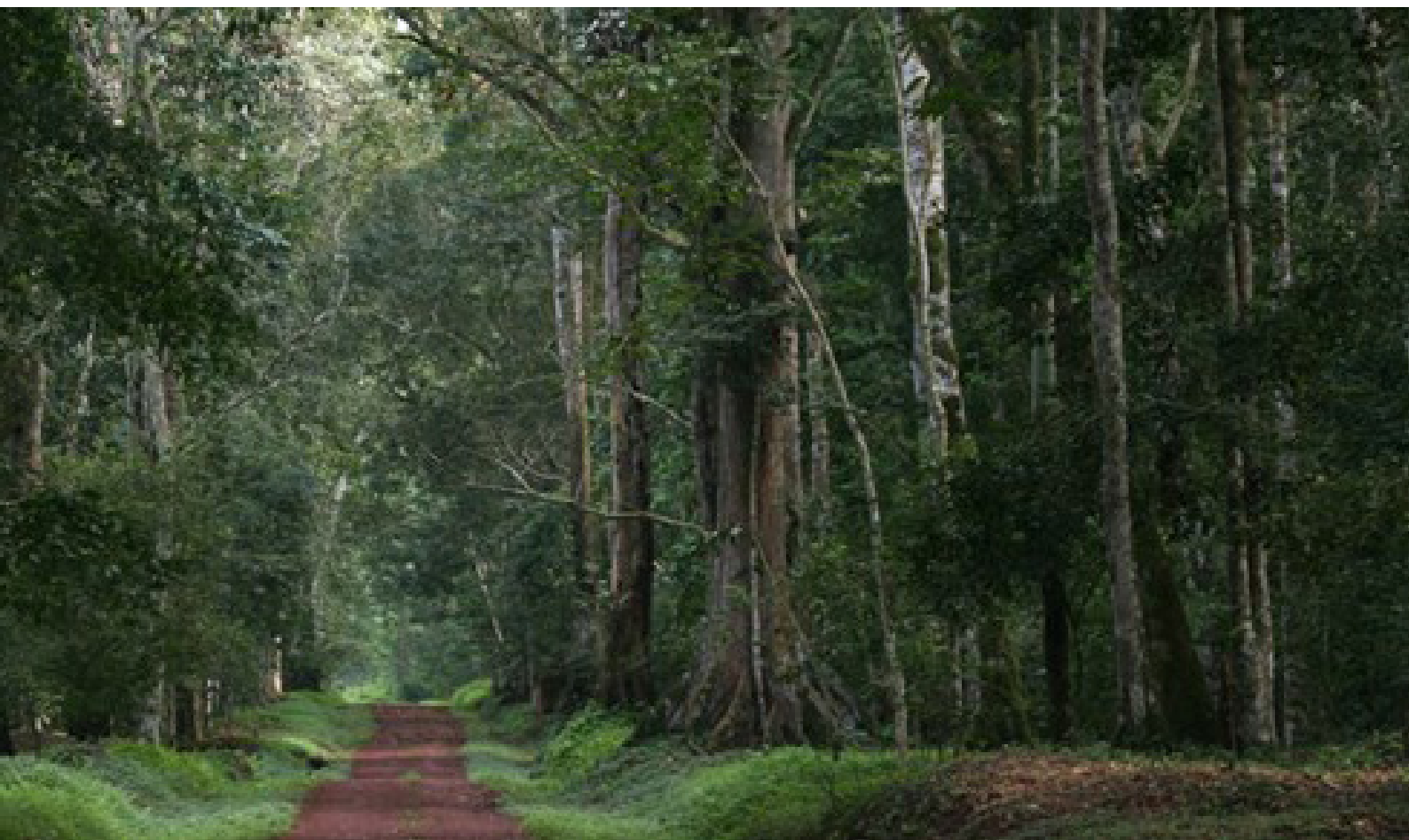


**UGANDA'S WOOD STOCK ON A DECLINING PATHWAY TO
EXTINCTION: A CALL FOR POLICY REVIEW AND ACTION**

POLICY BRIEF BY



**CENTRE OF EXCELLENCE FOR AFRICA CLIMATE-SENSITIVE
MACROECONOMIC MODELLING (CEACM)**



Key Messages

- Rapid depletion of wood stock. Uganda's national wood resources declined by about 45% between 1990 and 2015, reflecting unsustainable extraction that far outpaces natural regeneration.
- Severe forest pressure. Woodland stocks have fallen by over 80% and Tropical High Forests nearly halved, with limited plantation forestry unable to offset these losses.
- Rising demand for biomass energy. Firewood and charcoal account for roughly 78–80% of national energy consumption, driven by households, institutions, and industry, widening the gap between demand and sustainable supply.
- Critical risks ahead: If current trends persist, wood available for supply could be exhausted by 2069, threatening energy security, environmental sustainability, and long term economic resilience.
- Urgent policy action required. Stronger enforcement in protected areas, scaling up reforestation and agroforestry, expanding plantation forestry, and making alternative energy sources (LPG, electricity) more affordable are essential to avert crisis.
- The expansion of small-scale farmland is the principal driver of forest loss, particularly in woodlands and Tropical High Forests (THF). Although plantation forests have expanded, these gains are too small to compensate for the loss of natural forests and cannot replace the biodiversity and ecosystem services they provide, including habitats that sustain Uganda's tourism industry and other ecosystem services

1.0 Introduction and Motivation

Forests are a critical component of Uganda's natural capital, providing essential ecosystem services and serving as the backbone of the country's energy system. Woody biomass accounts for approximately 78 percent of total energy consumption, primarily through firewood and charcoal, while wood products also support construction, manufacturing, and rural livelihoods. However, the sustainability of this resource base is increasingly under threat due to rising demand and unsustainable extraction patterns. Evidence from Uganda's Wood Asset and Forest Resources Accounts (UBOS, 2020) indicates a significant and persistent decline in national wood stock, which fell by approximately 45 percent from 355.5 million tonnes in 1990 to 197.1 million tonnes in 2015. This decline is largely driven by increasing demand for biomass energy (firewood and charcoal), which constitutes the dominant use of wood, alongside growing demand for timber and poles. Rapid population growth, urbanisation, and limited access to alternative energy sources have further intensified pressure on forest resources, resulting in extraction rates that exceed natural regeneration.

The imbalance between wood demand and sustainable supply has led to a widening wood supply deficit and accelerated depletion of both forest and non-forest wood stocks.

Projections suggest that national wood demand could more than double by 2040, while sustainable wood supplies may be exhausted much earlier under current trends. This trajectory poses a high risk of severe degradation and potential localized extinction of natural wood stocks, particularly in woodlands and Tropical High Forest ecosystems. From a natural capital accounting perspective, this trend reflects a depletion of a renewable asset due to persistent over-extraction relative to biological growth. Without corrective policy interventions, the continued decline in wood stock threatens energy security, environmental sustainability, and long-term economic resilience.

This underscores the urgent need for a comprehensive assessment of the status of wood stock vis-à-vis extraction and demand dynamics. Such an assessment is critical to inform evidence-based policy measures aimed at reversing the current trajectory, including strengthening forest governance, promoting sustainable wood production systems, and facilitating the transition to alternative energy sources.

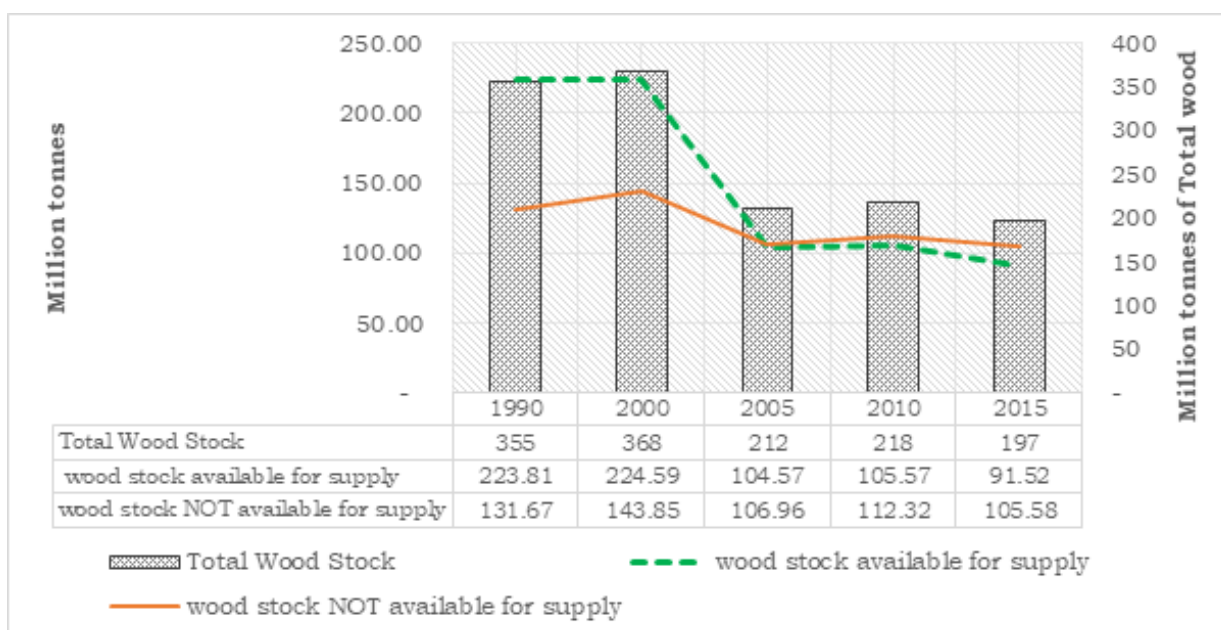
This policy brief uses data from the Wood Asset and Forest Resources Accounts (UBOS, 2020) for Uganda to assess the structure and trends of forestry stock in Uganda, with the aim of informing policy review and identifying priority. This brief uses data from the wood assets and forest resource accounts for Uganda (UBOS, 2020).

2.0 Findings

2.1 Uganda's wood stock assets are on a decline

Overall, for the past 15 years, Uganda's wood asset stock has almost halved by 46.5 percent (Figure 1). Between 1990 and 2000, Uganda's wood stock increased largely on the account of wood that is not available for supply. Since then, to date it has been on a decline with 2005 the stock of wood available for supply declined drastically to the levels of wood not available for supply. While the wood stock not available for supply is on a recovery trend, that available for supply is a continuous decline. Specifically, between 2000 and 2015; wood stock available for supply declined by 59.2 percent whereas wood not available for supply declined by 26.6 percent (Figure 1).

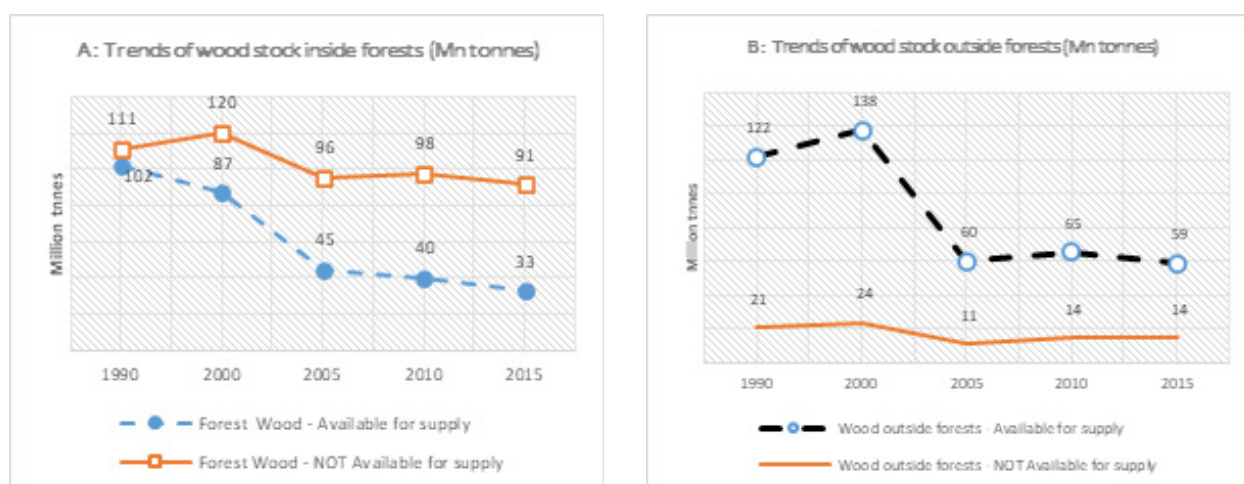
Figure 1: Stock of Wood available and NOT available for supply in Uganda (1990 - 2015)



2.2 Among the wood available for supply, wood OUTSIDE forests is the main driver for the decline of wood stock

As shown in Figure 1 above, the decline in Uganda's wood stock is primarily driven by reductions in wood available for supply. Within this category, wood outside forests accounts for the largest share of the decline (Figure 2-B). Between 2000 and 2015, wood available for supply outside forests fell sharply from 138 million tonnes to 59 million tonnes, while wood available within forests declined from 87 million tonnes to 33 million tonnes over the same period. Notably, declines are also observed in wood stocks not available for supply. Wood not available for supply within forests decreased by 29 million tonnes, while those outside forests declined by 10 million tonnes between 2000 and 2015. These trends point to significant enforcement challenges in protecting wood resources that are intended to remain conserved, particularly within protected areas, highlighting gaps in regulatory oversight and forest governance.

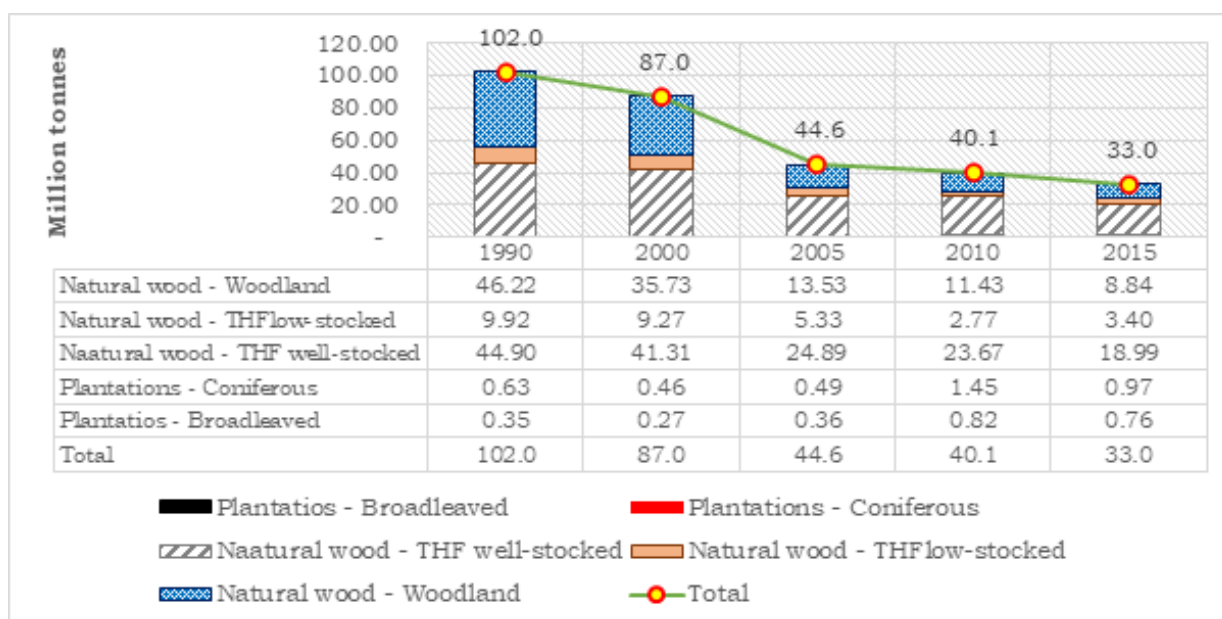
Figure 2: Stock of wood inside and outside forests (1990 - 2015)



2.3 Natural wood inside the forests available for supply is declining toward extinction

As shown in Figure 2 above that wood available for supply is the main stock facing extinction; within this, natural wood is the most affected. Figure 3 shows that natural wood specifically wood land was heavily encroached on, reducing from 46.2 to 8.8 million tonnes (80.1 percent decline) followed by Tropical High Forest (THF) well stocked which reduced from 44.9 to 19.0 million tonnes between 1990 and 2015. This decline has not been compensated for by plantation forests (of coniferous and broadleaved) as the stock of these has remained low. This trend has generally reduced the wood stock within forests available for supply from 102.0 to 33.0 million tonnes in the same period. This shows that afforestation policy aimed at addressing the depletion of natural forest covers is not yielding as the increase in the stock of plantation wood remains negligible to the natural wood stock lost annually.

Figure 3: Wood inside Forest available for supply by type: 1990 - 2015 (Million tonnes)

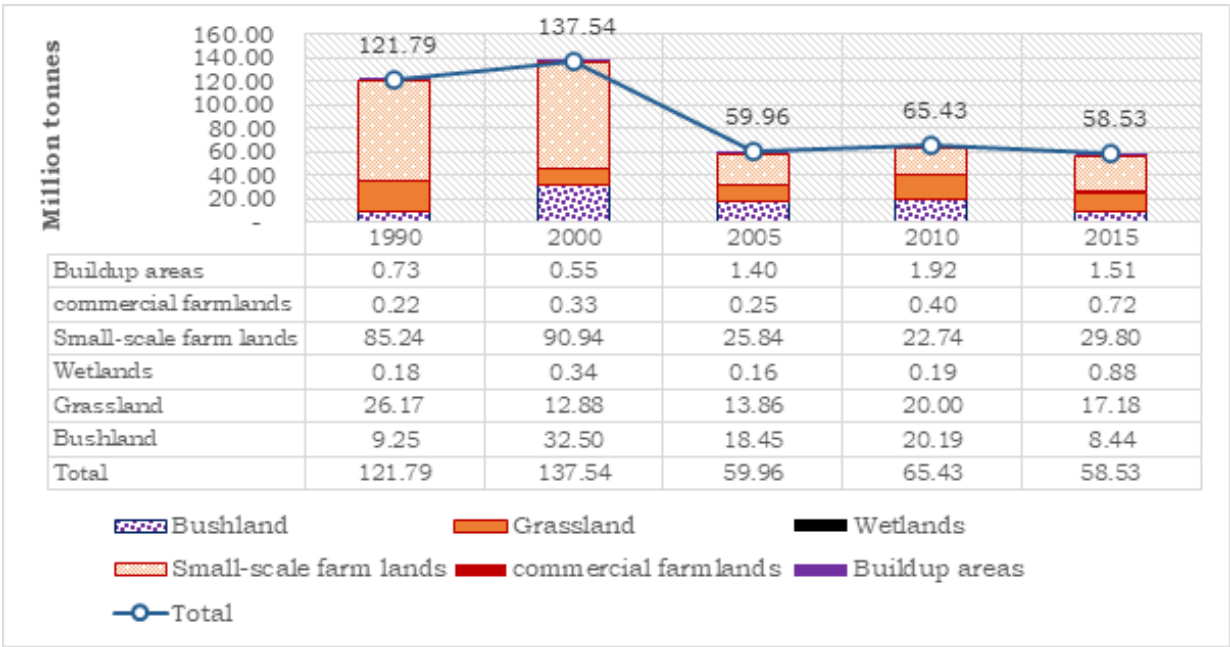


2.4 Wood outside forests has drastically declined especially small scale farmlands

In addition to the trends observed within forest areas, Figure 4 indicates that wood stocks outside forests are also experiencing a significant decline. Notable reductions are observed in small-scale farmlands and bushlands, where wood stocks decreased by approximately 61 million tonnes and 24 million tonnes, respectively, between 2000 and 2015. As a result, the total stock of wood available for supply outside forests declined sharply from 136 million tonnes to 59 million tonnes over the same period. These trends point to a weakening of agroforestry systems and accelerated extractions of wood from woodlands.

Furthermore, wood stocks outside forests that are not available for supply also declined from 23.8 million tonnes in 2000 to 14.2 million tonnes in 2015. This reduction is largely driven by the depletion of bushland wood stocks, which fell markedly from 14.9 million tonnes to 4.2 million tonnes over the same period.

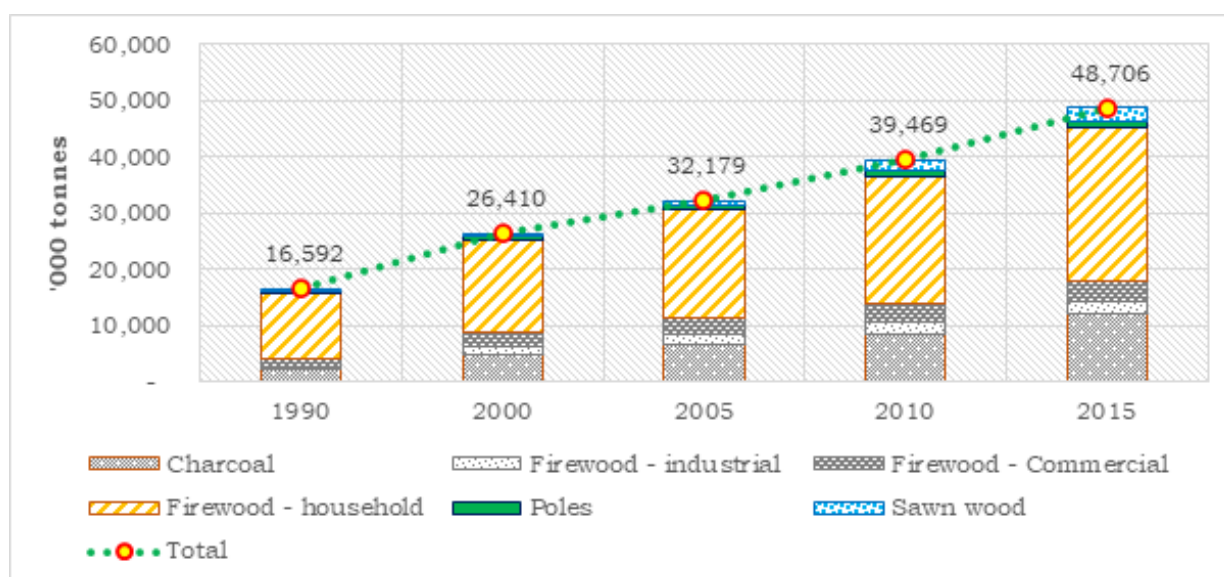
Figure 4: Wood outside Forest available for supply by type: 1990 - 2015 (Million tonnes)



2.5 Firewood and charcoal burning depleting Uganda’s wood stock

Firewood consumption by households is the largest contributor to wood harvest demand in Uganda, accounting for more than half (55 percent) of total demand. Charcoal use follows a similar pattern, contributing an additional 25 percent. This high reliance on biomass energy is partly driven by higher poverty levels in rural areas (19.4 percent) compared to the national average of 16.1 percent (UBOS, 2025). Notably, demand for firewood is not limited to households. It is also increasing among commercial sectors such as education, health, and social services and industrial activities, including manufacturing, construction, and housing. This broad-based and growing demand indicates that, in the absence of viable alternative energy sources, reliance on firewood and charcoal will continue to rise, further accelerating the depletion of Uganda’s wood stock.

Figure 5: Use of wood by product: 1990 - 2015 (Million tonnes)



2.6 In summary, Uganda's wood stock is on a depletion path

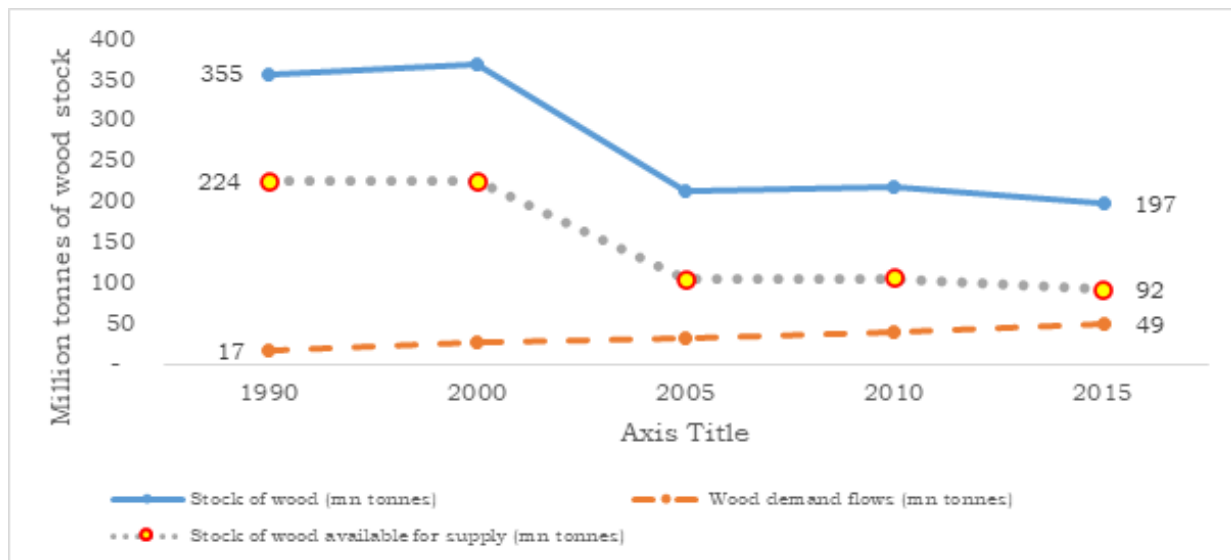
Uganda's wood stock available for supply is on a clear trajectory toward depletion. Over the period 1990–2015, total wood stock declined at an average annual rate of 1.8 percent, while wood available for supply contracted even faster, at 2.4 percent per annum. Although there was a modest deceleration in depletion rates during the more recent period (2005–2015)—to 0.7 percent for total stock and 1.3 percent for wood available for supply—the overall trend remains unsustainable. Evidence from Figure 6 indicates that between 1990 and 2015, wood demand increased substantially from 17 million tonnes to 49 million tonnes, while the stock available for supply declined sharply from 224 million tonnes to 92 million tonnes. This widening gap between demand and sustainable supply signals an impending exhaustion of accessible wood resources if current dynamics persist.

Projections based on the long-term (1990–2015) average rates of depletion and demand growth suggest that Uganda's wood stock available for supply could be fully exhausted by 2032. Such a scenario would likely trigger accelerated and potentially irreversible encroachment into protected and ecologically sensitive areas, including national parks and forest reserves; culminating in near-total depletion of national wood stock by 2046. Even under the more optimistic scenario where the reduced depletion rate of 1.3 percent (observed between 2005 and 2015) is sustained, the stock available for supply would still

be depleted by 2069.

This situation is further exacerbated by the limited expansion and slow growth of plantation forests, which remain insufficient to offset the ongoing loss of natural forest resources (as illustrated in Figure 3). Taken together, these trends underscore the urgency for policy intervention. There is a critical need to accelerate the transition toward alternative and sustainable energy sources to reduce reliance on biomass, thereby safeguarding Uganda's remaining natural forest capital and ensuring long-term environmental and economic sustainability.

Figure 6: Trends of wood stock and wood demand in Uganda (Million tonnes)



2.7 Uganda's forest land has more than halved between 1990 and 2015, mainly due to encroachment by small scale farmland

In addition to the decline in wood stocks, Uganda's Wood Asset and Forest Resources Accounts (UBOS, 2020) show that the country's forest cover declined by 2.97 million hectares (60.2 percent) between 1990 and 2015 (Figure 7). Woodland, which accounted for about 80.6 percent of Uganda's forest area in 1990, experienced the largest decline, shrinking by 68 percent between 1990 and 2015. Significant reductions were also recorded in THF low-stocked forests (62.7 percent) and THF well-stocked forests (21.7 percent). Although the area under broadleaved and coniferous plantations increased, these gains were too small to offset the losses in natural forests, resulting in a substantial net decline in forest cover.

Figure 8 shows that the loss of woodland about 2.7 million hectares, was driven primarily by conversion to small-scale farmland (43 percent), while a further 33 percent was converted to other forest types, including plantations and tropical high forests (THF). Similarly, about 90 percent of the loss in THF low-stocked forests and 76 percent of the loss in THF well-stocked forests resulted from conversion to small-scale farmland. Although plantation forests expanded by about 50 percent, most of this increase came from the conversion of natural forests (THF low-stocked and THF well-stocked), with only a small proportion established on grassland and small-scale farmland. In total, only about 33,866 hectares of plantations were established

on grassland and small-scale farmland, compared to approximately 2,983,334 hectares of natural forest converted to non-forest land uses.

These findings reveal two important concerns. First, the expansion of plantations is far too small to compensate for the loss of natural forests, resulting in a continued decline in Uganda's forest estate. Second, replacing natural forests with plantations does not restore the rich biodiversity and ecosystem services provided by tropical high forests. Unlike plantations, natural forests provide habitat for a wide range of wildlife, including primates, gorillas, birds, reptiles, insects and other species that depend on indigenous forests for food and shelter. These ecosystems underpin Uganda's tourism industry, one of the country's major sources of foreign exchange earnings.

These trends underscore the need for policies that reverse forest depletion by addressing its underlying drivers. A key priority is to increase productivity on existing small-scale farmland, thereby reducing the need to expand cultivation into forested areas while meeting growing food demand. This should be complemented by stronger enforcement of forest protection laws and land-use regulations to curb encroachment into natural forests. In addition, forest restoration efforts should prioritize restocking degraded natural forests with indigenous tree species, rather than relying primarily on commercial broadleaved and coniferous plantations, to restore biodiversity, ecosystem services and the long-term sustainability of Uganda's tourism sector.

Figure 7: Trends of forest land lost between 1990 and 2015 in hectares (ha)

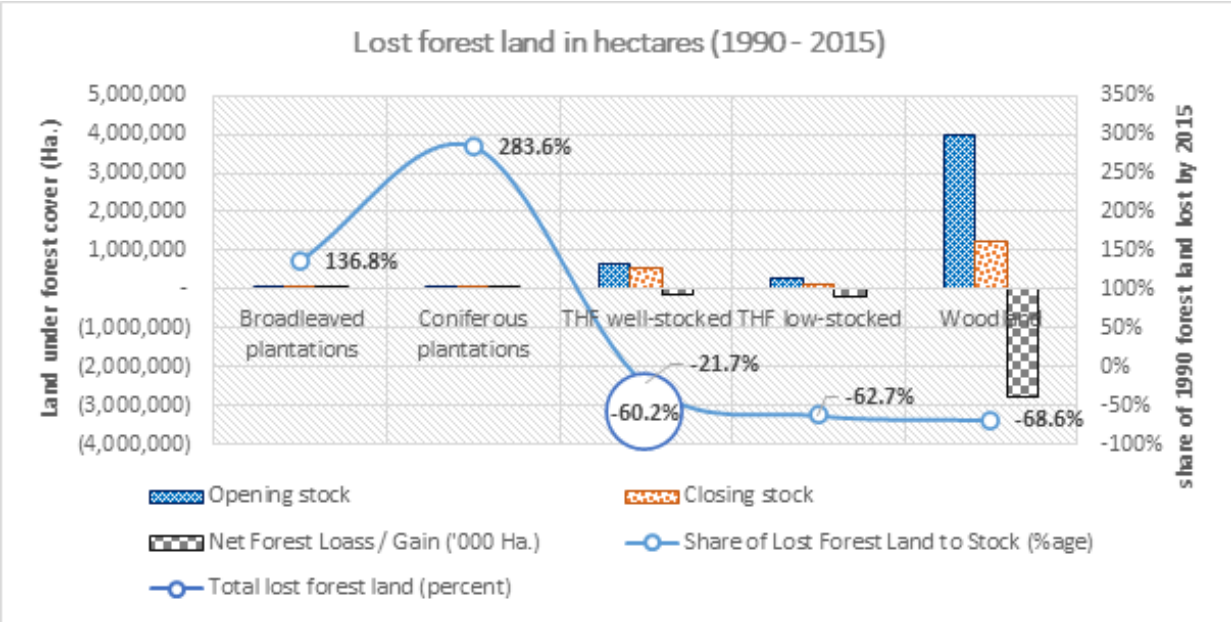
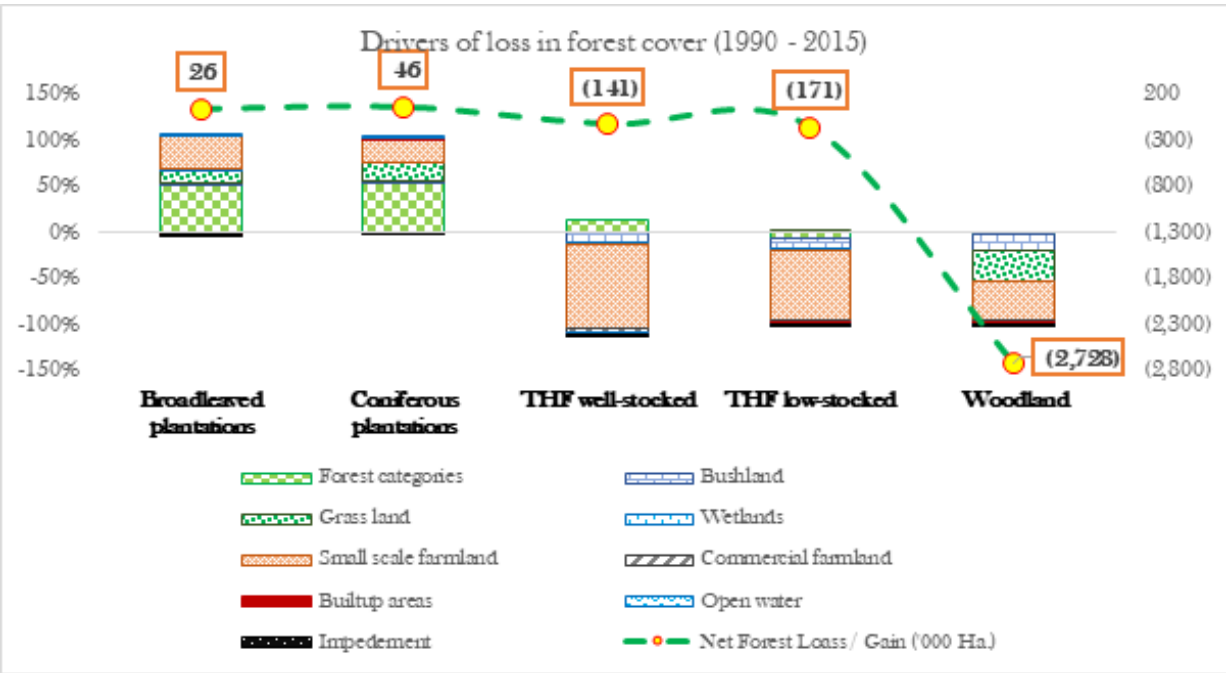


Figure 8: Drivers of losses in forest land between 1990 and 2015 in hectares (ha)



3.0 Conclusion and Recommendations

Uganda's wood assets and forest ecosystems are on an unsustainable depletion pathway. Between 1990 and 2015, national wood stock declined by about 45 percent, while forest cover fell by 2.97 million hectares (60.2 percent), driven by a persistent imbalance between extraction and natural regeneration. At the same time, wood demand nearly tripled from 17 million tonnes to 49 million tonnes, whereas wood available for supply declined from 224 million tonnes to 92 million tonnes, widening the gap between sustainable supply and demand. If current trends continue, wood available for supply could be exhausted between 2032 and 2040, with increasing encroachment into protected forests placing the country's remaining wood stock and biodiversity at risk.

The evidence further shows that the expansion of small-scale farmland is the principal driver of forest loss, particularly in woodlands and Tropical High Forests (THF). Although plantation forests have expanded, these gains are too small to compensate for the loss of natural forests and cannot replace the biodiversity and ecosystem services they provide, including habitats that sustain Uganda's tourism industry and other ecosystem services. Combined with the country's continued dependence on firewood and charcoal, these trends pose a significant threat to energy security, environmental sustainability, tourism, and long-term economic growth.

Reversing this trajectory requires coordinated action across the forestry, agriculture, energy and environmental sectors. The following policy actions are recommended:

I. Strengthen protection and enforcement of natural forests.

Enhance monitoring, enforcement and compliance within Central Forest Reserves, Local Forest Reserves and other protected areas to curb illegal harvesting and encroachment, particularly by expanding small-scale farmland. Strengthen coordination among responsible institutions and improve enforcement of land-use regulations.

II. Restore natural forests while expanding sustainable wood production.

Forest restoration should prioritise restocking degraded natural forests with indigenous tree species to recover biodiversity, wildlife habitats and ecosystem services. Commercial broadleaved and coniferous plantations should complement—not replace—natural forests by supplying timber and reducing harvesting pressure on indigenous forests.

III. Promote agroforestry and increase productivity on existing small-scale farmland.

Increase agricultural productivity and promote on-farm tree planting, private woodlots and integrated agroforestry systems to reduce pressure for agricultural expansion into forests while strengthening sustainable wood supply outside forests.

IV. Accelerate the transition to alternative energy sources.

Reduce dependence on firewood and charcoal by making cleaner energy sources—including LPG, electricity and other modern cooking technologies—more affordable and accessible to households, commercial users and industry through targeted investments, incentives and supporting infrastructure.

4. References

UBOS (2020). Uganda wood asset and forest resources accounts. Uganda Bureau of Statistics.

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