated that the Gibe III was 87% complete and that power production was expected to begin in the spring of 2015 (International Water Power & Dam Construction, 2014).



Figure 1: Gibe III dam under construction (EEPCo, 2012).

The Industrial and Commercial Bank of China is the only international financier; it is currently providing financing for the project's turbines. However, the World Bank, the African Development Bank, and the French Development Agency are financing related power lines connecting the grids of Kenya and Ethiopia, a link which will be part of the East African Power Pool (Boniface, 2013; Human Rights Watch, 2014a). Much of the power flowing through this link will come from the Gibe hydroelectric projects (Bosshard, 2012). Even though International Financial Institutions (IFIs) had backed out of financing of the Gibe III and the government of Kenya has raised concern about the dam's impacts, these parties are promoting the construction of the dam through the "backdoor" by financing this power line. By funding the transmission lines, they are indirectly supporting the construction of the Gibe III and Kenya is agreeing to buy power from the Gibe III.

In response to Kenya's agreement to purchase power from Ethiopia as well as the construction of the transmission line, Friends of Lake Turkana (FoLT) filed a petition against the Government of Kenya. FoLT requested full disclosure of information from the Kenyan Government, Kenya Power and Lighting Company (KPLC) Limited, and Kenya Electricity Transmission Company (KETRACO) and a prohibition on

further agreements with the Government of Ethiopia until sufficient studies were done on the impacts of the Gibe III Dam. In 2014, the High Court granted the request for Kenya, KPLC, and KETRACO to release all relevant information regarding the sale, importation, and transmission of electricity from Ethiopia (Bett, 2014).

Gibe IV and V

Gibe III is upstream of two more planned dams on the Omo River, the Gibe IV and the Gibe V. Gibe IV would have a reservoir roughly the same size as the Gibe III (Avery, 2012) and would likely be managed in a similar way to the Gibe III, possibly causing it to have similar impacts on downstream ecosystems and Lake Turkana. Gibe IV is planned to have a generation capacity of 1,470 MW, and the Gibe V would have a capacity of 660 MW (Asham Addis, 2014). Little information is currently available about these projects. In 2009, Sinohydro signed an MOU with Ethiopia to construct the Gibe IV; however, it is unclear whether it is still involved with the project (Industrial Info Resources, 2009).

Overview of Agriculture in the Lower Omo Valley



Figure 2: Sugar Plantation in the Omo. Photo by F.H.

The possibility of using the Omo River to irrigate massive agricultural areas in the Lower Omo Basin has been formally considered for decades. The Ethiopian Government's Omo-Gibe Basin Master Plan (1996), financed by the African Development Bank, revealed that upriver dams on the Omo River would be

necessary to supplement the river's low flows for irrigation needs. It also noted that the process of developing the region would require trans-boundary dialogue with Kenya and the involvement of local people in negotiations to ensure that they were able to meet their own development priorities and that their resources were as little as affected as possible. The document also pointed out that water levels in Lake Turkana could permanently drop from irrigation (Avery, 2012).

The Master Plan only evaluated impacts from an area one-sixth the size of the area now slated for development in the Omo Basin (Avery, 2013). The impacts predicted by the Master Plan will be even more serious given that cultivation of more than 375,000 hectares of land is now planned, with 150,000 hectares of land set aside for sugarcane plantations, including 33,000 hectares from Mago National Park and a third of Omo National Park. These sugarcane plantations are run by the state-owned Ethiopian Sugar Corporation. An additional 200,000 hectares are being set aside for both private farms owned by Ethiopians and foreign investment (Hurd, 2013). These farms will chiefly grow sugarcane, cotton, palm oil, and grains (Hurd, 2013).

As these agricultural developments escalate, the options for sustainable livelihoods for indigenous people in the area are shrinking. Traditional livelihood activities such as flood recession agriculture, pastoralism, fishing, and foraging are all being negatively affected. Recently, there has been accelerated deforestation/clearing of bushland and forests used by indigenous peoples (Baldwin, 2014). For some people, the declining amounts of seasonal wild food have reached crisis levels (Baldwin, 2014).

International human rights and environmental groups have raised concerns about many of these agricultural projects. The plans have been categorized as land grabs by many outside observers (Woldegebriel, 2014). For example, from about 2013 – 2014, the 7,000 member Bodi tribe lost almost all of their land to agricultural schemes without adequate compensation or consultation (HWR, 2014a).

A plantation in the Omo Valley, irrigated by the Koka River, offers a cautionary tale. In 2010, a 30,000 hectare (74,000 acre) palm-oil plantation was established (Flores, 2014). Members of the Suri tribe were forcibly removed from their land and feared government retaliation for any resistance or for speaking out against relocation. Some Suri people were arrested randomly and then sentenced to prison for up to 25 years (The Oakland Institute, 2013). Eventually, some members of the tribe took up arms in protest, and in retaliation, government forces killed 54 unarmed Suri in a public marketplace (Flores, 2014).

Cotton

Expansion of all aspects of the textile industry within Ethiopia, from farms to clothing manufacturing, is a main component of the government's plans for economic growth (AllAfrica, 2014). Currently, cotton is being grown on approximately 125,000 hectares of land in Ethiopia (Getachew, 2014a), which is only a small fraction of the three million hectares that the government estimates could be cultivated (AllAfrica, 2014). Ethiopia is attempting to encourage additional foreign investment into its garment and textile industry and is becoming increasingly attractive due to the low cost of labour in the country (AllAfrica, 2014).



Figure 3: Cotton farm in the Lower Omo Region. Photo by P.A.

China, Germany, and Turkey are currently the main markets for Ethiopian textile products (Getachew, 2014a). Western companies such as Primark, Ayka, H&M, and Asda have started production in Ethiopia, while others such as TUSKON (Turkey), Phillips -Van Heusen (US) and Jiang Lianfa Textile (Chinese) have visited Ethiopia for initial scouting trips (AllAfrica, 2014). However, doing business in the country carries some risk due to unethical expansion of the agricultural industry in certain areas of Ethiopia. H&M has already been criticized in Sweden for possibly using cotton produced from areas in Ethiopia in which land grabs occurred (TV4, 2014).

As of 2011, there were multiple land concessions for cotton in the Omo region, including more than 50,000 hectares for cotton plantations or combined cotton/grains/seeds in the SNNPR (Southern Nations, Nationalities, and Peoples' Region). Owners of these plantations include Ethiopian, diaspora, and Indian companies (The Oakland Institute, 2011). In 2012, an additional contract was signed with a Turkish farm to develop the Omo Valley Farm Cooperation Plc. (Ministry of Agriculture, 2014), and in 2014, AYCOOM Agricultural Development Plc, a new company formed by Ayka and the Omo Valley Agricultural Development Plc, leased 10,000 hectares in the Lower Omo to develop an organic cotton farm (Merhatsidk, 2014). Ayka is a Turkish company that has invested approximately 160 million dollars in Ethiopia already and employs around 7,000 people in the country. As large textile investors in Ethiopia are still somewhat rare, representatives of the company have noted that they have the ability to contact government ministers directly about problems they encounter due to their special status (Becker, 2014).

As part of its 2012 contract with the government, Omo Valley Farm Cooperation Plc. agreed to deliver an Environmental Impact Assessment (EIA) to Ethiopia within three months after beginning construction of its farm (Ministry of Agriculture, 2012); at this writing, the project's EIA has not yet been released publicly. A release of this document would have clarified what, if any, environmental impacts were considered during establishment of this farm, including the impacts of clearing vegetation and construction, an influx of labor, and water use. The release of these documents is important to ensure a transparent development process and is a sign of willingness to open dialogue with local people and civil society on the impacts of development.

Sugar

Ethiopia has ambitions to become one of Africa's main sugar producers (World Bulletin, 2014). The government has made plans to increase production from 300,000 tons of sugar to 2.25 million tons of production per year by building 10 sugar factories and increasing sugarcane production as part of the



Figure 4: Sugar plantation. Photo by The Oakland Institute.

first phase of Ethiopia's Growth and Transformation Plan (Mwanza, 2014). Large amounts of infrastructure for production of sugar and ethanol are being developed. In the South Omo Zone, 200,000 hectares of state-run sugar plantations and seven sugar processing factories are planned. The first of the seven factories is expected to be fully operational in 2015 and will be able to crush 12,000 tons of sugarcane per day (Bacha, 2014). The government has started relocating approximately 150,000 indigenous people living near the sugar plantations, voluntarily or forcefully, into permanent settlements (HRW, 2014a).

Some communities have refused to move into resettlement villages (Baldwin 2014) and others arrive, receive food aid, and then decide to return to their homes (HRW, 2014a). Reports of human rights abuses are rampant, including killings, coercion, intimidation, rape, and restriction of access to traditional lands (Hurd, 2013). There are reports of the destruction of food stores to force people to settle in government villages; government forces have reportedly destroyed sorghum, thrown food in the river, and confiscated cattle (Survival International, 2012). Additionally, to support the Omo agricultural schemes, a large earthen dam and extensive irrigation canals have been built (HRW, 2014a). The earthen dam has flooded indigenous cultivation sites as well as the dwellings of hundreds of Bodi and Kwegu people upstream, and ruined crops downstream dependent on river flow (Hurd, 2013), (HRW 2014a).

The Metals & Engineering Corp (METEC), a company run by the Ethiopian military, is contracted to construct the majority of the Omo-Kuraz sugar plantations. So far, their treatment of the local people has been violent and militaristic (Hurd, 2013). China's Sinohydro is also involved in constructing some of the infrastructure necessary to support the sugar plantations and factories. The corporation was awarded a contract in October of 2014 to design and construct a 79.1km road to the Omo-Kuraz Sugar Factory. This road is an extension of a 41.7km road built by the China Communications Construction Company (Tadesse, 2014).

Major impacts of cotton and sugarcane cultivation

Both cotton and sugarcane are crops with a demonstrated potential to have huge impacts on their surrounding and downstream environment. Beyond the land cleared for growing crops, cotton and sugar plantations also require the construction of extensive infrastructure to process and transport crops and support a large labor force, further fragmenting natural habitat (Soth et al., 1999). Both crops have large water requirements, which increase in arid areas where a lot of water is lost to evaporation (WWF and CABA, 2005). When irrigation is used to grow these crops, the diversion of large amounts of

water can have devastating impacts on downstream aquatic ecosystems. Both cotton and sugarcane are most frequently grown as irrigated crops (FAO Water, 2014); approximately 53% of cotton grown globally is irrigated (Soth et al., 1999), with approximately 57% of the world's cotton grown in water-stressed areas (World Resources Institute, 2013).

Additionally, in arid climates, irrigation for cotton and sugar can cause soil salinization as well as freshwater salinization. Further impacts come from the pesticides and fertilizers used to grow crops. Runoff containing these pollutants can cause degradation of lake, wetland, and river habitat and contamination of wildlife. Cotton especially uses a lot of pesticides, with cotton acreage only covering about 2.4% of the world's arable land, but using 11% of global pesticide sales and 24% of global insecticides (Soth et al., 1999). Most of the pesticides used for cotton are considered hazardous, and they can decrease the biodiversity of aquatic ecosystems when they enter nearby systems. Sugarcane crops also use pesticides and fertilizers; an additional source of pollution comes from the processing of sugarcane in mills. Sugarcane mills produce large amounts of runoff that is rich in organic matter, which can kill off aquatic life as it uses up oxygen in the water as it decomposes. The effluent from sugar mills can also contain heavy metals, oil, grease, and cleaning agents (WWF and CABA, 2005).

Groundwater Discovery

The government of Kenya and UNESCO announced the discovery of massive aquifers in Turkana County (Kulish, 2013) in 2013. Water was discovered using satellite techniques, the results of which were then confirmed with drilling. Radar Technologies International (RTI), the firm which conducted the study, estimates that the aquifers hold a minimum of 250 billion m³ of water, or about 66 trillion gallons (RTI, 2013). This means the volume of the aquifer is approximately equivalent in volume to Lake Turkana (Kahumbu, 2013). However, RTI also states that overall, the recharge rates of these aquifers is considerably weak (RTI, 2013) and that they are recharged from rainfall in Kenya and Uganda at a rate of ~3.5 billion m³/yr, or at a rate of 1.4%/yr (RTI, 2013).

RTI's estimates have been characterized as overly optimistic by the International Groundwater Resources Assessment Centre (IGRAC), especially the estimated recharge rates. Estimating recharge rates over such a large area is inherently difficult; IGRAC noted that the recharge rates used in the study were not conservative and recommends that the initial estimates not be used for planning or management purposes (IGRAC, 2013).

Oil

Tullow Oil Plc. decided to obtain exploratory licenses in Kenya and Ethiopia's after the company and its partners found oil in Uganda's Lake Albert Basin (Tullow, 2014a),(Tullow, 2014b),(Swala Tanzania, 2014). In 2010, Tullow Oil Plc. signed an agreement with Africa Oil and Centric Energy to gain a 50% operated interest in South Omo Basin in Ethiopia and 67,000 km² in Kenya, with the combined acreage extending over the Turkana Rift Basin.

Tullow found oil in Turkana's Lokichar basin starting in 2012, with drilling results leading to estimates of 600 million barrels of recoverable oil (Okoth, 2014). Kenya and Uganda are planning to build a joint pipeline to carry oil to coastal ports. The pipeline is expected to be 1300km long and cost US\$4.5 billion. Toyota Tsusho, a large corporation based in Japan, has been awarded the contract for preliminary engineering design and the project feasibility study (Obulutsa, 2014).



Figure 5: Tullow's Ngamia Site in Kenya. Photo by Tullow (Reed, 2012)

In Kenya, the local community has said that Tullow Oil has neglected to consider local people in their operations and that they have lost grazing land to oil exploration without compensation. In 2013, protests in Turkana at oil fields led to a suspension of operations for two weeks. The protests ended after Tullow Oil promised to increase investments in the local community and create additional jobs for local people (Akumu, 2013). Oil exploration has also led to other problems for local people, including skyrocketing land prices as outside investors buy up land in anticipation of compensation for

construction of an oil pipeline through their property. Additionally, some land grabbers are taking advantage of residents by buying communal land, which cannot be bought or sold by individuals (Koros, 2014).

The costly process of pumping crude oil will require large quantities of water resources. Tullow calculates that approximately 50 gallons of water are required to produce one barrel of oil (Tullow Oil Plc, 2014c). Given the aridity of the region and the recent discovery of enormous aquifers in the area, it seems likely that at least a portion of the water needed for oil production will be taken from groundwater resources. There is some concerns that oil production could contaminate local aquifers since the aquifers occurs within the same geologic structures at a different depth (Constantaras, 2014). Additionally, there is some concern that the aquifer could be utilized mainly for industry and that the public wouldn't benefit from its water (Constantaras, 2014). Given uncertainties about the amount of potable water in the aquifer that can actually be extracted and is potable, care must be taken not to extract water recklessly. Scientists have called for close monitoring of water extractions and aquifer levels to ensure the water resources are used sustainably (Chao, 2013).

Where will the water go?

Agriculture and oil will likely require increasing amounts of water in an extremely arid region. This box compares estimates of water resources and water demands for these two industries.

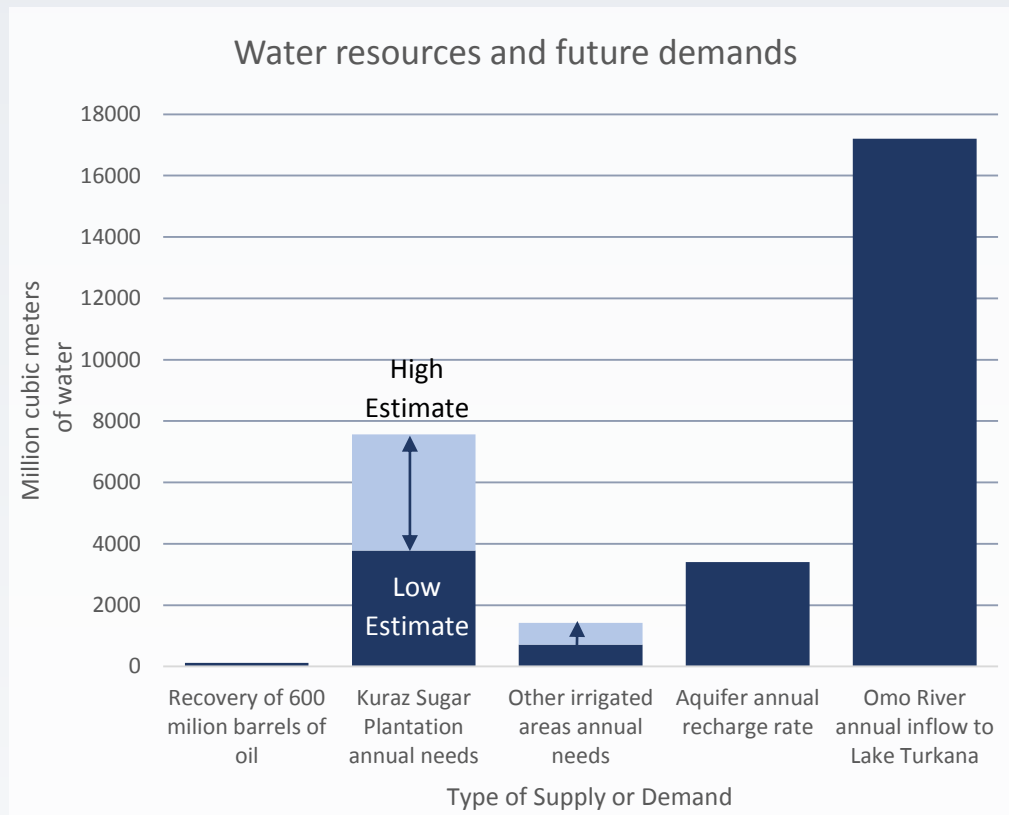


Figure 6: Comparison of water requirements for industry. Estimates for irrigation needs and the Omo River flow provided by Avery (2013), and aquifer recharge rate estimated by RTI (2013).

Sovereign Bonds

New financing for Ethiopia's development ambitions is coming from the government's recent sale of international sovereign bonds, or eurobonds. A eurobond is a bond issued by a national government in a foreign currency that matures at a fixed date and provides periodic interest payments. Ethiopia's actions are part of a surge of recent eurobond sales from African countries using these bonds to pay for infrastructure and spur economic growth. Currently, eurobonds sold by African countries are considered high-risk investments as Africa is a poorly understood market (Were, 2014).

Although Ethiopia's reasons for issuing the bond are multi-fold, the Minister of Finance and Economic development has stated that the decision has two specific benefits, mainly diversification of fund raising methods and the possibility of attracting more international companies (Getachew, 2014c). The funds raised through the sale will pay for a slate of transportation projects, agricultural projects, and large hydropower dams (Manson and Blas, 2014). In some cases, the bond is expected to finance infrastructure projects, like the Grand Ethiopian Renaissance Dam, that International Financing Institutions have been unwilling to support (Berhane, 2014). Government officials have stated that part of the financing for Gibe IV and Gibe V will come through these bond sales (World Bulletin, 2014), and sales may also be used to finish financing Gibe III as well (Bosshard, 2014).

Ethiopia conducted an initial \$1 billion sale of Eurobonds on December 4, 2014, which was very successful (Young, 2014). JP Morgan Chase & Co. and Deutsche Bank AG were the lead managers of the sale (Brand et al., 2014; Reuters Africa, 2014). BNP Paribas, named in initial reports as involved in the sale, declined to take part due to compliance reasons (Young, 2014).

Eurobond sales come with risk for issuing countries. Since eurobonds are issued for a specific period of time, this type of financing can create tight deadlines to produce a return on investments. These deadlines may be problematic especially when eurobonds are used to finance mega-projects, which take substantial time to develop and often face delays and large cost overruns. On average, 96% of large dam projects have cost overruns and delays of 44%, leading to high enough construction costs that a net positive return is not assured (Ansar et al., 2014). If the government is forced to roll over the debt, the debt could be refinanced at a higher interest rate and the government would need to repay back more money. However, if investors are unwilling to refinance debt, then the government may have to cut spending across its other services, including education and health. Another risk comes from the issuance of the bond in a foreign currency, which can cause repayment to become more difficult if the currency of the issuing country depreciates (Were, 2014).

Conclusion

At this time, urgent national and regional efforts are required to prevent the collapse of the Lake Turkana and Omo River ecosystems and local people from becoming more impoverished and disempowered. We advocate for Ethiopia, Kenya, international bodies, and companies acting in the region to commit to the following activities:

- Ethiopia should engage with international experts and with Kenya on the possibility of developing an integrated water-resources management plan for the Lower Omo. Such a plan would take into account the water needs of all stakeholders in the basin (including those of ecosystems) and analyze the carrying capacity of the river and groundwater resources in regards to future dams and plantations. The plan would also be guided by a legitimate region-wide environmental and socio-economic impact analysis from all developments in the region.
 - While the plan is constructed, establish interim measures immediately to limit alterations and abstractions of the Omo River and groundwater resources. Halt the filling of the Gibe III, put Gibe IV and 5 on hold, and stop further development of agricultural plantations and construction of irrigation works until sustainable measures are put into place.
- Involve affected peoples and civil society in the regional development process.

- Engage in an honest and open dialogue with affected peoples. Although the government may not currently be taking these people's opinions into account, civil society groups have actively tried to bring their voices into the ongoing dialogue (intlr.rs/TurkanaVoices).
- Compensate people affected by the Gibe III and agricultural and oil developments. Conduct an accurate study determining the amounts owed, which would be part of a thorough cost-benefit analysis that takes into account ecosystem services and social costs as well as economic benefits.
- Commit to Free, Prior and Informed Consent (<http://www.culturalsurvival.org/news/oxfam-guide-free-prior-and-informed-consent>) for indigenous peoples in the region to ensure a level playing field during negotiations.
- List Lake Turkana as a World Heritage site "in danger," as recommended by the IUCN, an advisory body to the World Heritage Committee (Debonnet and Gugić, 2012).
- Integrate environmental protection and environmental justice policies in resource extraction policies.

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