

Development in Ethiopia's Omo Basin and its the effects on Kenya's Lake Turkana

By: Dr. Sean Avery, Independent Consultant, Kenya, and Dr. David Turton, African Studies Centre, University of Oxford.

Corresponding address: sean@watres.com

The Omo River drains south from Ethiopia's humid highlands to arid lowlands terminating in the Omo delta on Kenya's Lake Turkana. The Omo carries 14% of Ethiopia's entire annual runoff, an "umbilical cord" sustaining the ecology of the Lower Omo and Lake Turkana. The richness of this ecology has attracted, over the centuries, people with a remarkable diversity of cultures and languages. Seasonal floods inundate pastures and make possible flood recession agriculture along the riverbanks. The river provides about 90% of Lake Turkana's annual inflow. Its flood pulses stimulate fisheries spawning and dilute the lake's semi-saline waters while its nutrients sustain the lake's ecology. Land use changes in the upper and middle Omo Basin in recent years have already resulted in a less predictable hydrology. Now, dam and irrigation developments are displacing thousands of downstream residents and will drastically alter both river hydrology and local livelihood practices. Changes to the lake's ecology and fisheries will directly impact Kenya. ^{1 2 3 4 5 6 16}

In 1996, an integrated development master plan was produced for the Omo-Gibe Basin¹⁷ and major hydropower and irrigation potential was identified. In 2006 construction of the massive Gibe III hydropower dam began, and in 2011 work began on preparing large-scale sugar plantations in the Lower Omo. The project "implementation process" has been, to say the least, "unusual", with no serious consideration of the impacts on Lake Turkana, no consultation worthy of the name with residents of the Lower Omo, and none at all with potentially affected communities in Kenya.³

The Gibe III dam "procurement process" was declared "flawed" by the World Bank and construction began without the prior approval of the Ethiopian Government's own Environmental Protection Authority (a requirement in Ethiopian law). The project has been mired in controversy ever since. Despite this, the World Bank and its partners (African Development Bank and French Development Agency) announced funding for the Ethiopia-Kenya powerline⁸ connecting directly to the Gibe III powerline terminus at Sodo. Meanwhile, large-scale irrigation development continues in the Lower Omo, amidst accusations of human rights abuses, including the forced eviction of local people from their traditional lands.⁹ The irrigation development hinges crucially on the regulation of the river flow that will be brought about by Gibe III, so the two are inextricably linked.³ According to the World Bank's project documents, however, the new powerline and the contribution of Gibe III to the power pool are unrelated, so the Bank's environmental and social protection "safeguard" policies were not triggered. This is extraordinary.

Serious damage to the agro-pastoral economies of the Lower Omo had already been done, in the 1960s and 1970s, by the setting aside, without

consultation or compensation, of key grazing areas for national parks and wildlife reserves.^{14 15} Now these economies are to be destroyed completely by a state irrigation scheme,^{3 9} for which neither feasibility studies, nor impact assessments, nor livelihood reconstruction and development plans have been released for public discussion. Ironically, large excisions have been made from the national parks to accommodate up to 175,000 hectares of sugar plantations.^{3 9} This area alone exceeds the entire irrigated area in Kenya in 2011.¹⁰ At least another 75,000 hectares have been allocated to private investors, from Ethiopia and abroad. According to one report, the total area either already allocated or considered by the Government as suitable and available for agricultural development in the Lower Omo amounts to 445,000 hectares.⁹ It is hardly surprising therefore that, given the overwhelming dependence of Lake Turkana on inflow from the Omo River, international concerns have been voiced about the future of the Lake and about Kenya's Lake Turkana World Heritage Site.¹⁶

Lake Turkana and the Lower Omo valley provide a fascinating insight into recent climate change and human evolution.³ The region was humid 10,000 years ago and the lake was 100 metres deeper, extending 100 kilometres north into Ethiopia. From there it overflowed west, into the drainage basin of the Nile, in South Sudan. The lake's present-day aquatic population evolved from its former Nile hydraulic linkage. Since then, the area entered an arid phase, with pastoralism emerging as a very successful arid zone livelihood. In recent years, the pastoral livelihood balance has been upset by external human interventions that included land tenure policy changes, and external support mechanisms in health and food. The consequent burgeoning population cannot be supported by traditional livelihoods, with widening poverty gaps and food aid becoming "an institutionalised drought coping mechanism".¹³

Lake Turkana is a closed basin, its water level controlled by relentless evaporation.^{3 2} This is the world's largest desert lake, Kenya's largest lake, and Africa's fourth largest lake. Its entire annual freshwater inflow from the Omo is lost through evaporation. The lake water is thus becoming progressively more saline and is already a health hazard for humans and livestock, due to its excessive fluoride levels. Nor is it suitable for agriculture. But the lake's vigorous winds mix and oxygenate its waters. Abundant sunshine and stable temperatures sustain algal and zooplankton production, heading a food chain supporting Africa's highest salinity "freshwater" fisheries. Fish provides a valuable protein resource in an area of food insecurity.

Lake Turkana's fisheries will inevitably be altered by developments in Ethiopia's Omo Basin.^{11 5 12 3} The Gibe III dam will regulate flows, changing forever the natural flood cycles upon which the ecology and local people have always depended.^{3 5} Over 30% of the lake's Omo inflow will be abstracted for irrigation, and in this case the lake level will drop up to 20 metres.^{3 2 1} The lake biomass volume will reduce, as will the dependant fisheries, the diversity of which depends on natural hydrological variability and nutrient supply.^{11 3}

Will Lake Turkana become another Aral Sea⁶, and if it does, will this matter? Some might say that the lake is no more than a picturesque evaporation basin, a waste of water, and that it is better to store the fresh waters in the cooler upper basin for alternative use. The international donor community appears to have taken this view. The Omo Basin Master Plan (financed by the African Development Bank) did not include consultations with Kenyan stakeholders. The threats to Lake Turkana's fisheries were dismissed as the fisheries were "declining anyway".^{17 3} The World Bank stated that "there was no significant use of the lake waters", and that it should be possible to obtain "no-objection" from the Kenya Government to developments in the Omo Basin in exchange for benefit sharing.¹⁸

But what benefits, if any, will accrue to the local people? Are commercial sugar plantations the most appropriate solution to the food security challenges they face? Will the benefits of sugar production to the Ethiopian economy justify the destruction of Lake Turkana's fisheries? And how will recent oil finds affect the socio-economic and environmental dynamics of the area? These and many other questions about ongoing developments in the Omo basin remain to be answered - indeed there is no evidence that the Ethiopian Government and its advisers have yet seriously addressed these. Until they do – and with full transboundary consultation - we are entitled to considerable misgivings about what the future holds for the people, ecology and environment of the Lower Omo and Lake Turkana.

Acknowledgements: The 2009-10 African Development Bank study⁵ has been updated with the support of the African Studies Centre, University of Oxford, England.^{3 2}

References:

1. Avery, Sean (2014). What future for Lake Turkana and its wildlife? SWARA (Magazine of the East African Wildlife Society), January to March 2014.
2. Avery, Sean (2013). African Studies Centre, Oxford University. The impact of hydropower and irrigation development on the world's largest desert lake. What future for Lake Turkana? <http://www.africanstudies.ox.ac.uk/what-future-lake-turkana>
3. Avery, S.T. (2012). African Studies Centre, Oxford University. Lake Turkana & The Lower Omo: Hydrological Impacts Of Gibe III & Lower Omo Irrigation Development.
4. Avery, Sean (2011). Hydrological Impacts of Ethiopia's Omo Basin on Kenya's Lake Turkana, presented under "Global Programs and Strategies on Assessment and Management of Lakes and Their Basins: UNEP/ILEC Collaboration", 14th World Lake Conference, Austin, Texas, USA, 3rd November 2011.
5. Avery, S.T. (2010). Assessment of hydrological impacts of Ethiopia's Omo Basin on Kenya's Lake Turkana water levels. Final Report commissioned by the African Development Bank as part of mediation with Friends of Lake Turkana, November 2010.

http://www.afdb.org/fileadmin/uploads/afdb/Documents/Compliance-Review/REPORT_NOV_2010_S_AVERY_TURKANA_Small_file.pdf

6. Avery, Patrick (2012). Kenya's jade jewel in peril from Ethiopia plans, SWARA (Magazine of the East African Wildlife Society), May-June 2012, pp. 16-21, <http://www.mursi.org/documents>.
7. Flintan, Fiona (2011). "Broken lands: Broken lives?" Causes, processes and impacts of land fragmentation in the rangelands of Ethiopia, Kenya and Uganda, for REGLAP, Nairobi, June 2011.
8. Friends of Lake Turkana (2012). Press Release: "World Bank Damns Lake Turkana by approving Gibe III Power Line", 13th July 2012.
9. Human Rights Watch (2012), "What Will Happen if Hunger Comes?" Abuses against the Indigenous Peoples of Ethiopia's Lower Omo Valley; ISBN-56432-902-X, June 2012.
10. Japan International Co-operation Agency (2012), Kenya National Water Master Plan, Workshop on irrigation development, August 2012.
11. Kolding, Jeppe (1989). The fish resources of Lake Turkana and their environment, Thesis for the Cand.Scient.degree in Fisheries Biology and Final Report of KEN 043 Trial Fishery 1986-1987, University of Bergen, Norway. Report to NORAD, Oslo, December 1989, 262 pp.
12. Ojwang W., Ojuok J.E., Omondi R., Malala J., Abila R., Ikmat. P. (2010). Impacts of river impoundments. The case of hydropower projects on Omo River of Lake Turkana, Samaki News, Department of Fisheries, Kenya.
13. Snyder R., (2006). Semi-nomadic pastoralism: A struggle to define sustainability in arid and semi-arid lands of Kenya. Conference on Sustainable Livelihoods and Ecosystem Health: Informing Policy, Practice and Research, University of Guelph, June 4th-7th 2006.
14. Turton, David. African Parks Foundation and the Omo National Park. Prepared for a meeting of African Parks Foundation and the IUCN National Committee for the Netherlands, 17 May 2006. <http://www.mursi.org/pdf/african-parks-foundation.pdf>
15. Turton, David, The Mursi and the Elephant Question, in D. Chatty and M. Colchester (eds), Conservation and mobile indigenous peoples: displacement, forced settlement and development. New York / Oxford, Berghahn Books, 2002.
16. UNESCO World Heritage Centre (2012). Mission Report, Reactive Monitoring Mission to Lake Turkana National Parks (Kenya), 14-22 March 2012, May 2012.
17. Woodroffe, Richard, & Associates, and Mascott Ltd., (Dec 1996). Omo-Gibe River Basin Integrated Development Master Plan Study, Final Report, undertaken for the Ministry of Water Resources of the Federal Democratic Republic of Ethiopia, December 1996 (financed by the African Development Bank / African Development Fund).
18. World Bank (2004). Concept Paper, Ethiopia's Path to Survival and Development: Investing in Water Infrastructure. Background Note for FY04 CEM, [World_Bank_CP-WaterMila01.pdf](http://www.mursi.org/pdf/World_Bank_CP-WaterMila01.pdf), 2004.

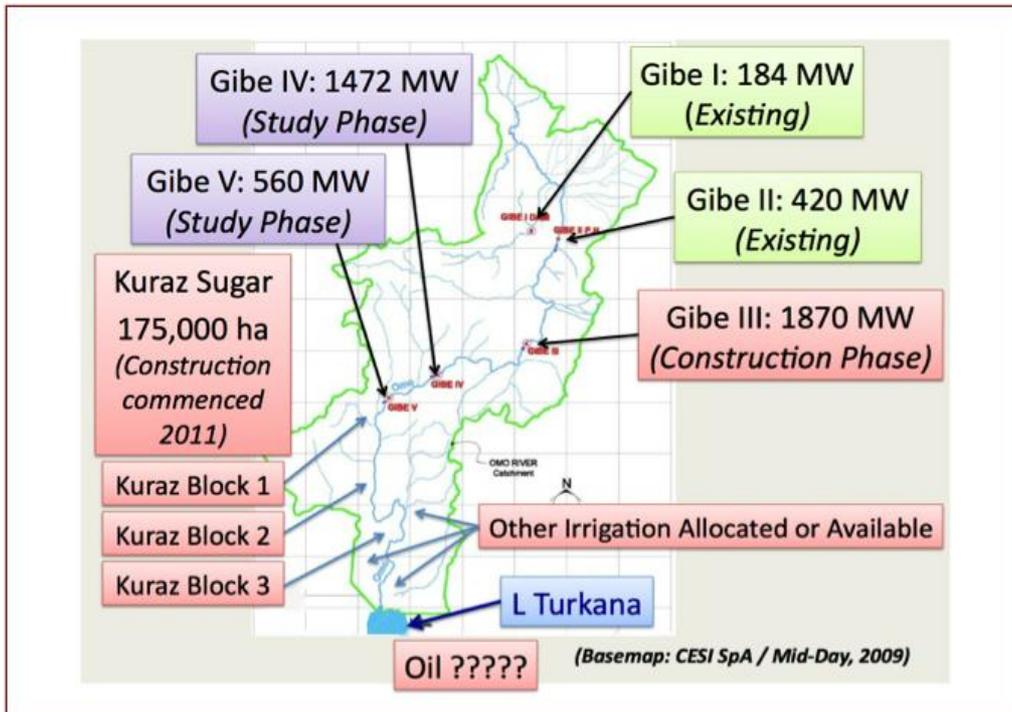


Figure 1: Omo-Gibe hydropower cascade and downstream irrigation

Basemap Source: CESI SpA / Mid-Day, 2009

Overlay Source: Avery 2012



Photo 1: Feb 2012 - Exposed bed of the Omo River downstream of Kuraz irrigation intake

Image Source: Human Rights Watch, 2012

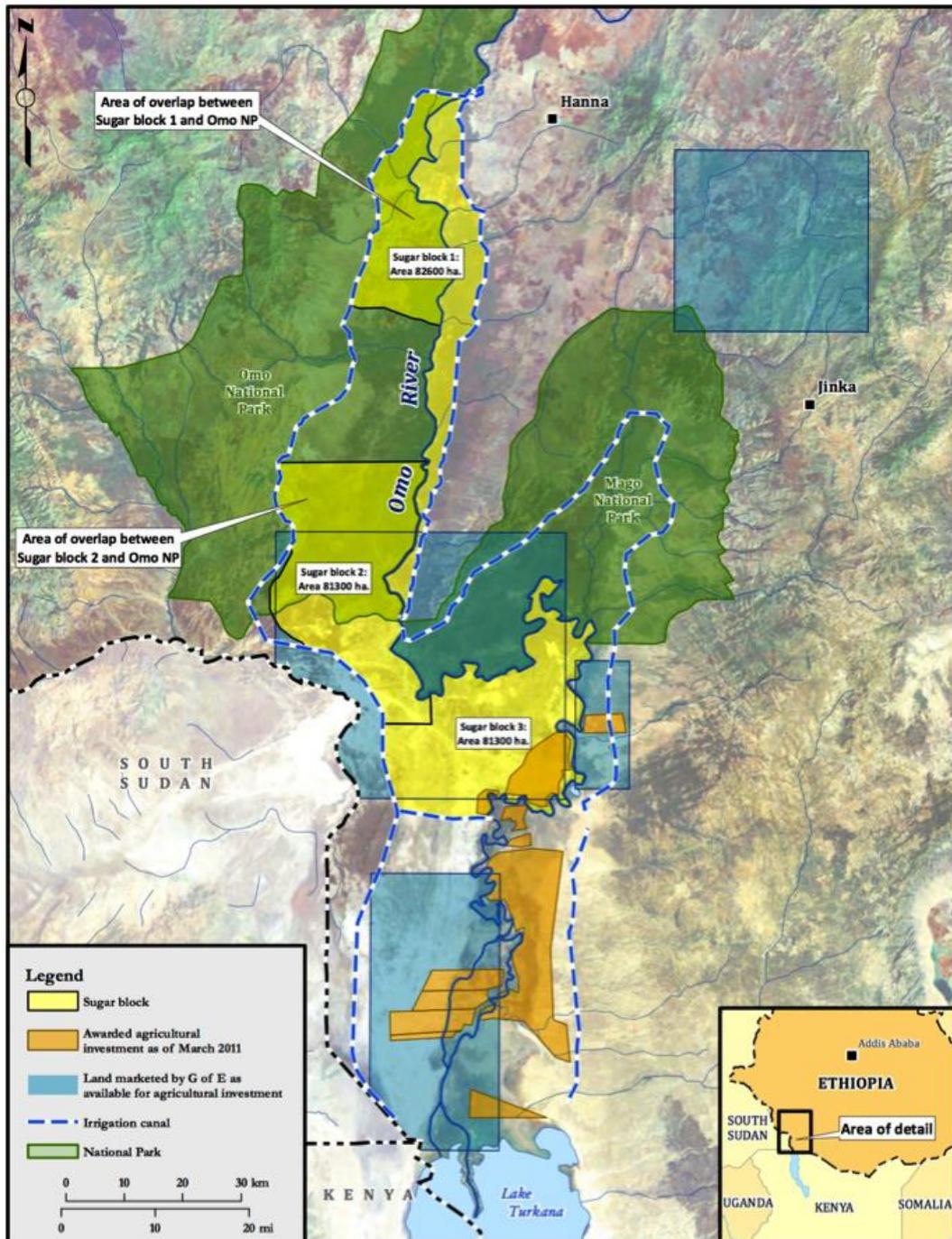


Figure 2: Land excisions and planned agricultural development in Lower Omo

Source: Human Rights Watch, 2012



Photo 2: Fishing boats under repair – Lake Turkana
Source: Sean Avery (Sean Avery Photo Archive)



Photo 3: Fishing community on North Island – Lake Turkana
Source: Patrick Avery (Sean Avery Photo Archive)



Photo 4: Arms proliferation / self protection in border conflict zones
Photo: Kieran Avery (Sean Avery Photo Archive)