Benefits of forest ecosystems in Zambia and the role of REDD+ in a green economy transformation

This is the summary of a report launched in collaboration and consultation with the Government of the Republic of Zambia.

Key messages emerging from the study:

- The main objective of the present study was to assess the economic value of Zambia's forest ecosystem services. Preparation of the study forms part of a range of activities under the UN-REDD National Programme of Zambia. The REDD+ financial mechanism is designed to reward developing countries for their verified reduction or removal of forest carbon emissions measured against a forest reference (emission) level (FREL/FRL) that complies with the safeguards under the 2010 Cancun Agreements.

- Forests are an important component of Zambia's natural capital and provide benefits critical for rural populations, urban areas, the national economy and the global community. Out of Zambia's total land area of 75.3 million ha (hectares), estimates of the remaining forested areas range from 39 million to 50 million – even as high as 53 million – ha.

- Estimates of deforestation rates range from 250,000 to 444,800 ha per year – some even set these at above 850,000 ha per year. Zambia has the second highest per capita deforestation rate in Africa and the fifth highest in the world. The main driving forces behind this deforestation are charcoal production, agricultural and human settlement expansion and the illegal exploitation of timber.

- This study estimates that, when ecosystem services provided by forests are accounted for, forests make a direct contribution to the national economy equivalent to about 4.7% of GDP, rising to 6.3% with the application of multiplier effects. Data were not available, however, for many goods and services, meaning that the actual figures could be much higher than those estimated in this study. For purposes of comparison, in 2010, the following sectors had the largest contribution to Zambia's GDP: agriculture, including forestry (9.9%); construction (10.9%); mining (12.9%); and the wholesale and retail trade sector (18.9%).

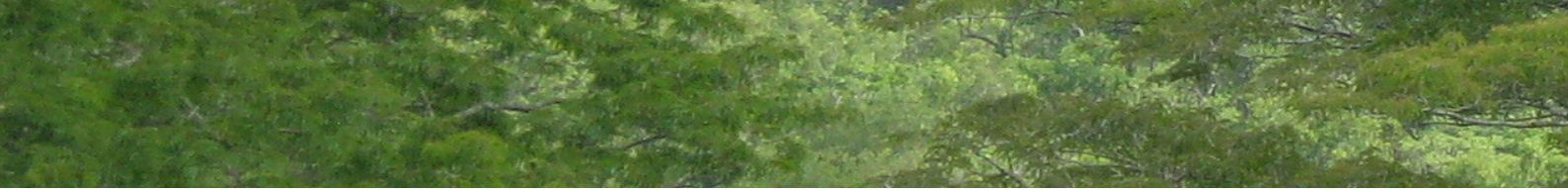
- According to this study, the most valuable benefits provided by forests to the Zambian economy consist of charcoal; sediment retention and erosion control; non-wood forest products; and eco-tourism and other services, such as the provision of industrial roundwood, pollination services, and carbon storage.

Table 1: Overview of the economic value of forest ecosystem services and the employment that forest ecosystems generate.

Type of service or value	Gross output or saving	Direct value added	Total value added	Employment
	(US$ million per year)			('000s people)
Industrial roundwood	35.8	21.5	32.0	10.1
Fuel wood (firewood and charcoal)	598.9	374.3	557.7	>500.0
Non-wood forest products	135.9	115.5	172.1	888.8
Subtotal provisioning services	**770.6**	**511.3**	**761.8**	**1 398.9**
Percentage of GDP 2010		**2.5%**	**3.8%**	
Ecotourism*	197	110.2	179.4	16.1
Erosion control and sediment retention**	247	247	247	-
Pollination services**	74	74	74	-
Carbon storage (damage avoided)**	15	15	15	-
Subtotal regulating, supporting and cultural services	**533**	**446.2**	**515.4**	**16.1**
Percentage of GDP 2010		**2.2%**	**2.5%**	
Total	**1 303.6**	**957.5**	**1 277.2**	**1 415.0**
Percentage of GDP 2010		4.7%	6.3%	

* The low-end estimates are used.

** These values are shown without decimals, given the higher level of uncertainty



- One of the most important functions performed by forests is their contribution to Zambian livelihoods. Forests support over 1 million jobs, which means that they support over 60% of rural Zambian households.

- The basic REDD mechanism, together with its enhanced version, REDD+, aimed at enhancing forest carbon stock and the conservation and sustainable management of forests, has a significant role to play in catalysing the transition to a green economy and contributing to the country's broader development and attainment of its economic objectives.

- Several measures can help secure the long-term benefits and values provided by forests through mechanisms such as REDD+: these include strengthening forest management and enforcement of laws on illegal timber harvesting; supporting community land-tenure and strengthening community-based forest stewardship; improving the efficiency and sustainability of agricultural practices; increasing access to incentives and income-generating activities that depend upon forest conservation; and managing the demand for charcoal production.

An overview of the economic value of forest ecosystem services in Zambia and the employment that they generate is provided in Table 1.

By representing the aggregate economic value of forest ecosystem services on a spatial scale (in United States dollars per hectare per year), Figure 1 shows that the North-eastern and Southern districts of the country provide the highest economic values per hectare. This type of information would be useful to the Government when prioritizing geographical areas for the implementation of REDD+.

Policy recommendations and implications for investing in REDD+

Actions of several types are required to bring about the more sustainable use of forests and slow the rate of forest loss in Zambia, as outlined below.

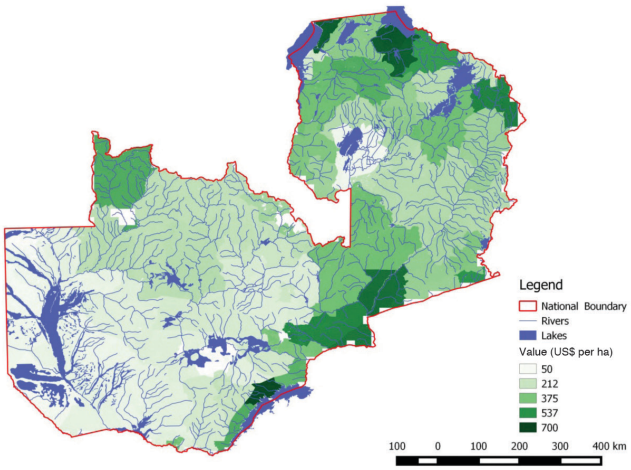


Figure 1: Spatial distribution of the aggregate value of forest ecosystem services (US$ per ha per year)

Given the importance of forests to the economy, employment, and livelihoods, it is important that cost-effective methods of conserving and sustainably managing forests are implemented to support green growth. Ways of doing this include strengthening and enhancing the management and governance of forests at the local level; introducing measures to reduce urban demand for charcoal; supporting the development of livelihood and income-generating activities that support or rely upon forest conservation and maintenance; and increasing the sustainability and efficiency of agricultural practices. The potential and relative success of each of these strategies depends on the ecological, social, economic and political context in which they are implemented in Zambia. Where appropriate, these approaches should be pursued in concert and can form the pillars of a National REDD+ Strategy in Zambia. The costs and benefits of implementing REDD+ in Zambia will depend heavily on where such implementation is going to take place and the strategies that are employed to reduce deforestation. For forest-based initiatives, given the spatial variation in supply and demand for ecosystem services, projects are likely to have different objectives in different areas. It is recommended that a large proportion of REDD+ investments are used to: (a) address off-site interventions that affect the driving forces behind deforestation; and (b) improve forest governance.

In Zambia, the rationale for REDD+ activities and the means by which they are undertaken may differ from province to province and district to district. In North-West Province, for instance, where forests are largely intact and where the potential for timber extraction is highest, the REDD+ priority could be to develop and enforce sustainable forestry, but also to ensure that the energy needs of the large numbers of people migrating into the area are met sustainably. In the more densely populated Central, Southern and Eastern Provinces, where forest cover has already been significantly reduced and degraded and the demand for charcoal is greatest, REDD+ activities must address the issue of charcoal demand. In these areas, where forest ecosystem services contribute substantially to Zambia's agriculture and hydropower production, REDD+ interventions will also need to focus on curbing agricultural expansion.

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