

The Role of Forests in Uganda's National Economy

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The purpose of this paper is to present a brief description of some of the key contributions of forests in the national economy and sectors in Uganda. Forests are estimated to cover a total land area of some 5 million hectares in the country. The estimation of the contribution of forests to the national economy in Uganda however presents both conceptual and methodological challenges. In general, it is believed that the contribution of forests is routinely underestimated. Proper forest valuation is, therefore, important in ensuring that policies allocate scarce resources equitably and that forests can indeed compete favourably with other land use options. Many environmentalists and economists believe that forests in general are not valued properly in economic terms.

Why forests are undervalued

- forests produce multiple products, assigning values to each is difficult
- forests produce many non-market products and services
- timber and some other forest products result from biological processes that require a very long time
- virgin, no-cost stocks of many forest products are available, often under open-access conditions
- scientific data on forest production functions are inadequate
- many forest products and services are important to the livelihood of the rural poor, but these demands have little weight in organized commodity markets

Forests and savannah woodlands supply well over 90 per cent of Uganda's energy requirements. It is expected that woodfuel will continue to be the dominant source of energy in Uganda for the foreseeable future, supplying at least 75 per cent per cent of total energy consumption by 2015. Other key features are that:

- wood is the main source of energy in rural areas and among the poor;
- extraction and supply of firewood is an income and employment generator;
- use of firewood is vital for food security;
- wood is widely used in many industrial processes
- firewood and charcoal are important in households, and majority of institutions and commercial establishments
- Use of firewood and charcoal saves on imported fossil fuels.

The main primary wood processing operation in Uganda is sawmilling. One plant (factory) also makes plywood. The precise origin of sawlog supplies in

Uganda is not well documented, but coniferous plantations and tropical high forests in both reserves and from public and private lands are the main sources.

- Over 90 per cent of sawn timber from natural forests is pitsawn; most of the plantation timber is sawmilled.
- An estimated 200,000 m³ of sawntimber (equivalent to 800,000 m³ of roundwood) was consumed by the formal sector in 1999.
- the Forest Department currently earns over Ushs. 600 million a year from timber sales

Poles are needed for buildings, fencing, and power and telephone lines. There is growing demand for poles and with the ongoing expansion of electrification, this demand is likely to get higher. There is a growing interest in planting *Eucalyptus* for poles and much of the demand for building poles is now met from private woodlots.

The value of NWFPs is not well captured in the national economic picture. However, recent estimates suggest they are worth US\$6 billion per year. The local use of NWFPs has been estimated to be worth US\$30,000 – 130,000 per household per year. Some NWFPs are described below.

- **Gum arabic.** Harvested from *Acacia* trees in northeastern Uganda. By 1974, 4,000 kg was harvested annually. But this production has ceased due to civil unrest. In the early 1990s, domestic requirement was 5-8 metric tonnes per year. There is an average yield of 85-120 kg / ha.
- **Medicinal plants.** Hundreds of different types of medicines are collected from natural forests. However, trade in these products is not normally recorded.
- **Shea butter.** An important multiple-use product for people in northern Uganda for oil and medicinal purpose. The shea tree has over 100 uses. The main product is shea butter oil that in the year 2000 fetched US\$2,000 to 5,000 per litre.
- **Neem.** Another important multiple product tree introduced into Uganda. It is becoming popular against common ailments such as malaria, skin diseases and AIDS-related opportunistic diseases. A litre of Neem oil sells for up to US\$60,000.
- **Bushmeat.** Significant, but unrecorded. In one sub-county, bushmeat sales generated over US\$1 million in a single year. This despite the fact that hunting is illegal in Uganda at present.
- **Rattan.** Of considerable socio-economic importance. Many artisans are

involved in crafts making. There are over 300 rattan-based enterprises in the country.

- **Bamboo.** Found in high mountain areas. Bamboo collectors are reported to be realizing net monthly incomes of Ushs. 40,000 - 50,000 each.

Close to 14,900 km² of what were originally forest reserves were converted into national parks. These forests represent some of the unique tourist attractions in Uganda (Chimpanzee and mountain gorilla viewing, and mountaineering). The Uganda Wildlife Authority (UWA) earned US\$ 2.74 billion from wildlife-related tourism in the 1997/98 financial year. The Forestry Department earns US\$ 27 million annually from two eco-tourism sites. In addition, local communities are increasingly benefiting from tourism, either through benefit-sharing or local initiatives. Then there are the additional tourist expenditure multiplier effects on output, income and employment. From 1994 up to 1999, gorilla tourism attracted net foreign exchange earnings of about \$ 7.70 million; generated \$ 15.40 million of sales in the Ugandan economy; contributed \$ 4.77 million in Government tax revenues; supported close to 1,700 person years of jobs; and contributed to national income of \$ 6.93 million.

Environmental services provided by forests include the maintenance of soil, water and climate quality that support productive agriculture and fisheries.

- *Forests protect watersheds* – Uganda has many watershed areas e.g. the Rwenzoris and Mt Elgon alone represent the primary water source for 3.2m people - forests are crucial for maintaining this water supply. Intact watersheds also support productive agriculture and the fisheries industry.
- *Forests protect soils and therefore crops* – Forest and vegetation help avoid or reduce soil erosion. Forests help reduce runoff, topsoil loss and sedimentation, which means that soil fertility and productivity is retained.
- *Forests improve local, regional and global climates* – The impact of forests on local climate in Uganda (in terms of moderating or helping rainfall and thus supporting agriculture) is not known. Forests absorb carbon, and there is growing interest in the role Uganda's forests can play in helping the carbon balance in the atmosphere.

Forest resources in Uganda also provide ecosystem services that underpin most human settlement and economic activity. They also have a potential future value, and an intrinsic value, irrespective of any use. These are all indirect benefits of a well-managed and intact forest resource. For example:

- If intact, watersheds are worth 70% of the value of the fisheries industry in Lake Edward and Lake George. Then their value is US\$ 13.8million/year.
- In terms of avoiding negative effects on crop production, the overall value of Uganda's forests in controlling erosion is estimated at US\$ 70 – 208 billion, or US\$ 70 000 - 250 000 / ha / year.
- The carbon value of Uganda's forested land is US\$ 500 million, in terms of carbon lost if forests were converted.

As a result of the wide range of ecological communities in Uganda, including lakes and rivers, wetlands, dry bushlands and grasslands, moist woodlands, tropical high forest and montane vegetation, the country contains internationally significant biodiversity.

The biodiversity contained within Uganda's border is virtually priceless given the potential value of unknown genetic resources. Nonetheless, an attempt has been made to estimate value. The total quantifiable direct and indirect benefits of all biological resources in Uganda have been estimated to be worth more than U.Shs 1,112 billion per year, while economic costs have been estimated at U.Shs 506 billion. In addition:

- the pharmaceutical value of Uganda's forests was, in 1995, estimated at \$ 0.4 per ha per year, or \$ 404, 000 for protected areas and \$ 1.2 million for all forests.
- the importance of wild coffee as a genetic pool supporting the country's coffee industry, calculated like an insurance premium of 5 per cent of total coffee export earnings, is well over \$ 15million per year.

Having begun from a low base and negative growth rates, Uganda's economy has made a remarkable turnaround since 1986. The country's gross domestic product (GDP) has been growing at an average annual rate in excess of 5 per cent, outperforming most countries in Sub-Saharan Africa (SSA). By 1999, Uganda's GDP was Ushs.3.454 trillion (or about \$ 2.3) billion).

According to the *Background to the Budget 2000/2001* data of the Ministry of Finance, forests, as conventionally defined in national accounting systems, contributed 1.8 per cent of GDP in 1999.

Unfortunately the reported contribution of forestry to GDP represents a serious under-estimate. A significant part of income generated from forests is in the informal sector, which is non-traded products and services. Firewood collected and used by households represents another important exclusion. Gross domestic product and other standard economic calculations therefore usually refer only to traded outputs. Subsequently, one can argue that the real value of forestry is inadequately reflected in conventional GDP calculations.

Another reason why the contribution of forests to the national economy is under-estimated is the exclusion of outputs that improve the welfare of the people and the country. These outputs include: the function of forests as habitats, watersheds, carbon sequestrators, and others. However, as you can appreciate, the value of these outputs are relatively hard to quantify, but methodologies do exist for doing so, although required data may be hard to come by (Emerton and Muramira, 1999). The author's estimated these indirect benefits at a conservative value of Ushs.289 billion (or about \$ 193 million).

Finally, the GDP figures do not accurately reflect environmental degradation and the consumption of natural resources (forest and biomass resources). These, together with soil degradation resulting from non-sustainable

management systems should also be added to what forestry contributes to GDP since they are costs as a result of the absence of forest cover.

The table below shows what the near 'real' contribution of forestry would be if the informal and non-formal marketable outputs were included in the conventional national accounting system. Although the estimate is probably highly conservative for non-monetary or non-marketable products/services, it does represent an improved appreciation of the importance of forests. With the adjustments, the contribution of forests to GDP was estimated at 6.1%, three times higher than the conventional GDP estimates (UFSCS, 2000).

The forest sector is also important for the employment situation in Uganda, especially in rural areas. Total employment generated by the forest sector is estimated at about 850,000 jobs (actual or equivalent). In addition:

- employment effects of forest-based activities in the formal sector is 100,000 person years: 89,000 person years in firewood and charcoal production; 1,400-plantation establishment and management; 3,200 in the forest

industry; and 2,600 in institutions.

- present employment in the informal sector is roughly 747,000 person years distributed by main activities: firewood production – household (710,000), firewood production -commercial / industrial (36,000), and poles (1,000).

The estimation of the contribution of forests to any national economy and sectors is difficult but not impossible. Estimate, we must! Otherwise forestry will be left out in competing for scarce public resources. Forests may also fail to compete favourably with other landuse options. The pride of foresters may also be hurt.

The presentation on the case for Uganda clearly demonstrates the important role forests play in both the formal and informal sectors, and with respect to non-marketable outputs. However, we should keep in mind the general consensus that these estimates, particularly those values generated by the informal sector and that of non-marketable outputs is on the conservative side.

Adjusted forestry contribution to GDP, 1998

| Item | Contribution to GDP | |
|---|-----------------------|-------|
| | Amount U.Shs billion) | %GDP |
| A. Formal Sector/Monetary Sector | | |
| • Sawn timber | 40.0 | 0.5 |
| • Poles | 5.4 | 0.225 |
| • Firewood | 21.0 | 0.26 |
| • Charcol | 57.0 | 0.7 |
| • Tourism | 2.7 | 0.33 |
| • Other (NFWPs) | 20.0 | 0.25 |
| Total Formal Sector | 146.1 | 1.9% |
| B. Informal Sector/Non-Monetary Sector | | |
| • Poles | 6.0 | |
| • Firewood | 160.0 | |
| • Other (NFWPs) | 40.0 | |
| • Fodder | 4.0 | |
| Total Informal Sector | 210.0 | 2.75% |
| C. Non-Marketable Outputs | | |
| • Watershed Benefits | 20.7 | |
| • Carbon Sequestration | 26.1 | |
| • Biodiversity Option Value | 3.5 | |
| • Erosion Control | 60.0 | |
| Groundwater | 2.0 | |
| Total Non-Marketable Options | 112.3 | 1.45% |
| D. Total Sector | 468.4 | 6.1% |