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## Resource potential of bamboo, challenges and future directions towards sustainable management and utilisation in Ethiopia

HAWENI HABTAMU

*Ethiopia Environmental Protection Authority, Environmental Pollution Status Monitoring and Control,  
Ethiopia*

### Abstract

Bamboo is an important natural resource that has versatile socio-economic uses and ecological services. As the fastest-growing and a high-yielding perennial plant of the world with more than 1500 species and 1500 versatile socio-economic uses and ecological services. It has the potential to contribute to the bioeconomy as a source of high-value products and environmental benefits. In the context of sustainable production and consumption, bamboo has gained significant attention due to its potential to provide sustainable solutions for a range of industries, including food and agroforestry systems.

In Ethiopia, bamboo resources are particularly significant as they cover one million hectares with a wide distribution of two indigenous species, namely *Oxytenanthera abyssinica* and *Yushania alpina*. These species constitute 67% of African bamboo and 7% of the world's bamboo.

However, despite the socio-economic and environmental benefits of bamboo, it faces several challenges in Ethiopia. The current pressure on bamboo resources is due to land use changes, bamboo mass-flowering, poor processing with low-value addition, and damage by bio-deteriorating agents such as termites, beetles, and fungi.

This case study focuses on the potential of bamboo resources in Ethiopia, the challenges faced including biodeterioration damage, opportunities, and future research directions toward its sustainable management and rational consumption.

The case study emphasises the importance of integrated research and development interventions involving different propagation and management techniques, harvesting age and season, processing, value addition including proper seasoning and preservation technologies and marketing.

The relevance of this topic in the context of food systems and forest products is crucial. Bamboo-based products can provide sustainable alternatives to traditional products such as timber, which can lead to deforestation and the destruction of habitats for various species. Bamboo can provide sustainable solutions for a range of industries, including food systems and agroforestry systems.

Overall, the project contributes to the fulfilment of Six of the 17 Sustainable Development Goals (SDGs), such as poverty reduction; energy; housing and urban development; sustainable production and consumption; climate change and land degradation .

**Keywords:** Bamboo, *Oxytenanthera abyssinica*, sustainable management, *Yushania alpina*