

FACT SHEET

EACOP-IMPACTED FORESTS

What Uganda stands to lose





1. Introduction

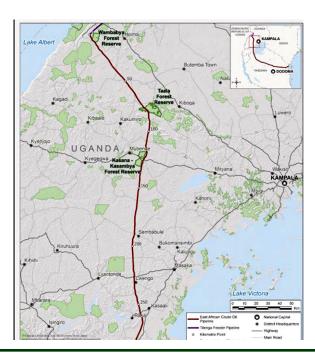
The East African Crude Oil Pipeline (EACOP) is a planned 1,443 km pipeline that is expected to be constructed by TotalEnergies, China National Offshore Oil Corporation (CNOOC) as well the Ugandan and Tanzanian governments. The pipeline, whose construction could start in 2023¹, is expected to transport crude oil from the Tilenga and Kingfisher oil fields in Western Uganda to the port of Tanga in Tanzania.

If constructed, the EACOP will be the longest electrically heated crude oil pipeline in world. The pipeline's social and biodiversity footprint not to mention potential climate change impacts have stocked controversy. According to the Worldwide Fund for Nature (WWF), the pipeline will affect nearly 2,000 sq. km² of protected habitats.

The Uganda³ and Tanzania⁴ Environmental and Social Impact Assessment (ESIA) reports for the EACOP project recognise that habitats such as Bugoma, Wambabya, Taala, Kasana-Kasambya and Minziro Nature forests as well as Burigi-Biharamulo game reserve and Wembere Steepe Key Biodiversity Area among others have been directly impacted or in the corridor for the EACOP project.

While information on which EACOP-impacted forests and key biodiversity areas exists, the biodiversity therein and socio-economic importance of the forests has not been fully discussed.

This factsheet seeks to fill the above-mentioned information gap by documenting the forest landscapes which are set to be impacted by the EACOP, the biodiversity therein and socio-economic importance of these forests. This factsheet only covers the EACOP-impacted forests in Uganda.



The EACOP (red line) and EACOP-impacted forests in Uganda Source: Uganda EACOP ESIA

- 1 Business Focus (2022): Construction of oil pipeline to start in the next financial year -Gov't
- 2 WWF (2017): Safeguarding people & nature in the East Africa crude oil pipeline project
- 3 Total et al (2019): Uganda Environmental and Social Impact Assessment report; None-Technical Summary
- 4 Total et al (2019): Tanzania Environmental and Social Impact Assessment report; Executive Summary



2. Background

Forests offer a number of vital ecosystem services not only to adjacent communities but also on a global scale. Such services include carbon sequestration and the associated climate regulation roles, biodiversity conservation and various regulatory roles such as avoided sedimentation as well as flood mitigation. Others include nutrient regulation, habitat provision and water regulation. Forests also play cultural roles such as being used for recreational and spiritual purposes.

Most of the forest ecosystems services are derived freely in nature and in many cases are hard to quantify, trace and attribute. Furthermore, forest information and statistics on many occasions are lacking or scattered thereby inaccessible to policy and decision-makers as well as the general public. Such challenges make forests and their biodiversity underappreciated, resulting into their unstainable exploitation. Cases in point are the various global development projects like road/railway construction, mining, oil exploitation and others that transform forest ecosystems. Like many pipelines, the EACOP is also associated with serious environmental, social and biodiversity challenges. As earlier indicated, the Worldwide Fund for Nature (WWF) estimates that the pipeline will affect nearly 2,000 sq. km of protected habitats. This presents a problem for Uganda.

3. Problem statement

Uganda's economy is highly reliant on healthy ecosystems. Key economic activities on which the country and communities depend such as agriculture, fisheries, tourism and others are supported by healthy ecosystems such as forests, national parks, game reserves, lakes and others. To protect people and the economy, Uganda must spare no effort in conserving its natural resources. Citizens must also be empowered with information on the biodiversity and socio-economic importance of the country's various natural resources to support the Ugandan government to conserve them.

To this end, it is important to raise citizen and other stakeholder awareness of the biodiversity and conservation importance of forest landscapes in Uganda that have been directly and indirectly impacted by the EACOP project. Currently, citizen and stakeholder awareness of the biodiversity and conservation importance of the EACOP-impacted forests remains low. This puts the forests at increased risk of degradation by the EACOP project. This must be avoided.

4. Objectives

4.1 Main objective

The main objective of this factsheet is to strengthen conservation of EACOP-impacted forests through increased stakeholder awareness and vigilance.

4.2 Specific objectives

The specific objectives of this factsheet are to:

- Document the forests affected by the EACOP project in Uganda;
- Discuss the ecosystem services provided by the EACOP-affected forests in Uganda;
- Make recommendations to promote conservation of the EACOP-impacted and other forests in the Albertine Graben



5. Methodology

5.1 Approach and data collection methods

Information in this factsheet was generated mainly through document review. The key documents relating to EACOP-impacted forests that were reviewed include published books, peer-reviewed journal papers, NGO research reports, info-graphs and other factsheets. The EACOP ESIA report for Uganda and the Resettlement Action Plan (RAP) for Uganda were also reviewed.

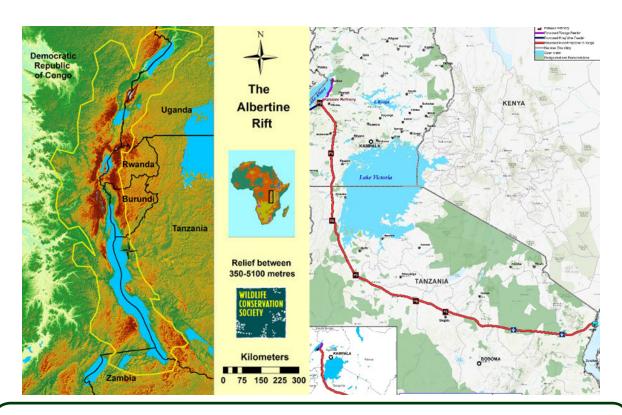
5.2 Study area

This factsheet focuses on forests that are impacted by or in the EACOP pipeline corridor in Uganda. The districts with EACOP-affected forests and hence forming the study area are Hoima (N1.4356° E31.0794°C), Kikuube (N01°19'58.0", E31°12'27.0") and Kyankwazi (N 0° 33' 14.0436'', E31° 23' 18.4848''). These fall in the Ugandan Albertine Graben. The Uganda portion of the Albertine rift extends from Budongo Forest/Murchison Falls National Park in the north to Mgahinga National Park in the south.

The Albertine Rift is an area of great importance for biodiversity conservation.

It has been identified by Birdlife International as an Endemic Bird Area, by WWF as an Ecoregion and by Conservation International as a biodiversity hotspot.

It also contains some of the richest areas in Africa for mammal and bird species.



L: The Albertine Graben (yellow boundary) (R): The EACOP (red line) which starts in the ecosenstive Albertine Graben Source African Pearl Safari of maps:

Wildlife Conservation Society & Petroleum Authority of Uganda



6. Factsheet findings and discussion

6.1 EACOP-impacted forests in Uganda

Information in the EACOP ESIA report for Uganda indicates that four natural forest reserves in the Albertine graben and beyond are either directly affected by or are in the EACOP corridor. These Central Forest Reserves (CFR) include:

- Bugoma CFR
- Wambabya CFR
- Taala CFR
- Kasana-Kasambya Forest Reserve

The EACOP ESIA report indicates that "In Hoima district, the [EACOP] corridor passes in between Wambabya and Bugoma Forest Reserves, and traverses through a modified section of Taala Forest Reserve in Kyankwanzi district". The ESIA also notes that the EACOP "crosses near the eastern border of Kasana-Kasambya Forest Reserve in Mubende district."

Experts who reviewed the EACOP ESIA indicated that the EACOP passing between Bugoma and Wambambya forests as well as Taala Forest puts biodiversity and forest conservation at risk.

The experts noted that "Protection of chimpanzees and their habitat is worldwide considered as important, also in Uganda. It plays a vital role in maintaining the biodiversity of Central Africa's forests. The large seeds [chimpanzees] eat and disperse are too big for most other animals. Without them, and their fellow great apes (and elephants), these forests would be irreversibly changed.²¹"

The experts further noted, "[The EACOP project developers should explain] why the pipeline passes through the Taala FR and whether alternatives have been considered. The potential consequences for the hydrology inside the FR [forest reserve] and the water catchment function of the area should be clarified, including what has been done to mitigate risk of oil or chemical spills".

6.2 Geo-physical and biological diversity characteristics of EACOP-impacted forests

The EACOP-impacted forests in Uganda are biologically diverse. They are home to endemic and threatened plant as well as animal species that play vital socio-economic roles. This is discussed further below.

1. Bugoma Central Forest Reserve (CFR)

Bugoma CFR is a medium-altitude, moist, semi-deciduous forest, with a tendency for the ironwood tree or *muhimbi* (*Cynometra alexandrii*) to be dominant³. Bugoma forest was first gazetted by the Ugandan government under legal notice No. 87 of 1932. At its gazettement in 1932, the forest measured 35,840 hectares. Later, under legal notice No. 251 of 1944, the coverage of the forest was extended by the Ugandan government to the current area of 41,144 hectares⁴. Bugoma CFR is found in Kikuube and Hoima Districts in Western Uganda. It is specifically located on the top of an escarpment, East of Lake Albert on the fringe of the Western Rift Valley.

- 1 Total et al (2020): <u>Uganda EACOP ESIA Executive Summary</u>
- 2 Netherlands Commission for Environmental Assessment (2020). Advisory review for the resubmitted ESIA for the EACOP project: https://www.eia.nl/docs/os/i72/i7228/7228_website_versie_advisory_report_eacop_uganda_22_october.pdf
- 3 Eggeling 1947; Langdale-Brown et al. 1964
- 4 Nyangoma, J. (2010). The impact of crop raiding by wild animals from Bugoma forest reserve on farmers' livelihoods: https://www.mak.ac.ug/documents/Makfiles/theses/Nyangoma Joseline.pdf



The forest is one of the nine large forests (> 50 sq.km) of 84 mainly small forests in the Albertine rift that are managed by the National Forestry Authority (NFA). It is a watershed with many streams and permanent Rivers like Rwemiseke and Hohwa draining from the forest to Lake Albert and River Nile.

Bugoma CFR is also a biodiversity hotspot with exceptional diversity of floral and faunal species. Bugoma ranks second after Budongo of the five most biodiverse forests in Uganda⁵. Furthermore, Bugoma CFR is the twelfth (12th) among top places of importance of the 65 forests in the Albertine Graben for biodiversity. The forest also ranks seventeenth (17th) among forests with exceptional species⁶.

Animals of Bugoma CFR

The animals in Bugoma CFR include 34 species of mammals with four globally threatened and nine listed under IUCN's Red List⁷. The animal species in Bugoma include nine species of reptiles⁸ and primates with over 600 estimated chimpanzees. Others include the Ugandan Mangabeys, which are endemic to Uganda, and four types of monkeys. These include Black and White Colobus monkeys (Colobus guereza), Blue monkeys (Cercopithecus mitis), Red tailed monkeys and the Velvet monkeys. Other animal species include the grey-cheeked mangabey (Lophocebus albigena johnstoni), present in Bugoma but absent from Budongo⁹ and Wambabya, making Bugoma probably the northerly limit of the species in Africa.

Bugoma forest is also a home to buffaloes, elephants (Loxodonta africana Blumenbach), Uganda Kobs, golden cats and side-stripped jackals. The forest is also home to 20 species of amphibians including one species that is endemic to the Albertine Rift, 118 species of moths, 292 species of butterflies that include four species endemic to the Albertine Rift and over 225 bird species¹⁰ including several Guinea-Congo Biome bird species. Two of the noteworthy globally threatened bird species within Bugoma CFR include the Black-eared ground thrush (Zoothera camaronensis) and Nahan's francolin (Francolinus nahani)¹¹.

Plant species of Bugoma CFR

Bugoma CFR consists of 257 tree and shrub species including seven species that are Albertine Rift endemic, more than 12 species that are globally threatened and 14 tree species listed under IUCN's Red List¹². Common tree species in this riparian forest include *Trilepisium madagascariensis* (false fig/Luwawu/Musomoro), Antiaris toxicaria (Bakcloth tree/Kirundu), Funtumia africana (Bush rubber/Nkango/Munyamagosi) and Pseudospondias microcarpa.

The above plant species including Luwawu, Kirundu and Nkago are used in medicine, to make clothes (barkcloth) and shoes, carpentry and others¹³.

- 5 Plumptre, 2002
- 6 Plumptre,2007
- 7 Uganda Parks: <u>Bugoma Forest Reserve</u>
- 8 Uganda Parks: <u>Bugoma Forest Reserve</u>
- 9 McLennan R. M. (2008): Beleaguered chimpanzees in the agricultural district of Hoima, Western Uganda: https://bioone.org/journals/primate-conservation/volume-23/issue-1/052.023.0105/Beleaguered-Chimpanzees-in-the-Agricultural-District-of-Hoima-Western-Uganda/10.1896/052.023.0105.full
- 10 Birdlife International: <u>Bugoma Central Forest Reserve</u>
- Birdlife International: <u>Bugoma Central Forest Reserve</u>
 Uganda Parks: <u>Bugoma Forest Reserve</u>
- 13 KCCA (2022): Kampala tree and palm directory



2. Wambabya Central Forest Reserve (CFR)

Wambabya CFR is a tropical swampy and riverine forest that was gazetted by the Ugandan government in 1965. The forest is managed by NFA¹⁴, ¹⁵. Wambabya CFR covers an area of 34.25 sq. km. It connects two major forest reserves namely Bugoma and Budongo in Kikuube and Hoima districts in Western Uganda. In providing connectivity between these two forests with high populations of chimpanzees, the forest enables gene flow to take place for maintenance of viable chimpanzee populations.

Animal species of Wambabya forest

The Wambabya forest ecosystem has high biodiversity and ecological importance. The forest is home to endemic as well as nationally and globally threatened animal species. Species of regional conservation concern in the Wambabya forest system include the Yellow-fronted Tinker birds (*Pogoniulus chrysoconus*), which are of regional responsibility (R-RR) conservation importance. Others include two species of raptors including the African Harrier Hawk and Lizard Buzzard, the Green Hylia, Red-tailed Greenbul, and the Black and White Casqued Hornbill¹⁶.

Wambabya also has a population of around 120 chimpanzees¹⁷. The only primate known to be endemic to Uganda, the Uganda Mangabeys (Lophocebus ugandae), is also found in Wambabya Forest. L. ugandae was first evidenced to occur in Wambabya Forest and this marked the northernmost distribution of this species. Other primates in Wambabya include black-and-white colobus monkeys, tantalus monkey, blue monkey, red-tailed monkey and the olive baboon (Papio anubis).

Plant species of Wambabya forest

Wambabya is a Cyperus papyrus dominated and Acacia polyacantha woodland forest. Wambabya riverine forest typically includes the following dominant tree species: Mangifera indica (Mango), Ficus mucoso (Mutuba), Albizia grandibracteata (Nnongo) and Phoenix reclinata (Kikindukindu). Others include Markhamia lutea (Lusambya), Borassus aethiopum (Kituugo) and Artocarpus heterophylla (Fennensi). These plants form dense clumps along the edges of streams and swamps.

Some of the plants of conservation concern in Wambabya forest include the Indian Blue Lotus (Nymphaea nouchali), a critically endangered species on the Ugandan Red List. Others include Tinospora orophila, which is considered to be an Albertine Rift endemic. Yet others include Aeschynomene indica, which is listed as data deficient on the Ugandan Red List. Tamarindus indica (Oomukooge) is a vulnerable woodland species and it is found in the forest. Milicia excels (Mvule) is another vulnerable tree found in the forest. Two endemic or restricted range Black Star species and one IUCN endangered species including Ecbolium hastatum and Tinospora orophila are also found in the forest.

Hydrological functions of Wambabya forest

Wambabya forest is a source of rivers such as Wambabya that provide water for over 50,000 people within Hoima municipality¹⁸. This forest functions ecologically as a water filter.

- 14 NFA: https://twitter.com/NFAUG/status/1439315050855075840
- https://dopa-explorer.jrc.ec.europa.eu/wdpa/40000
- 16 **ICAO. 2016.**
- 17 Hanni, D.C. (2010): The Chimpanzees of Wambabya Forest Reserve, Uganda: Ecology, Behavior and Conservation
- Patrick B.B. (2010); Public awareness and participation in the conservation of Wambabya wetland/river in Hoima district: https://www.rufford.org/projects/patrick-byamukama-byaru-hanga/public-awareness-and-participation-in-the-conservation-of-wambabya-wetlandriver-in-ho-ima-district/

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In addition, the forest is a watershed for Waki and Hoima rivers and their many tributaries flowing west to Lake Albert, and along tributaries of River Kafu which flows east to join the Nile. The forest is part of the network of protected areas constituting a watershed on the Eastern rim of Lake Albert.

3. Taala Central Forest Reserve (CFR)

Taala FR is found in Kyankwanzi district of central Uganda. It is a terrestrial¹⁹ dry Combretum savanna with some areas of medium altitude and moist semi-deciduous forest. In other words, Taala Forest reserve is a combination of a secondary growth forest and savanna woodland. It was gazetted in 1968 covering 88.02 sq. km and it is being managed by NFA.

Taala CFR is a key biogeographical area with several interesting species. The flora and fauna of this reserve are somewhat diverse and are characterised by some restricted-range²⁰ species. The number of species known from Taala Forest are 106 trees and shrubs, 52 birds, 13 small mammals, 10 hawkmoths, six species of silk moths, 75 butterflies of which two are known to be restricted in range (i.e., known from ≤5 forests) and nine large moths that are restricted-range species²¹.

Taala forest reserve is among the natural forests in Uganda that are traversed by the EACOP. The pipeline corridor traverses 4.5²² km of which 0.409 km runs through the wetland and or riverbank area of Taala CFR. Over 147,318²³ tree stems and saplings, belonging to 510 indigenous and exotic species were found in Taala CFR during the EACOP valuation exercise that was conducted by TotalEnergies.

7. Significance of the EACOP-affected forests

Two, that is Bugoma and Wambabya CFRs, of the EACOP-impacted forests are found in the Albertine Rift²⁴ while Taala CFR is at the peripheral. The Albertine rift is an important biodiversity conservation area in Africa. These forests contribute to the flora²⁵ and fauna diversity and endemism as well as the ecological conditions enjoyed in Uganda and beyond.

Forest ecosystems such as Bugoma, Wambabya and Taala provide an array of critical and diverse ecosystem services and values to people's wellbeing and economic development of Uganda. Some of the forest ecosystem services and values can be broadly categorised as provisioning, support and cultural as detailed below:

Habitats for plants and animals: As discussed in the previous section, the EACOP-impacted forests are a primary habitat for a wide range of animal and plant species, including endemic as well as nationally and globally threatened species. The forests are also habitats to species with restricted range, making it imperative that they are conserved.

- 19 https://rris.biopama.org/pa/40159
- 20 Restricted-range means recorded from no more than five Ugandan forests
- 21 Uganda Forest Department (1996): <u>Lunga, Namwasa, Taala and Bwezigola-Gunga Forest</u>
 Reserves: Biodiversity report
- 22 <u>Tim Davenport</u> 1996 Luunga, Namwasa, Taala and Bwezigola-Gunga Forest Reserves Nummer 25 van Biodiversity report, Uganda Forest Department, Kampala
- TotalEnergiregies, 2020. eacop-uganda-rap-chapter-7-eligibility-compensation-and-compensation https://eacop.com/wp-content/uploads/2022/06/eacop-uganda-rap-chapter-6
- Albertine rift is t region as extending from 30 km north of Lake Albert to the southern tip of Lake Tanganyika, including the valley, flanks of the escarpment and associated protected areas, and the range of species endemic to it (Plumptre et al., 2003).
- The Albertine Graben forests are known for their flora and fauna diversity (i.e., 6,409 plant varieties from 1537 genera and 233 families of which 551 species are endemic to it representing 14% of mainland Africa's plants.



Water provisioning: The EACOP-impacted forests regulate water flow in various swamps and water bodies. They are also an important watershed for various rivers and lakes. Some of these include River Kafu, which is also set to be impacted by the EACOP. Others include rivers Wambabya, Hoima, Rwemiseke, Hohwa and the great Nile. The forests are also a catchment area for Lake Albert. The rivers, lakes and swamps are a source of water for domestic and production purposes, hydro-electric power generation, income sources and food security through fishing.

Ecological functions: The mammals, insects, reptiles, amphibians and birds found within the forest play different ecological functions such as seed dispersal, pollination, pest and disease control (natural enemies) and others. By providing a habitat for pollinators and pests' natural enemies, the forests boost crop production. Uganda's economy is dependent on agriculture and the functions played by the species in these forests cannot be understated.

Climate stabilisation: The forests sequester and store carbon in their biomass and forest soils, contributing to regulation of the carbon cycle and climate change mitigation, a major challenge of our time.

Soil conservation: Healthy forest ecosystems produce and conserve soil and stabilise stream flows and water runoff —preventing land degradation and reducing the occurrence of natural disasters such as droughts, floods and land/mudslides, thereby preserving life. The EACOP-impacted forests play this role.

Source of raw materials: The forests are a source of raw materials for items such as clothes, shoes, baskets, furniture, mats, arts and crafts and others. For example, lianas such as Loeseneriella apocynoides (Apocynaceae) are harvested for basketry weaving in Albertine Graben.

Medicinal purposes: The forests are a traditional pharmacy with herbs that can be extracted from leaves, tree bark, vines and roots as well. Animal-based remedies and specimens that can be extracted from the skins, fur, nails, feathers, live animals, eggs and others are also found in the forest. Furthermore, there are spiritual and/or traditional healing rituals that communities/traditional healers perform under the canopies of specific forest types and/or trees. For example, Bugoma CFR hosts a cultural site for Bunyoro kingdom.



Figure 1: Forests serve as sites of aesthetic, recreational, and spiritual value in many cultural and societal contexts. Traditional ceremonies/worship/healing normally take place in forests (Source: African Pearl Safaris)

Tourism and research: The forests can also be harnessed to promote tourism and are important for research. For instance, between Wambabya and Bugoma forests are Permanent Sample Plots (PSPs) that are used for training ecologists and foresters. Forests also provide employment opportunities to local people. Local people are hired as research assistants, guards, rangers, trail cutters, cooks or guides and others.



8. Conclusion and recommendations

Forests²⁶ contribute 4.1% to Uganda's GDP²⁷ and must be conserved to continue playing the roles that they do. In line with a recommendation made by the European Parliament to TotalEnergies in September 2022²⁸, the company should reconsider the route of the pipeline to avoid key forests, forest corridors and other ecosystems.

The following recommendations are made to aid conservation of forests in Uganda:

- (i) The Ugandan government should put in place laws that bar extractive, infrastructure, agriculture and other destructive developments in all protected areas including forests, lakes, national parks, game reserves, rivers and others in Uganda;
- (ii) Further, government and civil society groups should upscale public sensitisation efforts aimed at enabling communities to fully appreciate the importance of forests to aid their conservation;
- (iii) In addition, government and civil society groups should deliberately boost the incomes of forest host communities to avoid further forest encroachment. This can be done rough green enterprises like ecotourism, bee keeping and value addition and marketing;
- (iv) Agroforestry (trees on farm and landscape) is another green intervention that should be supported by the Ugandan government and development partners. Indigenous tree species serving multiple uses should be promoted to ensure that economic values and ecological benefits are enhanced;
- (v) Further, management plans and regimes of forests in the Albertine Graben for extractive that is to say charcoal, timber and fuelwood as well as non-extractive uses for instance ecotourism and research need to be carefully planned and executed;
- (vi) Finally, government should be supported by development partners to engage in timely research to generate updated information on forests such as Taala. Species-level research especially for the threatened and or restricted species should be prioritised.

²⁶ Uganda has 506 CFRs and LFRs

²⁷ Uganda Bureau of Statistics (2021). Statistical Abstract 2021

European Union Parliament (2022). *Joint motion for a resolution - RC-B9-0409/2022*. https://www.europarl.europa.eu/doceo/document/RC-9-2022-0409_EN.html



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- 18. Uganda Forest Department (1996). Luunga, Namwasa, Taala and Bwezigola-Gunga Forest Reserves. Retrieved from https://books.google.be/books/about/Luunga Namwasa Taala and Bwezigola Gunga.html?id=HTHjtgAACAAJ&redir esc=y



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*The references are in the order in which they appear as footnotes in this factsheet.





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