FORESTS NEWS

Global mega-trends impact forest communities, scientists find

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Forests and the livelihoods they provide through ecosystem services are increasingly impacted by infrastructure development and other global trends that undermine efforts to achieve sustainability goals, according to a new study by international experts.

Around 1.6 billion people – more than 25 percent of the world's population – live within 5 km of a forest.

Forests cover almost a third of the global land area and harbor most of the Earth's terrestrial biodiversity. They can also be linked to most of the U.N. Sustainable Development Goals and are essential to meeting the requirements of the Paris Agreement, the Aichi Biodiversity Targets and the Post-2020 Global Biodiversity Framework.

However, past research on forest livelihoods has focused on household- and community-level dynamics, such as rights to resources and land-use decisions, without considering the links between humans and nature over broader geographical scales.

For example, crop demand in Europe, the United States and emerging economies is driving environmental degradation in the Amazon, Congo Basin and Indonesian peatlands. Such regional and global factors must be considered for policy action on sustainability, climate change and biodiversity conservation.

A new analytical framework to better understand such trends is key to supporting forest livelihoods at a local level and to overcoming sustainability challenges globally, according to the international study.

"Our study allows us to take stock of key socioeconomic, political and environmental issues affecting forests and rural communities, and identify trends likely to have disproportionate impacts on forests and forest-livelihoods in the coming decade," said Johan Oldekop, an associate professor in the Global Development Institute at the University of Manchester and a lead author of the scientific paper.

"The assembled expert panel is unique as it brings together a range of subject expertise, region-specific knowledge, as well as academic, governmental and non-governmental institutions, including international donor organizations," added Laura Vang Rasmussen, an assistant professor in the Department of Geosciences and Natural Resource Management at the University of Copenhagen, and one of the lead authors.

Using a horizon-scanning approach, the authors highlighted five global trends that are playing a major role in creating new agricultural, extractive and urban frontiers; transforming rural landscapes and practices; opening spaces for new conservation priorities; and constructing radically different platforms for monitoring, evaluation and surveillance of forests.

First, forest disturbances include wildfires, floods and tree mortality, often caused by severe droughts or rain due to climate change. The effects of forest clearance threaten biodiversity and ecosystem services, while increasing the risk of zoonotic diseases from human-animal interaction. Forest conservation and restoration should be aligned with other sustainability goals, such as equity, poverty alleviation and resource rights.

Second, changing rural demographics can be seen in the unprecedented level of migration of working-age men from forest communities to cities, effectively feminizing rural landscapes, as evidenced in China. Local "push" factors, including poverty and insecure livelihoods due to climate change, combine with international "pull" factors associated with higher incomes to drive these migration patterns.

The rise of the middle class in low- and middle-income countries is the third trend. This social segment – expected to account for 4.9 billion people by the end of this decade – is driving increased demand for forest commodities, such as palm oil and meat, and corporate-led land acquisitions in Latin America, Africa and Southeast Asia. Altered consumption patterns are leading to higher rates of deforestation, carbon emissions and wildlife loss. They are also endangering food security and nutrition as urbanization and higher incomes shift people's diets to unhealthy processed foods and animal fats.

The fourth trend is the rise in the availability, accessibility and use of digital technologies. Personal computers, tablets, cell phones, social media and other gadgets can collect and provide better forest data for mapping, real-time satellite analyses and crowd-sourced information. While these technologies benefit many forest stakeholders, they could also aid illegal logging and mining or other illicit activities. Their use in monitoring supply chains may also lead to increased deforestation when smaller producers of commodities are displaced to marginal lands.

Large-scale infrastructure development is the fifth trend transforming forests and rural societies. At least 25 million kilometers of new roads are expected to be built by 2050 to facilitate the flow of commodities to and from transport hubs. The growth in infrastructure, hydroelectric power development and mining leads to forest loss, displaces forest-residing peoples, disrupts livelihoods and causes social conflict as communities lose access to land and resources.

"The trends we identify are important because they represent human and environmental processes that are exceptionally large in geographical extent and magnitude, and are difficult to reverse," Oldekop said.

In order to better understand these five trends, case studies of households and communities should be supported by national-level analyses to gain insights into externally driven processes, and their effects on local decision-making, according to the scientific paper.

The authors recommended placing a greater emphasis on the causes that affect forest livelihoods, and integrating knowledge from different regions on various time scales for a more detailed understanding. It is also vital to rethink how regulators, rural communities and civil society can better defend forests and local livelihoods using digital monitoring platforms, handheld devices, drones and other technologies.

"Developing a new research agenda that is able to better understand these trends and identify levers of change will require novel ways of combining new and existing data sources, the strengthening of existing collaborations between researchers, local communities and policy makers as well as the development of new types of partnerships with public and private stakeholders," according to Oldekop.

The scientific paper – which included contributions from 24 policy makers, practitioners and scholars – was sponsored by the former UK Department for International Development, which is now part of the Foreign, Commonwealth and Development Office.

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