

The Role of Forest Resources in Supporting Rural Livelihoods in Ethiopia: A Review

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Abstract

Despite the socio-economic significance of forests production Ethiopia, the information remains poorly documented due to limited data and inadequate market structures. This review explores the critical role of forest resources in supporting rural livelihoods in Ethiopia, a country characterized by diverse ecosystems and a rich array of forest-related resources. Utilizing secondary data derived from keywords such as “forest product,” “socioeconomic,” “non-timber forest product,” and “Ethiopia,” the study highlights the essential role of forests as a cornerstone of livelihood and cultural heritage, particularly for rural communities in developing nations. The review findings reveal the multifaceted contributions of forests to enhancing household income, empowering women economically, and alleviating poverty, particularly with non-timber forest products (NTFPs). These products play a crucial role in supporting rural livelihoods. Based on the results, the paper emphasizes the necessity of effective policies and targeted interventions aimed at improving the livelihoods of communities that depend on forests, while also ensuring the ecological integrity of forest ecosystems. To maximize the benefits derived from forest resources for local communities, it is recommended that policymakers develop and implement strategies centered on sustainable forest management. These strategies should focus on economically vulnerable forest-dependent populations and include measures for the protection and conservation of forest ecosystems.

Keywords: Role, Forest, Livelihood, NTFP, Ethiopia

Introduction

Forests have been fundamental to human history, offering an extensive array of goods and services that have shaped societies and economies. These vital ecosystems provide timber, fuel, and non-timber forest products, as well as crucial services such as carbon sequestration, water purification, and biodiversity preservation. In recent decades, particularly over the last twenty years, there has been a growing recognition of the importance of forest ecosystem functions among researchers, policymakers, and conservationists alike. This shift in focus highlights the need for sustainable management practices that not only protect these forests but also enhance their ability to support both human and environmental health (Assessment, 2015; Tittensor et al., 2014). Forests are vital for many reasons, including providing safety nets, supporting household consumption, and reducing poverty. Approximately 1 billion of the 1.2 billion extremely poor households rely on forest resources for their livelihoods (Chao, 2012; Yali et al., 2017). A significant portion of the rural population in developing countries relies heavily on natural resources for both consumption and non-consumption purposes (Gatiso & Wossen, 2015). Income generated from environmental sources is crucial for rural livelihoods. Specifically, products from forest ecosystems contribute significantly to the economic well-being of rural households (Babulo et al., 2009). The rural societies of Ethiopia highly depend on forest resources for their livings. However, deforestation and unsustainable practices threaten this vital source of income, food security, and cultural heritage. These communities derive a substantial part of their livelihoods from natural resources, particularly from forest products.

In developing nations, non-timber forest products (NTFPs) are essential for the household economies of rural populations. NTFPs include all goods extracted from forests and woodlands, excluding timber. This category encompasses aromatic and medicinal plants, grazing materials, fruits, nuts, vegetables, fibers, and resins (Martínez de Arano et al., 2021). NTFPs help meet households' subsistence and consumption needs, such as energy and nutrition, while also providing a reliable source of income (Shackleton et al., 2008; Soe & Yeo-Chang, 2019).

In Ethiopia's agrarian economy, the economic contributions of trees and forests are significant but poorly documented. The lack of reliable information stems from methodological challenges in environmental valuation, leading to underestimation of the forestry sector's total contributions to the country's economy. The total economic value of forests includes both use values (e.g., timber, non-timber products) and non-use values (e.g., biodiversity, ecosystem services). One primary reason forest functions are often overlooked in economic decision-making is that many forest products and services are either undervalued or not valued at all. This situation arises from poorly functioning markets and information asymmetry regarding the true benefits of forests (Babulo et al., 2009). However, in developing countries like Ethiopia, the increasing demand for forest products has improved

rural livelihoods and fuelled the growth of domestic markets, particularly in urban areas where wood fuels and other forest resources are limited (Guta, 2014; Mulenga et al., 2013).

Understanding the diverse ways in which forests support rural livelihoods, along with the challenges to their sustainability, is essential for developing effective policies and interventions. These efforts should aim to enhance the well-being of forest-dependent communities while safeguarding the long-term health of Ethiopia's forest ecosystems (Mohammed et al., 2023). Non-timber forest products (NTFPs) play a vital role in boosting income and enhancing the livelihoods of rural women in Ethiopia. The revenue generated from gathering, processing, or selling these forest resources makes a significant contribution to household earnings (Roba, 2020).

Beyond benefiting rural communities, NTFPs also contribute to poverty alleviation in both rural and urban areas. The market for forest products creates income-generating opportunities in rural regions through collection and sale while also supplying urban markets. Additionally, urban households gain access to affordable food and a stable energy source for cooking, further highlighting the economic and social significance of NTFPs (Shackleton et al., 2024). Experts widely acknowledge that high-value forest products, such as timber, medicinal plants, and specialty non-timber forest products, hold significant potential for poverty reduction. However, the poorest communities often face limited access to these valuable resources (Dewi et al., 2005; Wang et al., 2023). To bridge this gap, it is crucial to address the socioeconomic and political barriers that restrict access, including securing land and resource rights and promoting equitable distribution strategies that empower marginalized households (Bryan et al., 2024). An inclusive approach to forest resource management can enhance the livelihoods of the most disadvantaged populations and enable them to benefit from sustainable economic opportunities (Bhushan et al., 2024). In Ethiopia, efforts to disseminate information on the socioeconomic role of forest resources in rural livelihoods remain fragmented (Abate et al., 2016; Tegebu et al., 2009). This review, therefore, aims to identify and analyze the contributions of forest resources to rural livelihoods in the country.

Methodology

This paper focuses on critical review. A critical review analyzes written documents on a topic, identifying weaknesses, illogicalities, and inconsistencies. Unlike a synthesis review, it evaluates each work against specific criteria without directly comparing them (Wright & Michailova, 2022). Critical reviews can be categorized as either selective or representative; however, they often lack a thorough examination of the full range of relevant literature available. A critical review may outline the methodology used during the review process, including the selection criteria and the analytical framework applied.

For this review study, data were extracted from the Scopus, Web of Science, and Directory of Open Access Journals (DOAJ) databases. A total of twenty-three (23) documents were critically reviewed based on search keywords such as "Role," "Forest," "Livelihood," "NTFP," and "Ethiopia." The most relevant documents specifically addressing the roles of forests, livelihoods, non-timber forest products (NTFPs), and their implications in Ethiopia were included. Only documents published in English were considered to ensure consistency in understanding and analysis. Studies published within the last 12 years, from 2008 to 2024, were included to ensure the relevance and currency of the information. Documents that do not directly discuss the relationship between forests, livelihoods, NTFPs, and Ethiopia, as well as papers published outside the specified date range, were excluded, as they may not reflect current trends or knowledge in the field. Non-English documents that could not be accurately translated or understood were also excluded.

Result and discussion

Forest Products as a source of in Income

Cash and subsistence income and the effect of forest income in reducing economic inequality determine the economic contribution. Approximately more than 300 million individuals live in or near dense forests, and they primarily rely on these forests for their livelihoods and sustenance (Chao, 2012; Wassie, 2020). In the remote rural regions of less developed countries, many indigenous communities continue to live without access to modern amenities and economic opportunities. In these vibrant yet challenging environments, the utilization of forest resources plays a pivotal role in sustaining their daily lives. The rich biodiversity of the forests provides not only essential materials for shelter and tools but also becomes a crucial source of cash income that supports households. For these communities, the forest is not just a backdrop; it is a lifeline that nourishes both their bodies and their economies, weaving together tradition and survival in a delicate balance (Fekadu et al., 2021; Rabbi et al., 2010).

In Northern Ethiopia, income generated from forest environmental resources plays a crucial role in supporting households, ranking as the second largest contributor to average total income after crop income. By enhancing financial stability, this income stream helps to alleviate rural poverty and promote greater income equality within the community (Babulo et al., 2009). The study conducted in Democratic Republic of Congo showed that forest-based activities contribute to the annual income of 89.8% of the households surveyed. The average annual revenue from forest resources per household is \$ 426.30, which represents 32.46% of the total annual household income. This highlights a significant dependence on forest income. Following agriculture which has an average annual household income of \$ 610.14 forest revenue ranks as the second most important

source of income, accounting for 37% of total household income (Richard K Mendako et al., 2022).

While there is existing empirical research examining the economic contributions of environmental resources to rural livelihoods in Ethiopia, it is crucial to highlight the vital role that forest resources play in supporting the basic needs of these communities. Forests provide not only timber but also a wide range of non-timber forest products (NTFPs), such as fruits, nuts, medicinal plants, and wild honey, which are essential for food security and income generation.

These resources are often accessed through the informal sector, where local populations engage in harvesting and trading these products, creating vital economic opportunities. Furthermore, the sustainable management of forest resources is integral to poverty reduction strategies, as these resources help to enhance resilience, improve nutrition, and provide employment opportunities. Recognizing and valuing the contributions of forest ecosystems is essential for fostering sustainable development and improving the livelihoods of rural residents in Ethiopia (Suleiman et al., 2017).

Forest as a means of Poverty Reduction

Ethiopian forests are vital for poverty alleviation as they offer local communities access to a variety of non-timber forest products, including firewood, construction materials, honey, and various wild foods. These resources not only provide essential daily needs but also serve as important economic assets. For families residing near forested areas, the reliable income generated from the sustainable harvesting of these products can significantly boost their financial stability (Chama et al., 2023).

For instance, firewood is a primary energy source for cooking and heating, while building materials aid in home construction and repairs, contributing to improved living conditions. Additionally, honey production can create opportunities for small-scale entrepreneurship, tapping into local and even international markets. The availability of wild foods, such as fruits, nuts, and greens, further enhances dietary diversity and can be sold for extra income.

Diversifying their income streams through these forest products allows communities to better withstand economic shocks and disruptions. During times of hardship, such as illness or crop failure, these natural resources act as a crucial safety net, promoting resilience and supporting the overall well-being of households. Overall, the sustainable management of Ethiopia's forests is essential not only for environmental health but also for empowering local communities economically. (Tesfaye et al., 2010). A large number of people living near forests in developing countries are below the poverty line (Shepherd, 2012). Forest products such as gum, resin, firewood, charcoal, and building materials are significant sources of revenue in Ethiopia (Fikir et al., 2016; Worku et al., 2014). Additionally, approximately 93% of total household energy consumption is derived

from forest biomass(Alem et al., 2010). These forest products support the livelihoods of households by providing both subsistence and cash income (Abteu et al., 2014).

Melaku et al. (2014), examined the impact of non-timber forest products (NTFPs) on household incomes in the Bonga forest area of southwestern Ethiopia. Their findings indicate that rural communities in this region heavily rely on numerous forest products, particularly NTFPs such as forest coffee, honey, spices, medicinal and edible plants, bamboo, fuelwood, charcoal, as well as household utensils and implements. Households utilize these products both as sources of income and for personal consumption. Among the sampled respondents, forest coffee, honey, and spices were identified as the main income sources, while fuelwood, charcoal, household utensils, farm implements, and medicinal and edible plants were primarily consumed within the households.

Research demonstrates that in Northern Ethiopia, income derived from forest-related sources is the second largest contributor to a typical household's overall income, following crop income. This valuable source of revenue plays a crucial role in alleviating rural poverty and promoting greater income equality, highlighting the importance of sustainable forest management in enhancing the livelihoods of local communities (Ali et al., 2020; Babulo et al., 2009; Richard K. Mendako et al., 2022). Studies indicate that the share of income from forests in total household income ranges from 32% to 33%, with wood fuel comprising the largest portion of forest-derived income(Mulenga et al., 2012). To address the risks of unsustainable exploitation of these products, some researchers have proposed management strategies that aim to conserve natural resources while ensuring the health and income security of rural communities (Mendako, 2016).

Significance of NTFPs for Rural Women

Women often encounter significant challenges that can limit their participation in economic activities. In rural areas, many women dedicate their time to caring for their families, including their husbands, children, and elders. This nurturing role can lead to economic dependence and vulnerability, as well as gaps in education and political and social engagement. Addressing these issues presents an opportunity for positive change.

Women tend to experience higher unemployment rates than men, with global estimates indicating a 6.4% unemployment rate for women, while men have a rate of 5.7%. Nonetheless, these statistics probably underestimate the extent of underemployment, unemployment, and the number of 'discouraged' job seekers in countries with substantial informal economies (Kabeer, 2009).

By empowering women and reducing the social, cultural, political, and economic barriers they face, we can foster a more equitable and prosperous society. Women, often among the most disadvantaged, play a crucial role in driving economic development. Recognizing and investing in their potential is essential for

alleviating poverty and promoting rural development. Thus, focusing on the economic empowerment of women can catalyze significant progress for communities and society as a whole.

Non-timber forest products (NTFPs) are very important for rural women. They often serve as a primary source of income, food security, and economic empowerment, especially in areas with limited livelihood options. Women traditionally collect many NTFPs, such as fruits, vegetables, and medicinal plants, from the surrounding forests, allowing them to contribute to their household economies and have greater control over their finances (Kassa & Yigezu, 2015).

Economic empowerment plays a crucial role in improving women's access to a wide array of economic resources and opportunities. This includes securing stable employment, utilizing financial services such as banking and credit, acquiring property, and obtaining other productive assets. Additionally, it encompasses skills development programs that equip women with the necessary training and knowledge to thrive in various industries, as well as access to comprehensive market information that helps them make informed decisions and capitalize on economic opportunities. By fostering an environment that promotes these elements, economic empowerment significantly contributes to reducing gender disparities and enhancing the overall well-being of women in society (Kabeer, 2009). Improving women's access to resources alone will not automatically lead to empowerment. Evidence suggests that enhancing women's rights to land, employment, credit, and other resources can sometimes occur in ways that are demeaning and exploitative, failing to address their subordinate status within the household. Women are attracted to non-timber forest products (NTFP) activities because they have minimal technical and financial entry barriers, resources are readily available, and they can generate immediate income when needed (Kassa & Yigezu, 2015; Thapa & Singh, 2021). By gathering NTFPs from the forest, women are essential for fulfilling their families' basic needs and enhancing their household income. Essentially, the earnings from NTFP activities greatly enhance their families' purchasing ability (Kassa, 2015). Consequently, empowering women in the forest sector can lead to significant development opportunities and provide important advantages for their families and communities (Shackleton et al., 2011).

Discussion

The role of forest products in generating income for rural communities in Northern Ethiopia is crucial for economic sustainability and poverty alleviation. Over 300 million people rely on forests for their livelihoods, with forest income serving as a vital supplement to agricultural revenues. This underscores the intricate relationship between rural communities and their natural resources, where forests provide not just material necessities but also essential financial support. Statistics reveal that an average of 32.46% of total household income in Northern Ethiopia

derives from forest resources, making forest income the second largest contributor to household revenue after agricultural income. This highlights the critical importance of forests for economic stability and the need for sustainable management practices to ensure they continue to provide these essential services.

Moreover, the informal sector's trade in non-timber forest products (NTFPs) offers unique economic opportunities. Local residents engage in harvesting and selling a variety of products, such as fruits, nuts, medicinal plants, and honey, improving their financial situations while preserving cultural practices. Forests serve as both economic lifelines and cultural heritage for these communities. The positive correlation between forest income and poverty alleviation suggests that policies focused on sustainable forest management could yield significant socio-economic benefits. It is also important to consider gender dynamics, as women often play key roles in the collection and trade of NTFPs. Empowering women through access to forest resources can enhance household welfare and help break down existing socio-economic barriers. In summary, the contribution of forest products to household income in Ethiopia's rural areas is substantial. Their role in promoting food security and economic resilience makes them indispensable. Therefore, advocating for sustainable forest management practices is essential to protect these ecosystems and enhance the livelihoods of rural populations. Effective policies that recognize and enhance the contributions of forest ecosystems are critical for sustainable development and improving the lives of those who depend on these vital natural resources.

Conclusion

In conclusion, forests play an indispensable role in shaping the economic landscape and improving the livelihoods of rural communities in Ethiopia. The substantial reliance on forest resources for income generation, nutrition, and cultural practices underscores the need for a concerted effort to acknowledge and enhance the socio-economic value of these ecosystems. Non-timber forest products (NTFPs) are particularly vital, contributing to household income and offering economic opportunities, especially for women who often face systemic barriers to their participation in economic activities. To bolster the contributions of forests, it is essential to implement inclusive policies that address economic inequalities and secure the rights of marginalized communities to access forest resources. By fostering sustainable management practices and improving market accessibility for higher-value forest products, stakeholders can effectively alleviate poverty and enhance the resilience of rural populations. Ultimately, a holistic approach that combines environmental sustainability with socio-economic development is crucial for the well-being of forest-dependent communities and the conservation of Ethiopia's rich forest ecosystems.***

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