



Editorial

Development of the bamboo sector for enhancing local livelihoods and the national economy

Nepal is naturally endowed with rich bamboo resources. The country hosts over 12 genera and 53 species of bamboo, including seven endemic species, contributing significantly to global bamboo diversity. Bamboos are found in nearly every district of Nepal and grow at elevations ranging from 60 to 4,000 meters above sea level, across all geographical regions. Three main types of bamboos are found in Nepal: Bans (over 4 cm in diameter), Nigalo and Malingo (under 4 cm).

Recognized as the “poor man’s timber”, “green gold,” and the “rich man’s aspiration” bamboo is renewable, biodegradable, strong, lightweight, fast-growing, and environmentally friendly. Its potential as a substitute for plastic and as a carbon sink underscores its ecological significance. It plays a crucial role in daily life, serving as a material for construction, handicrafts, traditional tools, and furniture. Bamboo also supports health and agriculture. In the central Siwalik region, bamboo extracts are used as antiseptics, and species like *Bambusa nutans* and *Bambusa nepalensis* are used as livestock fodder. The crystal substance “Vansa Lochan” or “Tabasheer” found in some bamboo species, is a valuable ingredient in Ayurvedic and Unani medicines.

The Forest Research and Training Centre (FRTC) has documented 86 distinct designs and crafts using 293 techniques to produce 33 bamboo products in the past. Economically, the sector shows strong domestic demand: over 4 million bamboo culms are sold annually, generating NPR 0.8 billion; the sale of bamboo shoots (Tama) and sprouts (Tusa) generate NPR 0.6 billion; and the widespread use of bamboo-made items like *nanglo* and *doko* contributes to an annual market value exceeding NPR 3.5 billion. Including furniture, ply, biochar, and engineered bamboo, the sector’s total estimated market value exceeds NPR 5 billion and involves over 25,000 families, particularly from marginalized communities in Eastern Nepal.

Despite its potential, Nepal’s bamboo sector faces significant challenges:

- **Policy and Institutional Support:** Bamboo and other non-timber forest products (NTFPs) have been widely under-prioritized in practice and investment in national development agendas, leading to weak institutional frameworks and inadequate policy.
- **Market Development:** A lack of fixed markets and pricing creates uncertainty for producers and hinders value chain development.
- **Research and Development:** Inadequate data on bamboo plantations, economic contributions, and ecosystem services limit strategic planning and investment.

With technological advancements and rising global demand, bamboo offers great promise for sustainable development. However, strategic policy reform, better supply chain management, and investment in research are essential to unlock its full potential in Nepal.

Bamboo has been deeply integrated into Nepalese culture, environment, and economy for centuries. However, research on the cultural and ecological significance of bamboo in Nepal remains limited. Few studies explore

its influence on traditions and community identity, while data on bamboo's carbon stock and climate change mitigation potential is lacking. Research is unevenly distributed, with a focus on hill regions, leaving the Terai and mountain areas underexplored. Most studies emphasize bamboo's economic uses, construction and crafts, while its ecological aspects and broader ecosystem services, such as habitat and supporting functions, are underrepresented. Few studies incorporate all four categories of ecosystem services (regulating, provisioning, cultural, and supporting), highlighting a need for more holistic research. Additionally, local farmers often lack awareness and technical knowledge for proper bamboo management, limiting its sustainable use.

Bamboo's rapid growth, versatility, and applications in construction, furniture, paper, and bioenergy make it a key resource for sustainable development, especially in rural Nepal. The commercialization of timber bamboo offers economic promise, but challenges such as poor marketing infrastructure, inadequate R&D, and inconsistent product quality persist.

Nepal has been a key player in global bamboo promotion as a founding member of the International Bamboo and Rattan Organization (INBAR) since 1997. Recently, the government endorsed the *Bamboo and Rattan Development Strategy 2025* and hosted the First National Bamboo Conference in Diktel, Khotang. The conference concluded with a 35-point declaration emphasizing bamboo cultivation, sustainable management, industrial development, research advancement, policy strengthening, climate solutions, and employment generation. These strategic efforts aim to integrate bamboo into Nepal's green economy, positioning it as a low-cost, sustainable solution for development, environmental conservation, and livelihood improvement.

To promote sustainable development through bamboo in Nepal, several strategic actions are essential. Integrating indigenous knowledge with modern techniques can significantly improve bamboo cultivation and utilization. Supportive policies should be developed to create a conducive environment for investment and sectoral growth. Training programs focused on sustainable harvesting, processing, and product development can enhance quality, empower local communities, and improve marketability. Establishing organized markets with transparent pricing mechanisms and robust infrastructure will connect producers to markets and ensure fair returns.

Investments in research are vital to explore innovative bamboo products, applications, and market opportunities while gathering data on species distribution, growth patterns, and economic potential for informed planning. Capacity-building programs can enhance the skills of bamboo growers, artisans, and entrepreneurs in cultivation, design, and processing. These targeted interventions can generate rural employment, strengthen bamboo-based livelihoods, and contribute to Nepal's green economy. By recognizing bamboo's economic and ecological value, Nepal can unlock its full potential, fostering sustainable economic growth, environmental conservation, and improved community well-being.

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