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Editorial: Socioeconomic implications of forests and forestry in a changing climate and governance

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Editorial on the Research Topic

Socioeconomic implications of forests and forestry in a changing climate and governance

Forests are widely recognized for their vital and diverse contributions to human wellbeing. Beyond wood production, they offer a wide range of ecosystem services—provisioning, regulating, and cultural—that sustain livelihoods, support biodiversity, and buffer communities against the impacts of climate change (Haines-Young and Potschin, 2018; Hernández-Blanco et al., 2022). While wood products remain the most documented economic benefit of forests (FAO, 2022), there is growing recognition of the value of non-wood forest products and services. These include recreation and the gathering of wild foods such as mushrooms and berries, which contribute to cultural identity, health, and local economies (Sievänen et al., 2008; Sheppard et al., 2020; Vacik et al., 2020; Wang et al., 2021). In the face of intensifying climate-related disturbances, the regulating functions of forests—such as carbon sequestration and the control of floods and erosion—are becoming even more critical. This underlines the importance of supporting forests as multifunctional landscapes, essential to both environmental stability and socioeconomic development.

This special topic features research that underscores the intertwined nature of environment, social governance, and forest use. One study reported by Eshetu examines household-level use of fuelwood and associated carbon emissions in Ethiopia, drawing on the concept of “carbon neutrality” (FAO, 1997). This highlights the need to evaluate forests not only through an economic or social lens, but also for their environmental significance including the potential of negative contributions.

Governance structure, such as forest policies, legal frameworks, and social norm, play a critical role in shaping forest utilization and management practices worldwide, by promoting the active participation of all stakeholders and safeguarding their rights (Sarfo-Adu, 2021; Sotirov et al., 2020; Tole, 2010). In Malaysia, for example, indigenous engagement in forest-related climate action remains a challenge. Guglyuvatyy calls for carbon credit mechanisms that recognize indigenous peoples as key actors in achieving net-zero targets. The study further advocates for regulatory reforms to strengthen indigenous land rights and prevent the economic undervaluation and subsequent conversion of forested areas.

Sustainable management and monitoring practices also shape the health and productivity of forests (Siry et al., 2005; Prins et al., 2023). Ground-level monitoring is not only essential for tracking forest condition, but also for sustaining the availability of important food resources, such as sago in Papua, Indonesia. Fetriyuna et al. utilized remote sensing data to assess changes in sago forests over three decades. Their findings show that while in a more developed region (Merauke), exhibited degradation, it also produces sago with higher nutrient content, potentially due to the maturity of harvested sago. These insights highlight the complex interplay between forest conditions, land use change, and food security.

Societal preferences and views also shape how societies interact with and appraise forest ecosystem services. Understanding societal views on non-wood ecosystem services is essential for promoting local economy and ensuring sustainable production and consumption practices. For instance, in Turkey, Demirkaya et al. examines how young children and their parents perceived forest pollution and cleanness. Personal and parental attributes significantly influence awareness and knowledge about clean forests, highlighting the role of early education and family engagement in fostering environmental stewardship and sustainable tourism practices. Meanwhile, in the Czech Republic, studies have explored the economic and nutritional potential of forest mushrooms and berries as alternative sources of income beyond timber, based on national surveys of public preferences and collection practices related to non-wood forest commodities (Šišák et al., 2016; Purwestri et al., 2023).

While this Research Topic emphasizes the social, cultural, and governance-related dimensions of forest use and management in the context of climate change, it does not seek to extensively address the economic valuation of forest ecosystem services. This editorial choice reflects the substantial body of existing literature that has already explored the economic aspects in depth. Rather than duplicating those efforts, we aim to broaden the discourse by highlighting complementary themes that are equally vital for advancing sustainable forest governance.

Readers interested in the economic valuation of forests are encouraged to explore relevant research published in *Frontiers* journals. For instance, a global meta-regression analysis by

Pisani et al. (2022) investigate key variables driving the economic value of forest ecosystem services, highlighting the influence of socio-economic factors and ecosystem service quality conditions. Regional studies, such as the review by Osewe et al. (2024), assess how contextual factors and global trends impact the valuation of ecosystem services in East Africa, offering insights into preferred valuation methods and approaches in that region. Additionally, Raihan (2023) provides a comprehensive review of integrative approaches combining monetary and non-monetary valuation methods for forest ecosystem services, emphasizing the need for holistic assessment frameworks. These studies collectively highlight the importance of incorporating economic valuation into forest management and policymaking to ensure sustainable use and conservation of forest resources.

Author contributions

RCP: Formal analysis, Methodology, Conceptualization, Writing – review & editing, Writing – original draft. BL: Formal analysis, Methodology, Conceptualization, Writing – review & editing, Writing – original draft.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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