FOREST LANDSCAPE MANAGEMENT PLAN FOR THE BIDIBIDI REFUGEE SETTLEMENT IN YUMBE DISTRICT, UGANDA 2023–2028 SUMMARY

Introduction

Woodfuels are the main source of energy for cooking for more than 90 percent of households in Uganda. Overall, two thirds of households (73 percent) rely on fuelwood as a main energy source, while 21 percent of households rely on charcoal.[1] This significant demand for biomass has greatly accelerated environmental degradation in many parts of Uganda.

The influx of refugees in Uganda has added to existing pressures on the environment, resulting in reduced access to woodfuel for cooking and competition with host communities over the use of limited natural resources. As at July 2022, approximately 1.5 million refugees and asylum seekers had been forcibly displaced to Uganda (mostly from South Sudan and the Democratic Republic of the Congo, followed by Burundi and Somalia), making Uganda the largest refugee host country in Africa. The Bidibidi refugee settlement, located in Yumbe District, in the West Nile subregion, is the largest in Uganda, with a population of 224 048 (July 2022)[2].

A planned approach for the management of natural resources in displacement situations, in both the short and the long term, is crucial to minimize the environmental impact of displacement and increase the resilience of refugee and host communities to the impacts of climate change and other shocks.
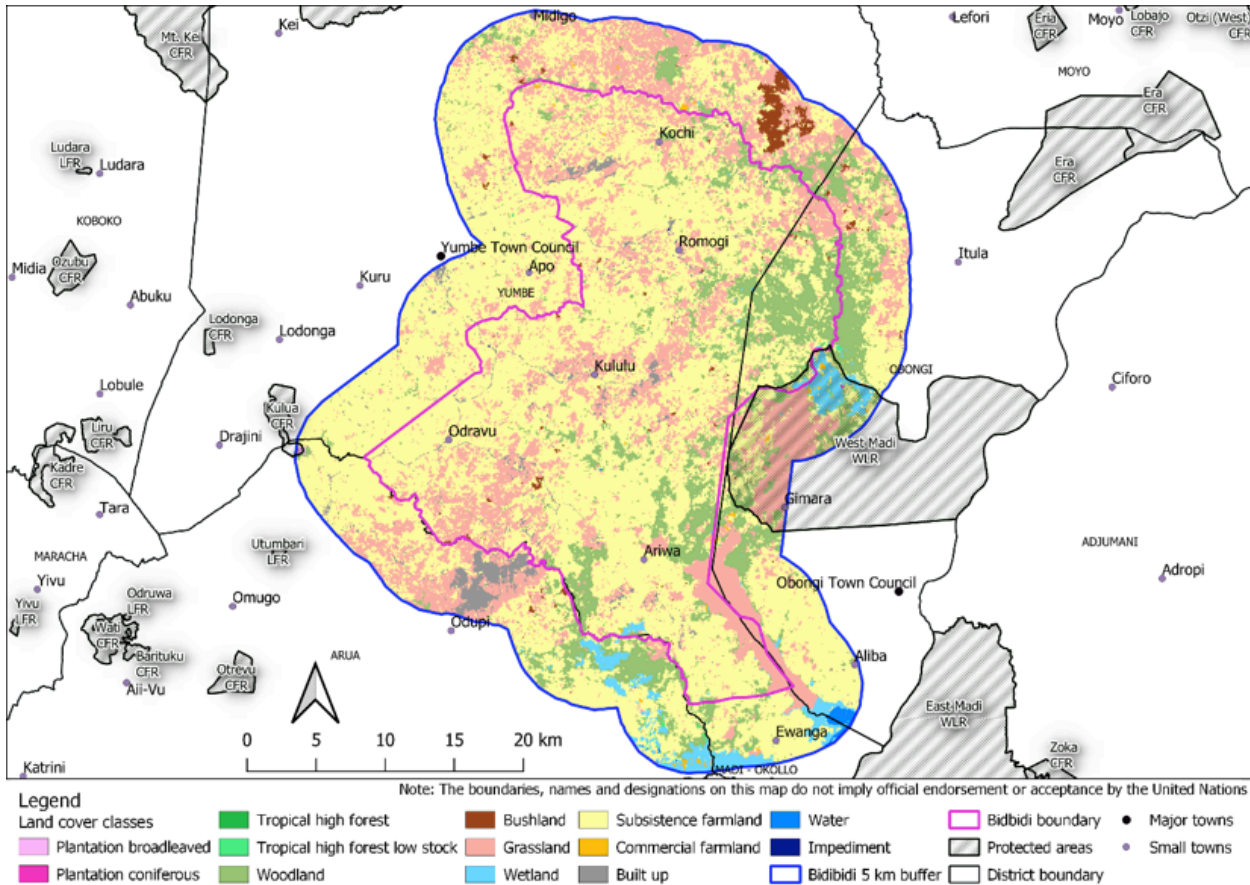
It is also fundamental to ensure sustainable livelihood opportunities through the development of innovative and resilient forest value chains, with improved market access and strengthened social protection. A deliberate approach to the management of natural resources promotes a safer and more efficient use of both natural and financial resources.

The Forest Landscape Management Plan for the Bidibidi refugee settlement will support the Government of Uganda in its efforts to regulate interventions for the management of environmental and forest resources in the Bidibidi refugee settlement. The plan builds on work that started in 2019 under a multistakeholder approach. Participants were the Food and Agriculture Organization of the United Nations (FAO), the Office of the United Nations High Commissioner for Refugees (UNHCR), the Office of the Prime Minister, the Ministry of Water and Environment, the Yumbe District Local Government, local landlords and refugee welfare councils. The plan incorporates the most recent spatial and non-spatial data and trends that have occurred in and around the Bidibidi refugee settlement. It is envisaged that the Forest Landscape Management Plan will also guide work of UNHCR, FAO and other partners involved in supporting environmental and energy interventions in the target area (see Figure 1).

---

1. Uganda Bureau of Statistics. 2021. The Uganda National Household Survey 2019/2020. Kampala.
2. Office of the United Nations High Commissioner for Refugees (UNHCR). 2022. Uganda – Refugee Statistics July 2022 – Bidibidi. Geneva, Switzerland. https://data.unhcr.org/en/documents/details/94708

Figure 1. Land use and land cover in the Bidibidi settlement and a 5 kilometer buffer zone, 2019

Note: The boundaries, names and designations on this map do not imply official endorsement or acceptance by the United Nations

Legend

Land cover classes

Plantation broadleaved	Tropical high forest
Plantation coniferous	Tropical high forest low stock
	Woodland
	Bushland
	Grassland
	Wetland
	Subsistence farmland
	Commercial farmland
	Built up
	Water
	Impediment
	Bidibidi boundary
	Protected areas
	Bidibidi 5 km buffer
	District boundary
	Major towns
	Small towns

OBJECTIVES

The primary objective of this short- to medium-term Forest Landscape Management Plan is to provide practical guidelines to alleviate pressure on the environment and natural resources, ensure sustainable access to biomass for cooking, and contribute to building the resilience of both refugee and host communities.

The total annual demand for woodfuel for cooking for the refugees and host communities settled in Bidibidi is estimated at 146 871 tonnes per year

©FAO/Anita Tibasaaga

More specifically, the plan will implement interventions that will lead to:

1. **sustainably supplying** fuelwood, timber and non-wood forest products;

2. **protecting and maintaining** forest resources with their ecological functions and processes;

3. **improving the conservation** of biodiversity;

4. **improving the quality** of life of refugee and host communities; and

5. **promoting a more active role** for refugee and host communities in the management of forest resources through the development of mutually beneficial arrangements.

The plan focuses on three main strategies to achieve these objectives: (a) the establishment of woodlots for energy; (b) the restoration of degraded forest and other land; and (c) the conservation of intact or partially intact natural forests. The recommended interventions are based on the results of previous assessments conducted by FAO, UNHCR and the World Bank, as well as of consultations with the Government of Uganda and local stakeholders. The beneficiaries of these interventions include both refugee and host communities within the target areas, as well as institutions such as churches, mosques, schools and health facilities.

SITUATION ON THE GROUND

The highest woody biomass losses between 2018 and 2021 are observed in land classified as subsistence farmland, for both the area within the settlement and the five-kilometer buffer zone around the settlement boundary, with a total annual biomass loss of 68 383 tonnes. This is followed by tropical high forest (low stocked) and plantation–broadleaved forest plantation at 7 349 tonnes and 1 613 tonnes, respectively.

The total annual demand for woodfuel for cooking for the refugees and host communities settled in Bidibidi is estimated at 146 871 tonnes per year (based on UNHCR's refugee population data from July 2022). The total above-ground biomass stock is estimated at 735 948 tonnes within the settlement area, while above-ground biomass growth is estimated at 121 794 tonnes per year within the settlement. Considering these figures and assuming that the biomass harvested by refugees and hosts settled in Bidibidi is sourced within the settlement area, the annual deficit of woody biomass is equal to 25 077 tonnes, with an average annual biomass loss of 3.4 percent. Closing this gap requires over 2 700 ha of woodlots to meet the demand for woodfuel for cooking.

Proposed management interventions

Establishment and management of dedicated woodlots for biomass production

The establishment and management of woodlots with increased tree density could maximize biomass production within a short period, thus ensuring that the demand for wood energy is met. Woodlots can also provide other forest products for the refugee and host communities. Fast-growing tree species should be planted, and short-rotation coppice management should be adopted to enable the early harvesting for fuelwood. To motivate locals to manage the trees effectively, interventions should encourage the planting of multipurpose species, which can provide benefits other than the supply of wood.

Other incentives include cash for work, income from seedlings, performance-based payments for trees, partnerships with local non-governmental organizations and training in agroforestry systems.

A total 614 hectares (ha) of land were identified and demarcated for potential woodlot establishment within the settlement area to support the energy needs of the refugees, and 3 467 ha to support the host community's needs, for a total of 4 081 ha (see Table 1).

Table 1. Women's participation in the charcoal value chain in the sampled districts in Uganda

Zone	Subcounty	Settlement area (ha)	Host community area (ha)	Total area (ha)
1	Romogi	87.2	2 161.5	2 248.7
2	Kochi	105.1	220.4	325.5
3	Kululu	116.2	368.5	484.7
4	Odravu	190.1	370.7	560.8
5	Ariwa	115.4	346.1	461.5
	Total	**614.0**	**3 467.2**	**4 081.2**

Restoration of degraded forests and other land

Restoring degraded forests and other land in and around Bidibidi can be a relatively cost-effective method to sustainably manage native forest resources. Restoration involves the natural regeneration and assisted natural regeneration of indigenous tree species and productive farmland through agroforestry and agroecological techniques. Site-specific harvesting plans can control and regulate the harvesting of wood and non-wood forest products. A total 6 846 ha of degraded land where woody biomass loss has occurred recently (between 2018 and 2021), have been identified for potential restoration.

According to the type of land use and land cover, specific ecological restoration strategies will be implemented with the support of the local population. Efforts to restore degraded land will aim at soil conservation, carbon sequestration, biodiversity conservation, watershed conservation and the safeguarding of cultural services and cultural values.

The recommended ecological restoration interventions would mainly target degraded farmland, where woody biomass loss is primarily driven by agricultural expansion, overharvesting of fuelwood and fires. The restoration interventions will also target degraded tropical forests, riparian corridors, woodlands and bushlands.

Table 2 provides an overview of (mostly indigenous) species that can be used for land restoration interventions, with their soil requirements.

Table 2. High-value timber and fuelwood species for land restoration interventions

Tree species	Site conditions/management system
Acacia sieberiana, Ficus natalensis	Poorly drained soils, sites with a high water table, riverine sites
Combretum spp., *Piliostigma thonningii*	Water-stressed sites, soils with rapid drainage
Combretum spp*., Pilostigma thonningii*	Shallow soils with underlying rock, effective rooting depth of less than 50 cm.
Antiaris toxicaria, Afzelia spp*., Celtis africana, Khaya senegalensis, Pseudocedrela kotschyi, Albizia coriaria, Milicia excelsa*	Deep, fertile, well-drained soils
Calliandra calathyrsus, Sesbania spp., Tephrosia spp*., Cajanus cajan, Gliricidia sepium, Moringa oleifera*	Tree species for agroforestry systems

Conservation of intact or partially intact natural forests

This approach will support the maintenance of undisturbed or partially disturbed woodlands and bushlands, protect these ecosystems from fuelwood harvesting, livestock grazing and other destructive agents, such as fires. The interventions to conserve remaining pockets of closed natural forests and other woodlands aim at protecting the biodiversity and natural resources (especially soil and water) of these ecosystems, and safeguarding their aesthetic, cultural and spiritual value. The protection, preservation and management of ecosystems and natural habitats will ensure their

health and functionality and protect them from the unregulated harvesting of forest products. Closed natural forest belts in Bidibidi are located mainly on host community land, with some pockets of forests along riverbanks. These native forests are sources of wood and non-wood products, and serve as natural barriers, wildlife corridors and special management zones for biodiversity conservation. Intact natural forests should therefore not be cleared and replaced by woodlots.

COST ANALYSIS

A summary budget for the implementation of the Forest Landscape Management Plan for the Bidibidi refugee settlement is presented in Table 3. The Forest Landscape Management Plan provides a sequenced implementation plan for two time periods i.e. for 2023–2025 and 2026–2028.

Table 3. Funding requirements of the Forest Landscape Management Plan

Intervention	Unit cost (USD)	Planned area (ha)	Total cost (USD)
Woodlots for energy	1 407	2 786[A]	3 919 902
Restoration of degraded forests	330[B]	75	24 750
Conservation of natural forests	344	20 054	6 898 576
Agroforestry	565[C]	6 771	95 640
Total (USD)			**10 938 853**

Notes:

A: Total area of woodlots with a rotation length of three year, so 929 ha are harvested every year

B: Average costs for natural regeneration and assisted natural regeneration

C: Total cost per community centre (one centre per 30–50 ha under agroforestry)

GENDER AND LANDSCAPE MANAGEMENT IN BIDIBIDI

Gender relations play a role in forest management and in the use of forest products. Understanding and taking into account differences between men and women in terms of their interaction with forests is essential not only for sustainable forest management, but also for increasing the contribution of forests to sustainable livelihoods.

The implementation of sustainable forest management projects with an explicit gender lens can help reduce the vulnerability of both women and men by enhancing their socioeconomic empowerment and reducing the informal production and marketing of forest products. The active participation of both women and men in forest management projects is essential to guarantee the holistic, multidisciplinary and intersectoral approach needed to safeguard the environment for future generations.

©FAO/Anita Tibasaaga

Food and Agriculture Organization of the United Nations (FAO)
Plot 88 Buganda Road, Wandegeya
www.fao.org/uganda
FAO-UG@fao.org | Twitter: @FAOUganda