

## Environmental Threats to the Democratic Republic of Congo of Ugandan Oil Projects in the Lake Albert Region

Bill Powers, P.E., E-Tech International, August 26, 2025  
email: [bpowers@powersengineering.com](mailto:bpowers@powersengineering.com)

### 1. Executive Summary<sup>1</sup>

Environmental Defenders (<https://watetezi.org/>) has requested that E-Tech International conduct an analysis of the impact of Lake Albert oil developments on behalf of the population of Ituri province in the Democratic Republic of Congo (DRC), specifically the lake- and forest-dependent communities of the Mahagi, Djugu, and Irumu territories, who depend on Lake Albert and its biodiversity. E-Tech International is a USA-based nonprofit organization (<https://etechinternational.org/>) that offers technical assistance to communities in less-industrialized nations facing potential environmental impacts from large development projects.

Lake Albert is Africa's seventh largest lake and comprises part of the border between Uganda and the DRC. It is 160 km long and 32 km wide. This analysis addresses oil projects in development with the potential to impact Lake Albert. Most of the newly-found oil reserves in Uganda are near or under Lake Albert.

Two oilfields are in active development, (1) Kingfisher on the eastern shore of Lake Albert and (2) Tilenga near the northeastern terminus of Lake Albert. The Chinese National Offshore Oil Corporation (CNOOC) operates the Kingfisher project through its subsidiary CNOOC Uganda Ltd. Total (French) operates the Tilenga project through its subsidiary Total E&P Uganda. Total oil production from these oilfields is expected to reach between 200,000 and 250,000 barrels per day.

Threats to DRC side of Lake Albert posed by Kingfisher include oil spills, discharge of treated sewage, and extraction of Lake Albert waters to maintain oil well pressure. Threats to DRC side of Lake Albert posed by Tilenga include oil spills into wetlands supporting Lake Albert fisheries, discharge of treated sewage from oilfield operations, and extraction of Lake Albert waters to maintain oil reservoir pressures.

---

<sup>1</sup> Primary reference (FIDH): *New Oil, Same Business? At a Crossroads to Avert Catastrophe in Uganda - Community-Based Human Rights Impact Assessment of the Lake Albert Oil Extraction Project and Related Developments in the Albertine Graben, Uganda*, FIDH/FHRI, September 2020: [https://www.fidh.org/IMG/pdf/new\\_oil\\_same\\_business-2.pdf](https://www.fidh.org/IMG/pdf/new_oil_same_business-2.pdf).

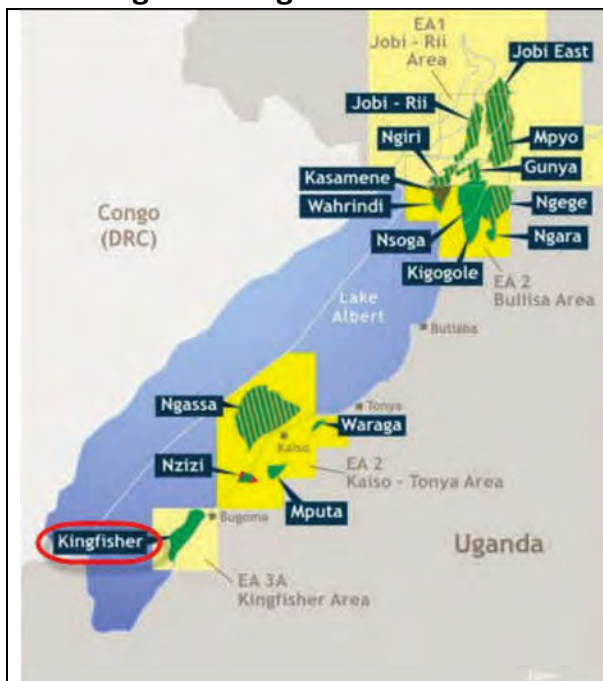
An offshore oil block, Ngassa, is currently in an exploratory phase. Development of the Ngassa oilfield would require the installation and use of offshore oil platform(s) in Lake Albert. This would create the potential for offshore oil spills into Lake Albert.

The “Agreement on the Nile River Basin Cooperative Framework” entered into force in October 2024. The Agreement was negotiated among nine Nile riparian countries (Burundi, DRC, Egypt, Ethiopia, Kenya, Rwanda, Sudan, Tanzania and Uganda). The Agreement balances the principles of sovereignty and territorial integrity with a principle of “equitable and reasonable” use of waters. Under the Agreement, States shall “take all appropriate measures to prevent the causing of significant harm to other Basin States,” and must “eliminate or mitigate” any significant harm.

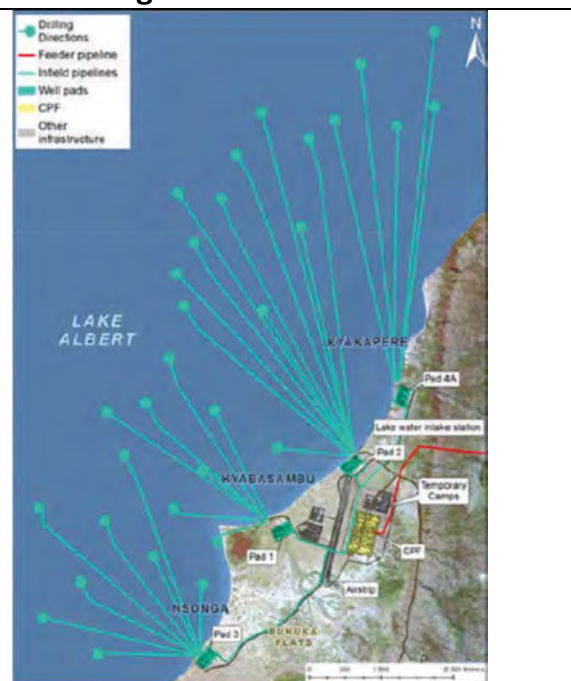
## 2. Background

Since 2006, a series of oil discoveries under and around Lake Albert in Uganda have led to investment by a consortium of multinational companies, most prominently CNOOC and Total, and the Ugandan Government. **Figure 1a** is a map of the oil discoveries proposed for development by CNOOC and Total in the Albertine Graben. In blue are the names of the different oil fields that constitute the Lake Albert project. **Figure 1b** is a map of CNOOC’s Kingfisher project, showing the well pads along the shore of Lake Albert and the trajectories of the oil wells being developed under Lake Albert.

**Figure 1a. Ugandan oil blocks**



**Figure 1b. Kingfisher oilfield offshore wells**



Oranto Petroleum Ltd., a Nigerian company, has a license with the Ugandan Government to exploit the Ngassa area.<sup>2</sup> Ngassa is offshore under Lake Albert, as shown in Figure 1a. Development of the Ngassa oilfield would require the installation and use of offshore oil platform(s) in Lake Albert,<sup>3,4</sup> and would create the potential for offshore oil spills into Lake Albert.

### **3. Applicable International Agreements**

#### **A. Ramsar Protected Wetlands**

The Ramsar Convention of 1971, ratified by Uganda in 1988, sets a number of obligations aimed at the conservation and “wise use” of wetlands through local and national action and international cooperation. Uganda has twelve protected wetlands under the convention. This includes the Murchison Falls-Albert delta wetland system, a 17,293 hectare area that will be affected by the Tilenga project.<sup>5</sup>

The wetland site stretches from the top of Murchison Falls, where the River Nile flows through a rock cleft, to the delta at its confluence with Lake Albert. The delta is an important spawning and breeding ground for Lake Albert fisheries, containing indigenous fish species.

#### **B. Nile River Basin Cooperative Framework Agreement**

Uganda ratified the “Agreement on the Nile River Basin Cooperative Framework” in 2019.<sup>6</sup> The Agreement was negotiated among nine Nile riparian countries, including Burundi, DRC, Egypt, Ethiopia, Kenya, Rwanda, Sudan, Tanzania and Uganda. The Agreement entered into force in October 2024.<sup>7</sup> Under international law Uganda is obliged to refrain from acts that would defeat the object and purpose of any treaty. The Agreement balances the principles of sovereignty and territorial integrity with a principle of “equitable and

---

<sup>2</sup> FIDH, p. 18.

<sup>3</sup> Tullow Oil press release, *Oil discovery in the Ngassa-2 exploration well in Uganda*, September 19, 2009: <https://www.tulloil.com/media/press-releases/oil-discovery-ngassa-2-exploration-well-uganda/>

<sup>4</sup> Petroleum Authority of Uganda, *The Ngassa Contract Areas*, webpage accessed August 23, 2025: <https://www.pau.go.ug/the-ngassa-contract-areas/>.

<sup>5</sup> FIDH, p. 94.

<sup>6</sup> Nile Basin Initiative, *Cooperative Framework Agreement*, webpage accessed August 23, 2025: <https://nilebasin.org/about-us/cooperative-framework-agreement>.

<sup>7</sup> Nile Basin Initiative, *Announcement by the Nile Basin States of the Entry Into Force of the Nile River Basin Cooperative Framework Agreement*, October 13, 2024: <https://nilebasin.org/sites/default/files/2024-10/Announcement%20of%20the%20Entry%20into%20force%20of%20the%20CFA%20%20on%2013%20October%202024.pdf>.

reasonable” use of waters (Article 4). States shall also “take all appropriate measures to prevent the causing of significant harm to other Basin States,” and must “eliminate or mitigate” any significant harm and, “where appropriate...discuss the question of compensation” (Article 5).<sup>8</sup>

Kingfisher’s Environmental and Social Impact Assessment (ESIA) states that “water for the project will be drawn from Lake Albert.” Total indicated that if production of crude oil from Tilenga did indeed create a void in the reservoirs, this would be compensated for by water injection: “[a]ll produced water will be reinjected, and the additional required volume will be abstracted from Lake Albert.”<sup>9</sup>

Uganda’s Minister of Energy stated in 2017 that water extraction from Lake Albert, planned by the oil companies, “requires the approval of the Ministry of Water and Environment and the Nile Basin Initiative.”<sup>10</sup>

## **4. Oil Project Design**

### ***A. Failure to Adhere to International Best Practices***

Located on the shores of Lake Albert, CNOOC’s Kingfisher project represents a particularly high risk. The Kingfisher ESIA enumerates mitigation measures to avoid pollution of the lake, but these mitigation measures do not eliminate the risks of surface water pollution. Whereas adherence to international best practices would have led the company to locate its well-pads, Central Processing Facility (CPF), and associated infrastructure away from the shores of Lake Albert, as well as from the most sensitive natural areas and traditional fishing villages, CNOOC opted instead to maintain its infrastructure on the location of the original shoreline exploration wells.<sup>11</sup>

The risks are aggravated by the lack of commitment to a system of sound disposal of produced water, sewage, drilling cuttings, and fluids, and the use of chemical-based drilling mud. The ESIA for the Kingfisher projects explicitly states that “[d]espite ... control systems, the small buffer between the CPF and the Lake and surrounding ecosystems, and the natural storm-water drainage towards these ecosystems, coupled with the large volumes of effluent and solid waste to be handled, increases the risk that hydrocarbon-contaminated drainage could occasionally escape into River 1 or the Kamansinig River and

---

<sup>8</sup> FIDH, p. 95.

<sup>9</sup> Ibid, pp. 111-112.

<sup>10</sup> Ibid, p. 95.

<sup>11</sup> Ibid, p. 112.

its wetlands, and/or reach the nearshore habitats of the Lake, in the absence of a very high level of control of day-to-day effluent and waste management activities.”<sup>12</sup>

### ***B. Potential Impact of Oil Spills Into Lake Albert***

Any oil spill into Lake Albert would have “grave” consequences, according to CNOOC’s ESIA for the Kingfisher project. These would affect the exceptional ecosystem, but also potentially the livelihoods, right to water, and health of a large number of people. This is especially true because the remote area in which Kingfisher will be developed would make clean-up activities particularly challenging.<sup>13</sup>

A major oil spill on Lake Albert would threaten the livelihoods of communities in the DRC, where 100,000 households rely on Lake Albert to meet their water needs and over 20,000 fishermen depend on it to make a living.

Under the 2007 Uganda-DRC Ngurdoto agreement, the Congolese have to be consulted about the Tilenga and Kingfisher projects. In response to these concerns, the Petroleum Authority of Uganda, the regulating authority, indicated that it considered the ESIA “is cognizant of the potential risks and impacts of the activities to the water and has provided sufficient mitigation impacts e.g. spill contingency plans and waste management plans as part and parcel of the project.”<sup>14</sup>

### ***C. Substantial Withdrawal of Lake Albert Water for Oil Project Use***

Communities on both sides of Lake Albert in the DRC and Uganda have expressed concern regarding plans to abstract water from Lake Albert during the site preparation and enabling phase, the production phase, and the decommissioning of the projects.

CNOOC’s ESIA argues that “even with other oil projects in the region drawing water from the Lake, the Lake water level will not be significantly affected (the total oil industry demand is not expected to affect water levels across the whole Lake by more than 2 mm).” Total emphasizes that only a small proportion of the water of Lake Albert will be abstracted (“0.03% of the water flow”). Figures from Uganda’s Directorate of Water Resources Management, conversely, “show that over 500,000 cubic litres of water will be required per day when oil production starts.”<sup>15</sup>

---

<sup>12</sup> Ibid, p. 113.

<sup>13</sup> Ibid, p. 113.

<sup>14</sup> Ibid, p. 113.

<sup>15</sup> Ibid, p. 113.

There remain uncertainties about the exact significance of the impact on surface waters from a cumulative point of view. That is, there is uncertainty about the significance of the cumulative impacts of all of the activities to be conducted in the each of the oilfields, as well as those fields that are to be developed in the future, such as the Ngassa oil field that will be exploited through offshore drilling in Lake Albert.

## 5. Flaws in the Oil Project ESIAs

The ESIAs are thorough in exposing the potential negative impacts of oilfield operations, and they provide important data on the sensitivity of the affected human and natural environment. However, they rely heavily on potentially problematic “mitigation” measures to address and mitigate risks, or simply accept higher risk in exchange for lower cost.<sup>16,17</sup>

The CNOOC and Total ESIAs have also been criticized for understating the risks. The Netherlands Commission for Environmental Assessment (NCEA) pointed-out a number of technical and legal flaws in the ESIA documents. They noted the presence of inconsistent numbers, incomplete design, unfinished decision-making, lack of justifications for the choice among different alternatives, lack of credibility of the net gain concept, non-transparent trade-offs between oil development and other potential uses of natural resources and ecosystem services, absence of mitigation measures regarding some of the identified impacts, and an insufficient ambition to abide only by good international industry practice, while best available technology would be the appropriate standard.<sup>18</sup>

CNOOC and Total claim to use best international practices and best available technology to minimize the risks of adverse impacts. Independent assessments of the ESIAs made clear this is not the case in a number of areas.<sup>19</sup>

The CNOOC and Total ESIAs largely fail to assess the cumulative impacts on people and the environment as a consequence of multiple oil and gas projects, and the development of related industries. The NCEA indicated that cumulative impacts on water levels and water quality were not clear. Regulating authorities and the oil

---

<sup>16</sup> Ibid, p. 119.

<sup>17</sup> B. Powers, E-Tech International, *Review of Adequacy of ESIA for the TEP Uganda Tilenga Oil Development Project*, November 27, 2019, p. 10, p. 14: [https://www.albertinewatchdog.org/wp-content/uploads/2020/01/27-november-19\\_E-Tech-evaluation-of-Total-Tilenga-ESIA.pdf](https://www.albertinewatchdog.org/wp-content/uploads/2020/01/27-november-19_E-Tech-evaluation-of-Total-Tilenga-ESIA.pdf).

<sup>18</sup> FIDH, p. 119.

<sup>19</sup> Ibid, p. 120.

companies have very few concrete measures in place to assess and respond to an accumulation of real or potential impacts.<sup>20</sup>

## **6. Conclusion**

Destruction of biodiversity, spills, and pollution of underground waters are phenomena increasingly present in the Albertine region since the initial exploration for oil. In this context, the installation of oil facilities in the Tilenga and Kingfisher areas, two very sensitive zones, poses a major threat to the rights to a healthy environment, water, and health. This is particularly true given the unresolved issues posed in the CNOOC and Total ESIA's.<sup>21</sup>

---

<sup>20</sup> Ibid, p. 121.

<sup>21</sup> Ibid, p. 122.