

ANNUAL HIGHLIGHTS



2024

Cover image:

Bamboo forests provide essential ecosystem services while supporting livelihoods and biodiversity. Illustrations by Jen Rao.

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International Bamboo and Rattan Organization

Established in 1997, the International Bamboo and Rattan Organization (INBAR) is an intergovernmental development organization that promotes environmentally sustainable development using bamboo and rattan. INBAR is made up of 51 Member States. In addition to its Secretariat Headquarters in China, INBAR has five Regional Offices in Cameroon, Ecuador, Ethiopia, Ghana and India.

16 Member States in Asia-Pacific

Bangladesh, Bhutan, Cambodia, China, Fiji, India, Indonesia, Malaysia, Myanmar, Nepal, Pakistan, the Philippines, Sri Lanka, Thailand, Tonga and Viet Nam.

22 Member States in Africa

Benin, Burundi, Cameroon, the Central African Republic, Chad, the Congo, the Democratic Republic of the Congo, Eritrea, Ethiopia, Ghana, Kenya, Liberia, Madagascar, Malawi, Mozambique, Nigeria, Rwanda, Senegal, Sierra Leone, Tanzania, Togo and Uganda.

13 Member States in the Americas

Argentina, Brazil, Canada, Chile, Colombia, Cuba, Ecuador, Jamaica, Panama, Peru, Suriname, Uruguay and Venezuela.

Acronyms and Abbreviations

| | |
|-------------------|--|
| AECID | Spanish Agency for International Development Cooperation |
| BASP | Bamboo as a Substitute for Plastic |
| BRI | Belt and Road Initiative |
| CBFP | Congo Basin Forest Partnership |
| CIFTIS | 2024 China International Fair for Trade in Services |
| COFO | Committee on Forestry |
| COP | Conference of the Parties |
| EU | European Union |
| FAO | Food and Agriculture Organization of the United Nations |
| FOCAC | Forum on China-Africa Cooperation |
| FSC | Forest Stewardship Council |
| GBEB | Global Bioenergy Partnership |
| GIZ | Deutsche Gesellschaft für Internationale Zusammenarbeit |
| ICBR | International Centre for Bamboo and Rattan |
| INC | Intergovernmental Negotiating Committee on Plastic Pollution |
| IFAD | International Fund for Agricultural Development |
| INBAR | International Bamboo and Rattan Organization |
| ISO | International Organization for Standardization |
| ISO/TC 165 | ISO Technical Committee 165 |
| IUCN | International Union for Conservation of Nature |
| IUFRO | International Union of Forest Research Organizations |
| MoU | Memorandum of Understanding |
| NDRC | National Development and Reform Commission, China |
| NFGA | National Forestry and Grassland Administration, China |
| NTFP | non-timber forest products |
| SMEs | small and medium enterprises |
| TVET | Technical and Vocational Education and Training |
| UN | United Nations |
| UNCTAD | UN Trade and Development |
| UNESCO | UN Educational, Scientific and Cultural Organization |
| UNFCCC | UN Framework Convention on Climate Change |
| UNFF | UN Forum on Forests |

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Foreword by the Board Chair and Co-Chair



Ali Mchumo

On behalf of INBAR's Board of Trustees, it gives us great pleasure to introduce the INBAR Annual Highlights for 2024. We would like to express our deep gratitude to everyone who has supported us over the years, from our extensive network of global partners and friends, to you, our reader.

In 2024, INBAR's flagship project, the Bamboo as a Substitute for Plastic (BASP) Initiative, reached new heights. The BASP Initiative's Pilot Project made significant progress in conducting surveys in six countries, collecting specimens, establishing experimental bamboo forests, holding technical trainings, testing and analyzing species, and launching a flurry of key R&D into high-value bamboo processing technologies and equipment. We also participated in the International Horticultural Exhibition 2024 in Chengdu, China, hosting a 5800 m² garden showcasing bamboo's noble qualities and its potential to replace plastics, welcoming millions of visitors.



Jiang Zehui

It was also a very busy year for international events, with INBAR staff attending dozens of high-level conferences and fora around the world to champion our sustainable mission. These events included but were not limited to the 2024 China International Fair for Trade in Services (CIFTIS), Fourth and Fifth Sessions of the Intergovernmental Negotiating Committee (INC) on Plastic Pollution, 19th Session of the United Nations Forum on Forests (UNFF 19), the three UN Summits on climate change, desertification and biodiversity, the 26th World Congress of the International Union of Forest Research Organizations (IUFRO), the China-European Union (EU)-Africa Forum in Brussels, and the Global Commodity Forum. This tireless engagement with global stakeholders strengthened bamboo's profile and generated new awareness of the plastic substitution initiative.

The INBAR family also grew in 2024 as we welcomed our 51st Member State, the Republic of Uruguay. INBAR also signed a Memorandum of Understanding (MoU) with China's National Development and Reform Commission (NDRC), pledging to work together within the Belt and Road Initiative (BRI) to promote South-South cooperation for the bamboo and rattan sectors. At the conclusion of the 2024 Forum on China-Africa Cooperation (FOCAC) Summit, the parties formally adopted the Beijing Action Plan (2025-2027), which specifically highlights the important role of INBAR, the BASP Initiative and bamboo and rattan to Africa's sustainable development. In addition, cooperation agreements were signed with UN Trade and Development (UNCTAD), the Secretariat of the UN Framework Convention on Climate Change (UNFCCC), and the International Fund for Agricultural Development (IFAD), signaling our expanding role in global trade bodies, climate conventions and agricultural alliances.

By the numbers, our work on the ground was also extremely impressive, as we achieved unprecedented milestones in our organization's history. Through an exhaustive team effort, including trainings, capacity building, furnishing new planting material and diverse enterprise support, nearly 20,000 households around the world benefited from INBAR's 21 ongoing projects, over 1.3 million seedlings were cultivated, 10,000 hectares of land restored, and hundreds of businesses received new tools and equipment. Three course curricula were developed for universities in Ecuador, Kenya and Uganda to promote bamboo education in our Member Countries. We also authored, edited and published exemplary multilingual knowledge products—over 50 books, magazine issues, journal articles, working papers, fact sheets and more. These ensured that critical information about bamboo and rattan was delivered it into the hands of those who need it most.

It gives us great pride to reflect on our accomplishments and look forward to even brighter horizons. Once again, a heartfelt thank you to our partners and friends working to bring about a greener world. From INBAR, we wish you good health and prosperity in 2025!

Ali Mchumo

Chair of the INBAR Board of Trustees

Jiang Zehui

Co-Chair of the INBAR Board of Trustees

SOARING BAMBOO, LEAVING BEHIND PLASTICS

Plastics are deeply embedded in our modern lives, used in everything from packaging and construction to textiles and consumer goods. Despite being cheap and versatile, they come with severe environmental costs. Global plastic production has surged in the 21st century, increasing from 234 million tonnes (Mt) in 2000 to 460 Mt in 2019. Only 19% is incinerated and 9% recycled, with the rest either buried in landfills or released into the environment. Plastics then leach harmful chemicals, contributing to the “triple planetary crisis” of climate change, biodiversity loss and pollution. Additionally, plastics release greenhouse gases throughout their life cycle, and will account for up to 15% of the global carbon budget by 2050.

In 2022, China and INBAR launched the BASP Initiative. This ambitious flagship project aims to leverage bamboo to reduce plastic pollution, address climate change and accelerate the achievement of the UN’s 2030 Agenda for Sustainable Development. In 2023, at the First International Symposium on Bamboo as a Substitute for Plastic, China and INBAR released the Global Action Plan for Bamboo as a Substitute for Plastic (2023–2030), which serves as the main framework for coordinating and implementing the BASP Initiative.

On 17 October 2024, a major forum in Brussels focused on bamboo as a sustainable alternative to plastic, with an emphasis on trilateral cooperation between China, the EU and Africa. The event, co-hosted by the Chinese Mission to the EU and INBAR, highlighted bamboo’s role in addressing global challenges such as plastic pollution and climate change. The BASP Initiative was central to discussions, aligning with EU environmental goals and the UN’s Sustainable Development Goals. Ambassadors, diplomats, officials and high-level guests noted bamboo as an effective tool for international collaboration. The event also showcased an exhibition of bamboo products, demonstrating their potential to replace plastics in diverse industries as durable, high-quality and low-carbon products.

The Pilot Project of the BASP Initiative also made strides in 2024. Working across Malaysia, Viet Nam, Cameroon, Ethiopia, Brazil and Ecuador, this effort aims to enhance the development and utilization of bamboo resources and related innovation, technical exchange and global cooperation. Based on country resource surveys, the project will research and develop innovative technologies in bamboo genetics, cultivation, properties, products and life-cycle assessments. It will ultimately seek to establish a global value-chain that features bamboo over plastics as a renewable material with diverse ecological and cultural applications.

Bamboo was also given a seat of honor at the 29th UN Climate Change Conference (UNFCCC COP 29). On 18 November 2024, INBAR and China’s National Forestry and Grassland Administration (NFGA) hosted a side event at the China Pavilion on “Harnessing Climate Action to Reduce Plastic Pollution: Bamboo as a Substitute for

CHINA PAVILION

联合国气候变化大会中国角

2024

CHINA PAVILION



Plastic Initiative.” The event shined a spotlight on the BASP Initiative, pointing out the sustainable, low-carbon nature of bamboo products. Speakers highlighted that INBAR has signed cooperation agreements with UNCTAD, the UNFCCC and IFAD, in addition to working across the BRI to fully implement the BASP Initiative. The event also featured discussions on trade flows, regulatory frameworks, national strategies and the promotion of bamboo products as a driver of sustainable development.

▲
The side event on “Harnessing Climate Action to Reduce Plastic Pollution: Bamboo as a Substitute for Plastic Initiative” kicked off at UNFCCC COP 29.

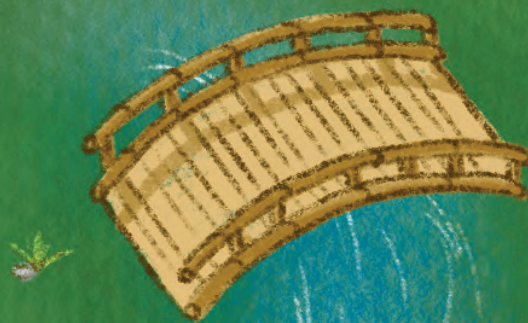
Also of major significance is the proceedings of the INC to develop an international legally binding instrument on plastic pollution, including in the marine environment. INBAR attended both proceedings of INC in 2024, including INC-4 in Ottawa from 23 to 29 April and INC-5 in Busan from 25 November to 1 December. At both meetings, INBAR acted in its capacity as an Observer intergovernmental organization to promote bamboo as an important non-plastic substitute, with triple bottom line benefits to plastic pollution. Growing across tropical and subtropical regions of the world, bamboo can also provide green jobs and generate income through robust bamboo value chains as effective vehicles for enabling a just transition for developing nations.

A number of challenges are standing in the way for more countries to sustainably harness their bamboo resources to curb plastic pollution. These range from limited production capacity and high manufacturing costs to a lack of policy frameworks and enabling conditions. Taking action will require comprehensive and strategic planning across policies, plans, regulations, financial mechanisms, research, standards, public awareness campaigns, certification, supply chains and more.

Strong coordination is needed between public, private and third-sector actors to effectively overcome these obstacles. Initial steps might include establishing national strategies in bamboo-rich countries, strengthening investment in small and medium enterprises (SMEs), reducing tariffs on bamboo products, and raising consumer awareness of bamboo’s unique ability to fight plastic pollution. These efforts and more all lie at the heart of INBAR’s mandate to wield bamboo and rattan as tools for building a greener, plastic-free future.

POLICY SHAPING & PARTNERSHIPS

INBAR continued to support the inclusion of bamboo and rattan in socioeconomic and environmental development policies at national, regional and international levels.





Uruguay joins INBAR

On 1 October 2024, the Oriental Republic of Uruguay formally joined INBAR as its 51st Member State. Located in the southeast of South America, Uruguay is rich in forestry and fishery resources, with a long history of bamboo development and utilization. INBAR's demonstration projects and promotion activities in the region have enabled the Uruguayan government to fully realize the unique value and role of bamboo and rattan in social, economic and environmental development. Bamboo is ready to deliver green jobs in Uruguay's communities and contribute to achieving the Sustainable Development Goals.

On 28 November, a flag-raising ceremony was held to celebrate the accession at INBAR Headquarters in Beijing. At the ceremony, speeches were given by high-level policymakers including H.E. Fernando Mattos, Minister of Livestock, Agriculture and Fisheries of Uruguay, Sabita Nakarmi, Counselor of the Embassy of Nepal on behalf of the Chair of the 13th INBAR Council, Gao Hongdian, Forest and Grassland Fire Prevention Inspector of the NFGA of China, and

Carlos Faroppa, Director General of the Forestry Department of the Ministry of Livestock, Agriculture and Fisheries of Uruguay. Lu Wenming, Deputy Director General of INBAR, presided over the Flag-Raising Ceremony, and other ambassadors and representatives also attended the event.

A warm welcome to the newest addition to the INBAR family!

Sprouting new leaves

In 2024, building on historic partnerships, INBAR signed several key cooperation agreements and entered exciting new partnerships

In January, INBAR and China's NDRC signed an MoU for the joint construction of the BRI. This is a key partnership because many of INBAR's Member States are also signatories to the BRI, strengthening strategic planning and collaborative projects, particularly with an emphasis on projects related to replacing plastics with bamboo.

In July, INBAR signed an MoU with UNCTAD, building on a fruitful history

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*Raising the flag of the
Oriental Republic of
Uruguay outside INBAR
Headquarters.*



▲
Li Lan, Director of External Relations and Partnerships of INBAR (right), reaching an agreement with Miho Shirotori, Acting Director of UNCTAD's Division on International Trade and Commodities (left).

of cooperation between the two organizations. The MoU includes seven areas of cooperation across a five-year period. This new partnership will deliver increased benefits to numerous stakeholders, including the Member States of both organizations. Increased trade of the non-timber forest products like bamboo and rattan can generate environmental, economic and social benefits for local producers and the surrounding communities that depend on these resources for livelihoods.

Also in July, INBAR and IFAD signed a Letter of Intent aimed at leveraging the two organization's many years of project-level cooperation. With consistent financial support from IFAD, INBAR has implemented a total of 12 bamboo and rattan livelihood development projects, creating green jobs and improving the livelihoods of millions of people across Africa, Asia and Latin America. Both institutions share the commitment to harness the potential of bamboo to alleviate poverty, enhance social inclusion and contribute to achieving climate goals.

In the same month, INBAR and the Agriculture Committee of the Italian

Chamber of Deputies held bilateral talks on enhancing exchange and collaboration across bamboo and rattan sectors, as well as on promoting the BASP Initiative. This is a critical new partnership as Italy is home to the largest area of bamboo cultivation in Europe. INBAR also held talks with the municipality of Borgo Mantovano, Italy, which is the country's major bamboo producer. Both parties expressed their willingness to establish an international platform for exchange and collaboration, aiming to promote bamboo cultivation in northern Italy and develop a sustainable bamboo industry chain.

In August, Cameroon's Ministry of Small and Medium-sized Enterprises, Social Economy and Handicrafts and INBAR's Central Africa Regional Office formalized their partnership at an important ceremony in Mbalmayo, signing an MoU. The cooperation sought to enable Cameroonian artisans to tap into the country's bamboo potential — which is the second-largest in all of Africa — for sustainable socio-economic development.

Finally, in November, as part of INBAR's participation at UNFCCC



COP 29, INBAR signed an MoU with UNFCCC at the Forest Pavilion, where experts presented on bamboo-driven initiatives for climate action resilience and biodiversity. This MoU will help stakeholders take advantage of bamboo’s potential for carbon sequestration and climate change mitigation.

Policy roadmaps for strong growth

Early in 2024, Tanzania launched its National Bamboo Strategy and Action Plan, paving the way for the country to utilize bamboo as a renewable resource and tool to combat climate change. This document aims to develop a framework for encouraging bamboo production, processing and usage across several economic sectors, including carbon credit programs based on bamboo. INBAR played a key role in drafting the policy document, which built upon Tanzania’s long history with INBAR since it first joined the intergovernmental organization in 1997.

In the latter half of 2024, the Pakistan Ministry of Climate Change and Environmental Coordination, INBAR and International Union for Conservation of Nature (IUCN) co-organized the National

Validation Workshop on the National Strategy on Bamboo in Pakistan. The two-day workshop brought together bamboo sector stakeholders in Pakistan to deliberate on the prepared bamboo strategy, showcase good practices and models and receive inputs from stakeholders to update and validate the bamboo strategy. The event represented an important moment for deciding the right bamboo strategy for contributing to Pakistan’s economic and environmental policies while meeting local needs and implementing best practices.

In 2024, significant progress was also made in formulating and completing the Bamboo and Rattan Development Strategy and Action Plan for Togo. Bamboo and rattan resources play key roles in Togo’s social, economic and ecological landscape, but their exact contribution to economic growth and value chains remains unclear. The forthcoming national strategy, which has been finalized but not yet launched, seeks to address these gaps, aligning with existing forestry policies to unlock the sector’s potential, and ultimately enable stakeholders to improve livelihoods, restore ecosystems and make meaningful steps toward confronting climate change.

▲
H.E. Ali Mchumo, Chair
of INBAR Board of
Trustees (left), and Dr.
Jyotsna Puri, Associate
Vice President of
the Strategy and
Knowledge Department
at IFAD (right), present-
ing the new Letter of
Intent.

REPRESENTATION & ADVOCACY

INBAR's Regional Offices continued to engage with countries around the world to raise awareness about bamboo, rattan and INBAR's work.



A triple COP year: Uniting for common challenges

The three UN summits on Biodiversity, Climate and Land convened in 2024, and bamboo was unmissable across all of them.

From 21 October to 1 November, the 16th Conference of the Parties to the UN Convention on Biological Diversity (COP 16) was held in Cali, Colombia. INBAR was invited by the Food and Agriculture Organization of the United Nations (FAO) to participate in the side event on “Indigenous Peoples’ Biocentric Restoration Plans in Costa Rica, Peru and Ecuador.” INBAR’s Regional Director for Latin America and the Caribbean Pablo Jácome spoke at the event, giving lessons from the field on the Indigenous Biocentric Restoration Project in Ecuadorian Amazonian Indigenous Territories initiative co-launched by FAO, INBAR and Ecuador’s Ministry of the Environment, Water and Ecological Transition, Ministry of Agriculture and Livestock, and local governments. This initiative is making real on-the-ground impacts for local communities, restoring degraded lands and creating diverse ecosystems to boost climate resilience.

From 11 to 22 November, UNFCCC COP 29 took place in Baku. At the China Pavilion, INBAR and the NFGA of China held a joint side event on, “Harnessing Climate Action to Reduce Plastic Pollution: Bamboo as a Substitute for Plastic Initiative.” The event highlighted the BASP Initiative and the 2023-2030 Global Action Plan. Keynote speakers discussed ongoing efforts, such as China’s Three-Year Action Plan and research projects to promote bamboo-based solutions. International partnerships and cooperation were emphasized to implement the BASP Initiative globally, showcasing bamboo’s potential in reducing

plastic use and promoting sustainable development. Other side events were also launched at the summit, including ones on “BambooBoost: For Prosperity, Climate Action, Resilience, and Biodiversity,” “Promoting transformative innovation for climate action in agroforestry,” “Bamboo Economic Enterprise Program as an Effective Three-pronged Transformative Climate Strategy: Adaptation, Mitigation and Prosperity-building,” “Youth Empowerment, Land Tenure and Green Economic Development Using Bamboo” and more, demonstrating the growing recognition of bamboo as a climate-smart tool for facilitating green environmental, economic and societal development.

From 2 to 3 December, the 16th Conference of the Parties of the UN Convention to Combat Desertification (UNCCD COP 16) convened in Riyadh. At COP 16, bamboo was showcased as a solution for landscape restoration and green economic development. Its rapid growth, ability to thrive on marginal land and low input requirements make it effective for combating poverty and land degradation. Bamboo also provides sustainable income, particularly for women, through annual harvests and diverse value addition. INBAR launched a session on “Bamboo-Based Innovation for Upscaling Landscape Restoration and Green Growth,” which particularly highlighted bamboo’s potential in carbon sequestration, forest restoration and offering sustainable raw materials across various industries. Speakers emphasized that the success of existing case studies has been contingent upon robust policy support and investment. To effectively leverage bamboo resources, countries must first foster an enabling environment that supports the sector’s holistic development to encourage sustainable cultivation and management of local bamboo resources.



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 Participants at UNFCCC COP 29's China Pavilion discussed how to incorporate the BASP Initiative into international and national strategic planning.

Hoisting the bamboo and rattan flag worldwide

From 9 to 10 December 2024, INBAR participated in the Global Commodities Forum in Geneva. Li Lan, Director of INBAR's External Relations and Partnership (ERP) Department, joined the session on "Promoting natural fibers in the Climate Action Agenda" and delivered a speech in the guest dialogue session. In her talk, Li highlighted bamboo's benefits, including its role in sustainable fashion and textile industries, the advancement of bamboo-based materials, and innovations in composite products. The forum sparked significant discussions among UN representatives as well as government and industry leaders on bamboo's cultivation, technological innovations and bamboo composite materials.

The 27th Session of the Committee on Forestry (COFO 27) convened in Rome, Italy at FAO headquarters from 22 to 26 July 2024. INBAR hosted a side event on "Bamboo-based innovation to harness bioeconomy solutions," featuring open remarks from Lu Wenming, Deputy Director General of INBAR, Jyotsna Puri, Associate Vice President of the

Strategy and Knowledge Department at IFAD, Wu Zhimin, FAO Forestry Division Director, and Liu Xin, Deputy Director General of the Department of International Cooperation, NFGA, China. In addition, a range of multidisciplinary experts presented on bamboo's role as a non-wood forest product, the importance of a national bamboo strategy for supporting local farmers and biodiversity in Peru, bamboo's impact on Italy's circular economy, bamboo's capability to enhance Malawi's land restoration efforts and bioeconomy growth and its potential as a nature-based solution and instrument for facilitating South-South cooperation in Latin America and the Caribbean.

In 2024, World Forest Week 2024 also coincided with COFO 27. As part of the proceedings, INBAR showcased the art of Qingshen bamboo weaving, a Chinese intangible cultural heritage. A master bamboo artisan demonstrated this craft, which originated in Qingshen County, Sichuan, and now involves over 3000 products created using a diverse range of weaving techniques. The exhibition captivated the audience, who also participated in a hands-on demonstration. INBAR's robust support



for Qingshen bamboo weaving highlights its role in fostering international cooperation on bamboo and rattan, advancing sustainable development and preserving cultural heritage.

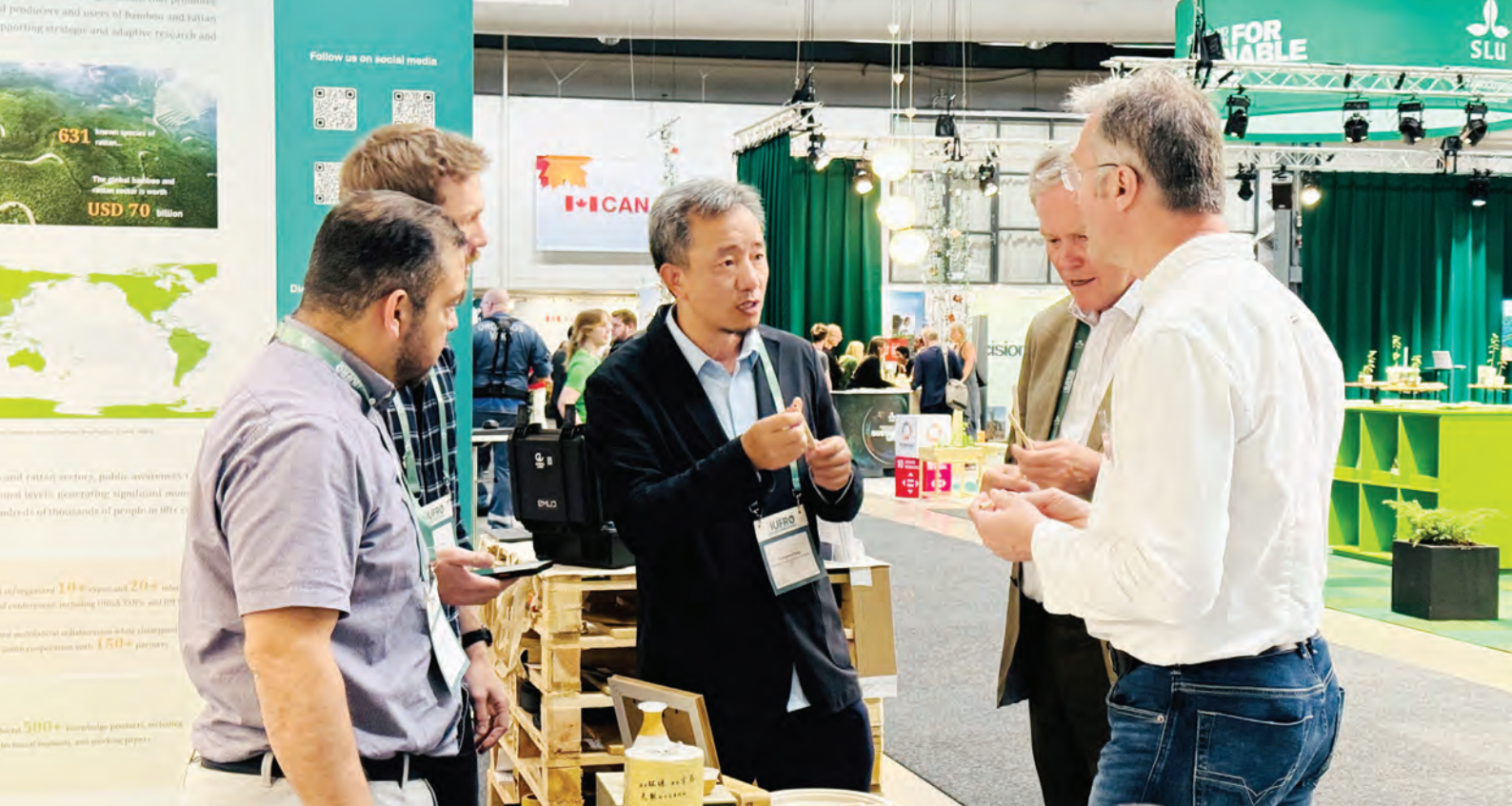
From 4 to 6 September, the Beijing Summit and the Ninth Ministerial Conference of the 2024 FOCAC Summit was held in Beijing. Critically, the Forum’s Action Plan (2025-2027) was adopted at the end of proceedings. Part of the Plan mentions that China and Africa will work together to advance the development of a China-Africa Bamboo Center and also to promote cooperation in bamboo and rattan sectors on initiatives such as the BASP Initiative, while also implementing demonstration projects on international bamboo and rattan cooperation. This is a key development in relations between China and Africa, as the African continent abounds with lush bamboo forests that hold great potential for green development while China is home to highly advanced bamboo manufacturing and processing industries.

The 11th edition of the Global Bioenergy Partnership (GBEP) Bioenergy Week was held in Rome, Italy, from 17 to 21 June. The event

was organized by FAO within the context of the GBEP Programme of Work. The GBEP Bioenergy Week brought together a large network of bioenergy stakeholders, including international experts, decision-makers and private sector representatives to discuss current trends, future opportunities and challenges in the bioenergy sector. INBAR’s West Africa Regional Office delivered a presentation on, “Bamboo for Adding Value to Marginal Land While Contributing to Food and Energy Security in Ghana.” The presentation highlighted how bamboo-based agroforestry systems play an important role in enhancing productivity, sustainability and resource conservation in land-use systems by intercropping bamboo with other agricultural crops and/or livestock.

At the 26th IUFRO World Congress in Stockholm, held from 23 to 29 June, bamboo was revealed to be a key solution for the bioeconomy, sustainable construction and plastic pollution. The International Centre for Bamboo and Rattan (ICBR) and INBAR co-hosted a side event on, “Innovative technologies for the development of bamboo and rattan products,” illustrating bamboo’s

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INBAR also hosted a side event on “Bamboo Economic Enterprise Program as an Effective Three-pronged Transformative Climate Strategy” at the UN Climate Change Summit.



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At the 26th IUFRO World Congress, INBAR hosted a booth that attracted many onlookers curious to learn more about bamboo and rattan.

potential in areas like carbon sequestration, reforestation efforts and eco-friendly materials. Presentations emphasized bamboo's role in sustainable construction, such as using bamboo-based materials to replace high-emission materials like steel and concrete, as well as its use in reducing plastic pollution through the BASP Initiative. Experts from INBAR also gave poster presentations on a range of topics, from new green products made with bamboo and rattan and climate-smart practices in the Amazon to the physical properties of bamboo growing in Kenya and modeling habitat suitability for bamboo in Ethiopia.

From 19 to 23 November 2024, the 5th Latin American and Caribbean Bamboo Symposium was held at the National University of Costa Rica, celebrating bamboo's diverse uses and its potential for sustainable development. Bringing together over 150 participants from 18 countries, topics under discussion at the forum included bamboo as a tool for sustainability, rural development and climate change mitigation. The event featured presentations on governance, sustainable construction and the circular economy, as well as practical workshops to enhance technical skills.

A key outcome was the launch of the International Bamboo Course by the International Network of Universities and Research Centers for Bamboo (RIUCI-Bamboo), aimed at fostering global knowledge exchange on bamboo's technological development.

Bamboo was also underscored as a vital nature-based solution at the Global Bioeconomy Summit 2024. Held in Nairobi, the summit brought together experts and leaders from diverse backgrounds to address global bioeconomic challenges. René Kaam, Director of INBAR's Central Africa Regional Office, gave a presentation during the workshop on, "The Contribution of Forest Products to the Sustainable Bioeconomy in Africa – Trends, Challenges, and Opportunities." His talk highlighted bamboo's potential as a sustainable material (particularly for eco-friendly products like furniture, flooring and paper), for powerful carbon sequestration, robust soil improvement, green economic growth and renewable bioenergy generation.

The 36th Plenary Meeting of the Technical Committee on Timber Structures of the International



Organization for Standardization (ISO/TC 165) was successfully held in Nanjing, China, from 23 to 26 September 2024. During the meeting, two new standards were confirmed for development: 1) Bamboo Structures — Bamboo Scrimber Products — Product Specifications, and 2) Bamboo Structures — Engineered Bamboo — Structural Design Specifications. The meeting was chaired by Liu Kewei, Coordinator of the INBAR Global Bamboo Construction Programme, and Convener of ISO/TC 165 Working Group 12.

The National Museum of Cameroon in Yaoundé hosted the 8th International Handicrafts Exhibition of Cameroon from 22 to 30 July. Organized by the Ministry of Small and Medium-sized Enterprises, Social Economy, and Handicrafts, INBAR hosted a large exhibition decorated with elegant bamboo and rattan products. Regional staff in attendance showcased recent advances in bamboo processing, from low-tech to high-end innovations, the potential for using bamboo as a green alternative to plastics, and local Cameroonian bamboo and rattan artisans with their impressive skills and exquisite products. INBAR is promoting eco-entrepreneurship among

young people and women in Cameroon through the integrated management of natural resources.

A three-day conference kicked off in Dehradun from 22 to 24 June, showcasing bamboo’s unique role in conservation, restoration and livelihoods. Held under the theme of “Living with Nature: Soil, Water and Society in Ecosystem Conservation,” the event featured a special session on, “Bamboo for Resource Conservation, Land Restoration and Livelihood Security.” This special session sought to highlight best practices and cutting-edge scientific knowledge. Speakers at the session highlighted bamboo’s diverse contributions to land restoration, genetic improvement, bioengineering and hydrology. Jayaraman Durai, INBAR’s Director of Global Programme, spoke at the event about restoring land and livelihoods through an integrated value chain approach using bamboo resources. Other speakers highlighted research on best practices in conservation and more. INBAR’s South Asia Regional Director and guest of honor, Sangeeta Agasty, emphasized the importance of continued collaboration for the common cause of sustainable resource management.

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The 5th Latin American and Caribbean Bamboo Symposium brought together a range of bamboo stakeholders in Costa Rica.



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The CBFP Regional Workshop on Sustainable Value Chains served as a strategic platform to promote sustainable economic pathways and lay the groundwork for combating deforestation in the Congo Basin.

Bamboo emerged as a transformative resource at the Congo Basin Forest Partnership (CBFP) Regional Workshop on Sustainable Value Chains, hosted from 16 to 18 December in Douala. With 300 participants from various sectors, the event showcased bamboo’s role in ecological restoration, soil conservation, sustainable energy and construction while highlighting its economic potential as an alternative to plastics and a driver of local livelihoods. Through dedicated sessions, experts explored bamboo’s ability to combat deforestation, support carbon sequestration and promote social inclusion, particularly for women and smallholder farmers. As part of the session on “Non-Timber Forest Products – Bioeconomy, Bio-Innovation, and Natural Capital Enhancement,” René Kaam, INBAR Regional Director for Central Africa, introduced the BambooBoost Initiative, which is utilizing bamboo’s capability to spur green economic growth in Central Africa.

Signaling the EU’s growing interest in bamboo, the European Bamboo Expo 2024 convened in Dortmund from 16 to 18 May. With participants from China, India, Africa, Europe and Latin America, the event hosted over

60 speakers and exhibitions showcasing bamboo-based construction, food products and eco-friendly technologies. INBAR played a key role by operating a booth showcasing low-carbon bamboo alternatives to plastic and promoting the BASP Initiative. Additionally, the INBAR-Dutch-Sino East Africa Bamboo Development Programme supported Ugandan and Kenyan enterprises in presenting their experiences in developing their bamboo industries. To that end, Selim Reza, Programme Manager of the programme, delivered a presentation on, “Bamboo Multi-Supply Chains: Connecting Smallholder Farmers in the Circular Economy” to highlight lessons learned working with local East African farmers.

On 7 May at UNFF 19 in New York City, a side event titled “Together we make a difference: Joint efforts in UNSPF Implementation in China” showcased China’s progress in implementing the UN Strategic Plan for Forests. Organized by China’s NFGA and co-organized by INBAR and World Wide Fund for Nature, the event highlighted bamboo and rattan as nature-based solutions to global challenges, including climate change, deforestation and plastic pollution.



INBAR’s Director of ERP, Li Lan, emphasized bamboo’s ecological and economic benefits, particularly through utilizing the BASP Initiative to combat plastic waste and promote sustainable materials. INBAR Global Policy Officer Borja De La Peña Escardó further detailed bamboo’s role in landscape restoration, job creation and value chain development at a later presentation on “Bamboo Value Chain Development and Bamboo as a Substitute for Plastic Initiative: Contributing to GFG 1, 2 & 3,” urging countries to strengthen investments and policies supporting bamboo’s industrial growth. INBAR’s strong presence at UNFF 19 reinforced its commitment to leveraging bamboo for achieving global sustainable forestry goals.

Additionally, INBAR’s Latin America and the Caribbean Office participated in the side event on “Bamboo as an Ecosystem-Based Adaptation Solution” at the IUCN South American Conservation Forum held in Santa Marta from 15 to 16 October. This side event emphasized the key role of bamboo in climate resilience. It also brought together stakeholders to discuss how to best utilize bamboo to achieve conservation results,

highlighting the collaborative work underway in the South American region.

South Asia Regional Office

INBAR’s South Asia Regional Office (SARO) has been actively involved in action projects, policy initiatives, knowledge and technology transfer and more among its Member States in the region and also across the Global South. As part of a benchmark initiative, SARO supported the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and Dalmia Cement’s joint efforts to replace fossil fuel consumption with bamboo in cement plants and similar manufacturing units in India by supporting scientific methods of bamboo plantation, management, utilization and supply chain linkages. Various ecosystem services were implemented in the country along with degraded land restoration initiatives by promoting bamboo plantation. Over 60 training and awareness programs were organized, and more than 4000 farmers were supported for bamboo plantation through technical guidance and quality bamboo planting materials. SARO has also developed audio-visual modules on bamboo propagation techniques, plantation methods,

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The European Bamboo Expo 2024 focused on the role of bamboo within the circular economy.



▲
Bamboo can play a key role in contributing to India's sustainable development agenda.

harvesting and post-harvesting techniques, management and also on various ecosystem services for raising awareness and facilitating capacity building.

SARO is also supporting the Asian Development Bank in the “Assessment of Bamboo Resources, Enterprise Development Needs and Opportunities in the Northeast Region of India” under a technical assistance program. To create evidence-based policy and appropriate intervention strategies for the development of the bamboo sector in North Eastern Region of India, INBAR has undertaken a comprehensive bamboo resource assessment, including its suitability for various industrial applications, and identified existing and potential value chains, their weaknesses and growth potential in the region, and prepared an action strategy to strengthen existing value chains and create new ones for economic, environmental and social benefits. These efforts have aimed to assess the feasibility of creating appropriate infrastructure (such as bamboo parks and community-level bamboo aggregation and primary processing facilities) to support bamboo sector development throughout the region. Regarding the on-farm resource

assessment, INBAR has created a mobile app and trained locals in its application. Over 1000 farmer entries have now been recorded in six states of this part of India.

A series of events were organized to identify potential sources of investment for new enterprises and start-ups, and explore funding opportunities for upgrading the value chain and value chain development. Representatives from state and government bodies, as well as implementing agencies of various projects and initiatives, entrepreneurs, business development service providers and other key stakeholders also participated in such events, sharing their rich experiences and inputs to develop an appropriate action strategy for bamboo sector development.

As a pivotal partner in a GIZ-funded project, SARO successfully supported triangular cooperation between India, Germany and Ghana to promote bamboo-based enterprise development and create sustainable, high-value economic opportunities for farmers, artisans, micro- and small-scale enterprises, designers, traders and exporters. SARO also actively supported skill and knowledge



transfer from India to Ghana under this cooperation framework.

SARO has also organized several awareness-building meetings and workshops and supported a range of start-ups to implement innovative product designs and ideas. The office is now actively supporting INBAR's BASP Initiative in the region.

Latin America and the Caribbean Office

In 2024, INBAR's Latin America and the Caribbean Office (LACO) made significant strides in advancing bamboo advocacy, fostering regional cooperation and expanding its influence across the region. LACO continued to provide robust support to its Member States while actively engaging new countries to join INBAR. Through a series of high-level meetings, awareness-raising activities and strategic partnerships, LACO reinforced bamboo's role as a sustainable resource for addressing climate change, environmental degradation and economic development.

Throughout the year, LACO was involved in organizing over 15 in-person

and online awareness-raising activities to highlight the importance of bamboo in tackling global challenges, with over 2000 participants. Key events included the National Bamboo Week and V International Symposium on Bamboo in Bagua, Peru, and the Side Event on Bamboo as an Ecosystem-Based Adaptation Solution at the IUCN South American Conservation Forum in Santa Marta, Colombia. Other notable events included the Second National Meeting of the Guadua/Bamboo Production Chain and its Agroindustry in Armenia, Colombia, and the V Latin American and Caribbean Symposium on Bamboo in Heredia, Costa Rica. These landmark events reinforced bamboo as a nature-based solution for sustainable development, climate resilience, green construction and strong livelihoods through knowledge exchange and policy dialogue.

These collective efforts were complemented by a Strategic Planning Workshop with the Bamboo/Guadua Committee in December, which aimed to align national strategies with regional and global bamboo development goals. Additionally, LACO represented INBAR at high-level

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Training program on planting bamboo at the Morigaon Plantation in India.



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Training and exchange tour across Ecuador's Manabí Province delivered skills on sustainable bamboo management and processing to producers and entrepreneurs.

international forums like INC-4 in Ottawa, where bamboo was showcased as a viable green alternative to plastics, and also at the IUFRO World Congress in Stockholm, where bamboo's role in the Amazonia Region was emphasized for sustainable forest management and climate resilience. Additionally, the office supported the implementation of the BASP Initiative, preparing and exporting bamboo samples from Ecuador and Brazil to China for research and testing.

To enhance regional capacity and knowledge sharing, LACO organized three bamboo study tours in Colombia, Costa Rica and Ecuador for participants from across the region. These tours provided hands-on learning experiences and facilitated cross-border bamboo initiatives. A special delegation from the Government of Guyana, supported by Expertise France, visited Ecuador, fostering knowledge transfer and strengthening bilateral cooperation.

LACO maintained strong partnerships with key donors and organizations, including Spanish Agency for International Development Cooperation (AECID), IFAD, Expertise France, the

International Development Bank, FAO, the Italian Agency for Development Cooperation and the EU, securing new support for the regional bamboo sector. It also facilitated high-level meetings with national and local authorities in Ecuador, Peru, Colombia and Brazil to strengthen ties with INBAR and advance bamboo initiatives. Through these dialogues and more, new opportunities for expanding bamboo use and fostering regional cooperation were identified.

East Africa Regional Office

INBAR's East Africa Regional Office (EARO) played a key role in developing Tanzania's National Bamboo Development Strategy and Action Plan (2023–2031), which was officially launched to pave the way for fully utilizing bamboo as a renewable resource and tool to combat climate change. The strategy provides a structured framework for promoting bamboo production, processing and use across multiple economic sectors, including the integration of bamboo-based carbon credit programs. The launch event occurred from 19 to 20 February at the National College of Tourism in Tanzania. The event



brought together key stakeholders, including Tanzania's Minister of Natural Resources and Tourism and the Chair of INBAR's Board of Trustees, as well as representatives from a diverse range of line ministries, donors, private investors, experts and SMEs.

INBAR has been actively working to develop Tanzania's bamboo industry, notably through the IFAD-EU-supported project on bamboo development. This project introduced new species and encouraged enterprise development through South-South knowledge transfer initiatives. Tanzania's National Bamboo Development Strategy will be critical moving forward for expanding the sector by facilitating large-scale projects and mobilizing resources.

In addition to policy development, EARO provided capacity building on bamboo semi-processing machine operation and maintenance to bamboo cooperatives in Tanzania and Kenya. The training focused on setting up and maintaining bamboo processing machines for various outputs, including incense sticks, toothpicks, curtains, high-end weaving, handicrafts and construction materials. Participants also received training in

machine repair, maintenance and safety procedures to ensure efficient and secure operation.

Under the AECID Bamboo Supply Chain Development Project, EARO partnered with the Ethiopian Clean Cooking Alliance and the Nature and Biodiversity Conservation Union's Ethiopia Office to co-organize the 76th chapter of Talk Energy Ahead on 22 November in Addis Ababa. The event highlighted the potential of bamboo as a sustainable, renewable energy source and promoted bamboo charcoal as a viable, cleaner alternative to traditional biomass fuels and for creating employment. It brought together stakeholders from government institutions, international donors, non-governmental organizations, the private sector and academia to discuss opportunities, challenges and the way forward for promoting bamboo charcoal. Participants recognized bamboo charcoal's potential to address Ethiopia's energy challenges, emphasizing the need for supportive policies, subsidies for clean cooking technologies, sustainable harvesting regulations and market linkages to enhance its competitiveness over traditional fuel.

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Youth are stepping up in Ethiopia, mapping bamboo farms to build knowledge, foster ownership and promote sustainable homesteads.



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Part of the ACREGIR project, a training workshop was launched for eco-entrepreneurs and internally displaced people in Cameroon, promoting sustainable development and boosting climate resilience in the region.

Central Africa Regional Office

In 2024, the Central Africa Regional Office (CARO) of INBAR made significant strides in advocating for the integration of bamboo and rattan into sustainable development practices across Central Africa. CARO's efforts were both broad and impactful, with activities that fostered youth engagement, capacity building, multi-sectoral collaboration and private sector development.

One of the key highlights of CARO's advocacy work was the celebration of Cameroon's National Youth Day on 13 February. This event, held at GAMALIEL Bilingual School in Messamendongo, was the first-ever open day organized by CARO to engage young students with bamboo. Through a series of educational activities including a presentation, live demonstrations of bamboo product processing and a tour of a bamboo nursery, students gained hands-on knowledge about the positive ecological and economic benefits of bamboo. This initiative aimed to inspire the youth to take greater pride in their environment and consider bamboo as a green, renewable resource to drive future development.

CARO also demonstrated its commitment to fostering a knowledge-based approach to bamboo development in Chad by organizing a capacity-building workshop from 15 to 17 January. This workshop, held in collaboration with Chad's Ministry of the Environment, brought together dozens of participants from governmental sectors and civil society. The workshop focused on equipping stakeholders with the key tools and methodologies for surveying bamboo value chains. It covered topics ranging from bamboo species identification and strategies for data collection to more advanced techniques like remote sensing and satellite image analysis. These efforts will be crucial for laying the foundation for future bamboo projects and sustainable resource utilization.

In spring, CARO hosted a delegation of eight bamboo experts as part of the BASP Initiative. These experts conducted a field visit across Cameroon's western region, assessing the feasibility of implementing the plastic substitution initiative. Their visit involved meetings with government officials, and the gathered bamboo samples are being sent to China for testing and analysis. Shortly after, CARO also played



a crucial role in the validation of Chad’s national bamboo resource assessment, representing an important milestone in the country’s history. This workshop, attended by government officials and stakeholders, provided valuable data on native bamboo resources, supporting future initiatives in conservation and green economic growth.

Another major achievement in 2024 was the signing of an MoU between CARO and Cameroon’s Ministry of Small and Medium-Sized Enterprises in August. This MoU marked a formal partnership to develop Cameroon’s bamboo and rattan sectors. At the signing ceremony, CARO also donated equipment to local artisans, empowering them to improve their skills and produce high-quality bamboo and rattan products. This initiative is expected to open new markets and create sustainable jobs in the local craft industry, with major long-term implications for eco-entrepreneurship.

Throughout the year, the office’s presence was felt at major international events, such as the Global Bioeconomy Summit 2024 in Nairobi and the CBF Meeting in Kinshasa, reinforcing the role of INBAR as a tireless advocate

for driving the transition to a green economy. Through presentations and high-level discussions, CARO highlighted bamboo’s potential to replace plastics, reduce carbon emissions, promote rural economic development and more.

West Africa Regional Office

In 2024, INBAR’s West Africa Regional Office (WARO) undertook a number of activities to promote bamboo awareness and advocacy.

The 2024 Ghana Climate Change and Green Economy Week lasted from 14 to 18 October. The week-long event was jointly organized by INBAR, the Government of Ghana, led by the Ministry of Environment, Science, Technology and Innovation, the Environmental Protection Agency and other stakeholders to raise awareness about environmental degradation and the need for a societal shift in behavior, especially regarding pollution and health issues associated with single-use plastics. The theme for the celebration was, “Greening Education, Changing Our Mindset, Changing Our Lifestyle.” The event highlighted INBAR’s mission of promoting the use of bamboo and rattan as drivers

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Bamboo’s potential as a sustainable material was highlighted at the 2024 Ghana Climate Change and Green Economy Week, emphasizing its role in addressing climate change and reducing plastic waste.



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INBAR-UNESCO public event promotes sustainable actions at World Heritage Sites under the project “Bamboo for Carbon Neutrality in Rural Areas.”

of poverty alleviation, environmental protection, addressing climate change, as well as providing affordable, sustainable, accessible and reliable modern energy.

On 18 September, INBAR, together with other stakeholders such as Ghana’s Ministry of Lands and Natural Resources, Ghana Advocates for Biodiversity Conservation, Green Diversity Foundation and other civil society organizations jointly organized a public event to celebrate the 2024 World Bamboo Day in Ghana on the theme, “From Plastic to Bamboo: A Ghanaian Transformation.” The event leveraged the important day to sensitize the public on the need to protect and promote bamboo in Ghana as a vital renewable resource in the transition to a green economy.

Jointly organized by FAO and the Government of Ghana, WARO also participated in the Ghana National Policy Dialogue, focusing on the contributions and sectoral linkages of the forest sector to the economy of Ghana. The dialogue highlighted bamboo’s potential to mitigate the harmful effects of deforestation.

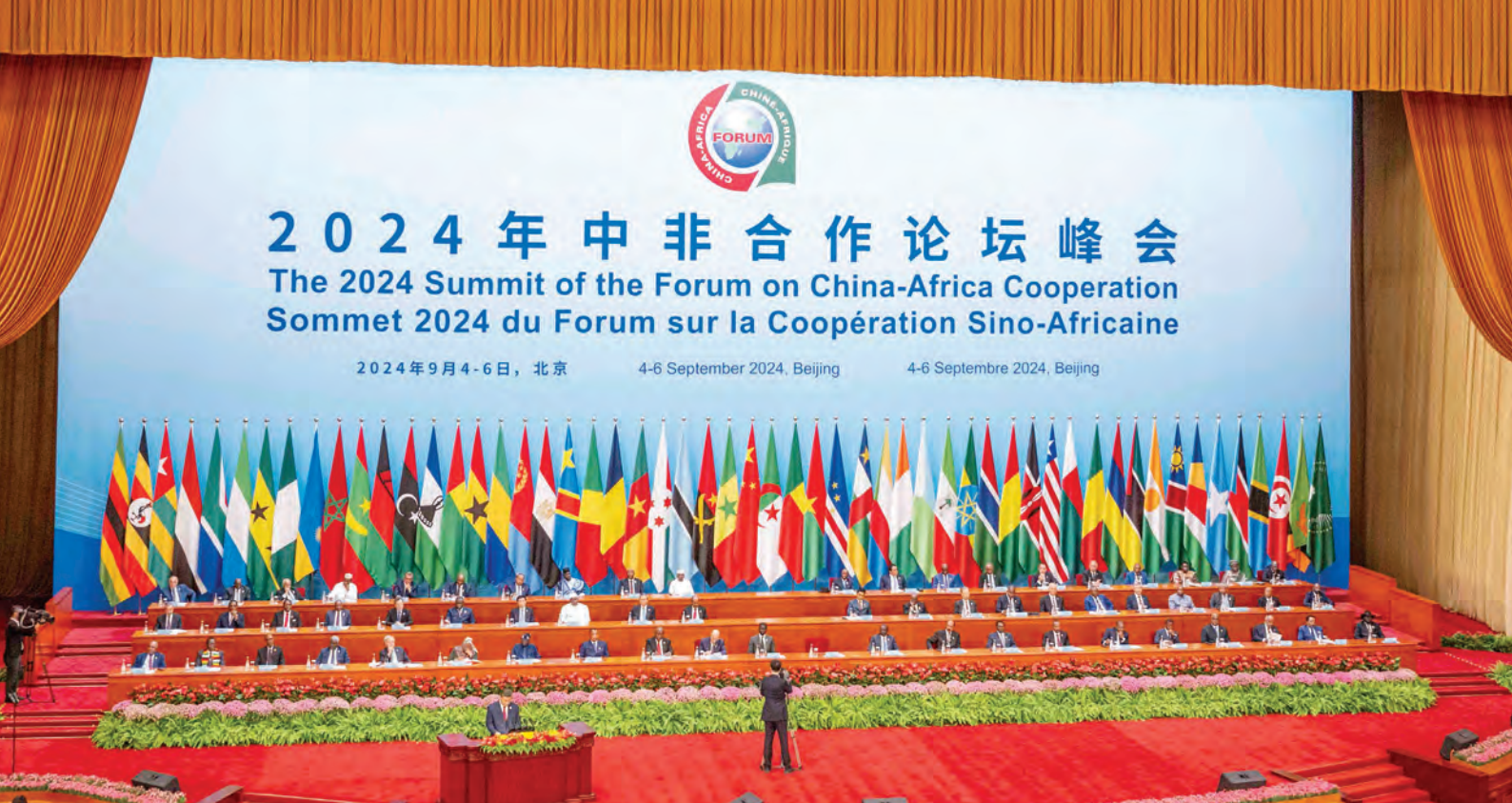
Throughout the year, WARO conducted business development visits to

Liberia, Nigeria and Benin to sensitize key government officials on innovative bamboo products currently being produced in Ghana, with the potential of introducing similar products to other INBAR Member States in West Africa. These products offer alternative livelihood opportunities and reduce poverty.

Host Country

In 2024, INBAR’s ERP reached new heights in its collaborations with the Host Country, China, playing a vital role in advancing the BASP Initiative while spearheading a range of seminars and training workshops. While these efforts were underway, the department also facilitated a series of high-level visits to INBAR Headquarters and bamboo-producing regions of China, fostering knowledge exchange and strengthening collaboration at key nodes.

Several major achievements were made within the Host Country. In January, INBAR and China’s NDRC signed an MoU on Belt and Road Cooperation to deliver bamboo and rattan solutions to BRI signatory countries, many of which are also INBAR Member States. In September, INBAR attended the 2024



2024年中非合作论坛峰会 The 2024 Summit of the Forum on China-Africa Cooperation Sommet 2024 du Forum sur la Coopération Sino-Africaine

2024年9月4-6日, 北京

4-6 September 2024, Beijing

4-6 Septembre 2024, Beijing

FOCAC Summit in Beijing, and the FOCAC Beijing Action Plan (2025–2027) was adopted by all parties. Part of this plan seeks to promote China-Africa cooperation in bamboo and rattan industries, implementation of the BASP Initiative, establishment of the China-Africa Bamboo Center in Ethiopia and encouraging more African countries to join INBAR.

Two other major events took place in China. Spanning 5800 m², the INBAR Garden in Chengdu was widely acclaimed at the International Horticultural Exhibition 2024, winning the Grand Award for showcasing bamboo's eco-friendly contributions to sustainable living. Its opening ceremony hosted distinguished guests, including high-level officials, diplomats and international representatives. In addition, at CIFTIS 2024 in September, INBAR showcased a 200-m² bamboo pavilion under the theme, "Empower the Future with Bamboo as a Substitute for Plastic," highlighting bamboo's potential for delivering a low-carbon lifestyle. Nearly 20 diplomats from the Group of Latin American and Caribbean countries, along with other dignitaries and guests, visited the exhibition.

Project tasks related to BASP continued apace in 2024, as field missions ended in Cameroon, Ethiopia and Viet Nam. Bamboo materials were collected from six pilot countries, a high-yield experimental forest was established, a workshop on lowland bamboo management was held in Ethiopia and extensive tests and analyses were conducted on bamboo mechanical properties, processing technologies and equipment. BASP-related actions are now listed as key projects of the BRI. Through close partnership with ICBR and the NFGA, INBAR also acted as a global knowledge broker, equipping 120 participants from 13 developing countries with skills for bamboo and rattan development, scientific innovation, value addition, supply chain improvement, standardization and policymaking. Finally, throughout the year, INBAR's ERP team coordinated visits to INBAR Headquarters and study tours in bamboo-producing regions of China, hosting high-level delegations from Uruguay and Honduras, Italy, Cameroon, the Kasikorn Bank of Thailand, the Embassy of Thailand, the Ministry of Higher Education, Science, Research and Innovation of Thailand, as well as ambassadors of Ethiopia, Cameroon, Nepal, and a deputy chief minister of India.

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*The 2024 FOCAC
Summit Opening
Ceremony | Beijing, 5
September 2024. Credit:
Paul Kagame/Flickr*





VISUAL STORYTELLING FROM AROUND THE GLOBE

The fifth edition of INBAR's International Bamboo and Rattan Photo Competition concluded in 2024, showcasing an incredible array of talent from around the world. With over 200 submissions, it was no easy task to select this year's winners.

From us at INBAR, bravo to all the champions of nature who participated in the competition! Your submission was an important part of carrying forward the beautiful, sustainable flag of bamboo and rattan. Photos from top to bottom, left to right:

Category 1: Bamboo and rattan as plastic alternatives

- First place – “Making coiled lacquerware with bamboo” by Myat Zaw Hein from Myanmar
- Second place – “Salted fish maker using bamboo baskets” by Muhammad Syarif. S from Indonesia
- Third place – “Weaving futures: Rattan craftsmanship sustaining communities and the environment” by Luciano Santiago Abad from the Philippines

Category 2: Industrial or craft innovations related to bamboo and rattan as substitutes for plastic

- First place – “Intrecci liberi” by Iacopo Bertolini from Italy
- Second place – “The cane-star grandpa” by Amitava Chandra from India
- Third place – “The craftsman” by Rabin Chakrabarti from India

Category 3: Community impacts of bamboo and rattan

- First place – “Planting bamboo” by Aung Kyaw Zaw from Myanmar
- Second place – “Floating Bamboo Garden” by Klienne Eco from the Philippines
- Third place – “Bamboo Architecture Building” by Moe Wai from Myanmar



ACTION RESEARCH & COUNTRY SUPPORT

INBAR continued to pilot case studies and facilitate the exchange of best practices across its Member States.





Africa

A powerful catalyst for upgrading bamboo supply chains in East Africa

In 2024, the Dutch-Sino East Africa Bamboo Development Programme (Phase II) concluded with major accomplishments. With generous funding from the Ministry of Foreign Affairs of the Netherlands, the project successfully implemented a range of technical skill development initiatives, benefiting 172 individuals through specialized training. It supported 47 SMEs with training on the bamboo value chain and industrial product development, enhancing market opportunities. Additionally, two Technical and Vocational Education and Training (TVET) curricula were developed — one in Kenya and one in Uganda — alongside two teacher training programs to strengthen education in the sector. Two charcoal briquetting units were established, benefiting 628 women, while 35 large-scale and 100 small nurseries produced a total of 475,725 plants. The project also led to the establishment of 283 hectares of new bamboo plantations and the sustainable management of 257 hectares of forests and farms, directly benefiting 750 people. A feasibility

study for a bamboo carbon credit project in Uganda was also completed, leading to the signing of a Letter of Intent, pending final project contracting.

To further enhance impact, the project supported six multi-product supply chains and 31 cooperatives, benefiting 3118 people. It played an instrumental role in the approval of Ethiopia's Interim National Standard for Forest Stewardship Certification (FSC). Knowledge generation and facilitating investment opportunities were also a priority, with two journal papers published, an investor study tour in Uganda for 14 investors and participation in the European Bamboo Expo 2024. Additionally, an international study tour to China was organized for 13 participants, providing exposure to best practices in bamboo value chain development. These efforts collectively contributed to strengthening sustainable bamboo production, market linkages and environmental conservation across East Africa.

Restoring landscapes and reviving livelihoods in Cameroon

Another major project came to a close in Africa. The Restoration Initiative

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Workshop on strengthening climate resilience, green jobs and sustainable livelihoods for communities near the Kimbi-Fungom National Park in the West and North-West Regions of Cameroon.



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Schoolchildren visited INBAR CARO's nursery to see firsthand how bamboo grows as part of Cameroon's Youth Day.

(Cameroon), funded by the Global Environment Facility, continued to build on its commitment to environmental sustainability and biodiversity conservation, successfully restoring 228 hectares of land with bamboo, non-timber forest products (NTFP) and mangrove plantations. Additionally, 473 hectares of forest were brought under improved management to enhance biodiversity. The project's climate impact was significant, with direct mitigation of 72,312.91 tonnes of CO₂ equivalent (tCO₂eq) and an indirect reduction of 326,927 tCO₂eq. To support reforestation efforts, 5092 NTFP and 542 bamboo plants were produced and distributed across three project landscapes. Policy support and knowledge sharing was also prioritized through the development and the mainstreaming of an Agroforestry Notebook and the publication of a Forest Landscape Restoration manual on good practices, ensuring that lessons learned would contribute to future related initiatives.

In fostering sustainable trade and innovation, the project developed and validated an online platform via webpage and mobile app for data collection, trade and information exchange between bamboo and NTFP suppliers and

buyers. In addition, to further support value chain development, 50 bamboo processing hand tools were distributed to improve craftsmanship in the Mbalmayo landscape. Through these efforts, the project strengthened sustainable land management, promoted carbon sequestration, supported Cameroon's national degraded landscape restoration efforts and enhanced economic opportunities for local communities.

Empowering Ghana's bamboo industry with vital training

The project on Developing Bamboo and Rattan-based Enterprises for Sustainable Livelihoods and Income Generation in Ghana was launched in 2024 under triangular cooperation between the Ministry for Economic Cooperation and Development of the Federal Republic of Germany, the Government of Ghana and India-GIZ. Under the ambit of an existing triangular pilot project in Ghana, a two-week intensive training program for two master trainers was conducted on bamboo treatment, processing, product design and development at the Bamboo & Cane Development Institute, Agartala, India. This specialized training aimed to enhance technical expertise and equip



participants with the skills needed to support bamboo sector development in Ghana.

Strengthening climate resilience with bamboo

INBAR and partners are implementing the Increasing Local Communities' Resilience to Climate Change through Youth Entrepreneurship and Integrated Natural Resources project in Cameroon. The project benefits from financial support from the Adaptation Fund, and is being administered by IFAD and Cameroon's Ministry of Environment, Protection of Nature and Sustainable Development. In 2024, the project advanced ecological restoration by establishing a 14-km bamboo natural fence in buffer and ecologically fragile zones: 12 km in Benoué National Park and 2 km in Waza National Park. It also restored 68 hectares of degraded lands within Waza, Benoué and Kimbi-Fungom National Parks with 13,838 bamboo seedlings. Community empowerment was another key focus, with 524 individuals trained in bamboo eco-entrepreneurship and agro-silvopasture. Five nurseries were also established across different intervention zones, producing nearly 28,000

seedlings. In collaboration with the University of Dschang, a seed bank and three research plots were set up. Finally, a restoration strategy and an eco-business manual were published to guide sustainable practices.

Farmers reap the benefits of exchange, equipment and trainings

The Commodity Value Chain Development Support Project Phase II (PADFA II) - INBAR Initiative broke new ground in building a robust bamboo value chain and enhancing the livelihoods of smallholder farmers in Cameroon. The project facilitated a study tour to China for government delegates from Cameroon, fostering international knowledge exchange. Moreover, two preparatory field visits were organized to project intervention sites, and two farmer field schools were established in collaboration with two cooperative groups. To directly support smallholder farmers, approximately 2000 bamboo seedlings were distributed. Technical capacity was also targeted for improvement, drafting four manuals in English and French on the production of bamboo pallets and drying racks.

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INBAR EARO joins hands with Ethiopia's Green Legacy Initiative, planting indigenous bamboo to boost environmental conservation and climate change mitigation.

Improving Ethiopia's economy and climate resilience

With major funding from AECID, the project Building the Circular Economy and Climate Change Resilience through Bamboo Supply Chain Development in Ethiopia progressed smoothly in 2024. The project significantly boosted bamboo cultivation, producing 61,499 plants across five nurseries and supporting partner nurseries in South Ethiopia and Sidama Regions to grow another 10.74 million bamboo seedlings. Additionally, 50.5 hectares of degraded land were restored with indigenous bamboo species. To enhance skills and economic opportunities, four training sessions were conducted for 100 youth and women on sustainable bamboo management, charcoal production and semi-processing tools operation. A dedicated workshop for bamboo storage and processing was also built.

Reinforcing the critical nature of enterprise development, the project facilitated the participation of seven bamboo SMEs in national trade fairs and exhibitions while equipping five SMEs with tools, machines and equipment to improve product quality and boost income. Bamboo mapping and monitoring were conducted for 916 homestead farms with the INBAR Bamboo Inventory app. Finally, a rapid assessment study on bamboo products, markets and supply chains in Addis Ababa, Sidama and Gamo Zone was prepared and disseminated to guide healthy sector growth.

Laying the foundation for bamboo sector development in six countries

Under the ongoing project Bamboo Sector Development of Democratic Republic of Congo, a key strategic meeting was held with the country's Ministry

of Agriculture. In addition to that, an action plan for the implementation of a bamboo resource assessment as well as bamboo value chain assessment was prepared to help stakeholders acquire vital knowledge about local resources and economic configuration.

Chad's Bamboo Sector Development project concluded in 2024. Some key outputs from this project included a national bamboo resource assessment and bamboo value chain analysis, both of which received the validation of the Government of Chad. These assessments generated critical data to support the sustainable development of the country's bamboo sector. Building on these efforts, the project also initiated the development of Chad's National Bamboo Strategy, which ultimately seeks to create an enabling framework for long-term policy and investment in the bamboo sector.

Togo's project on Bamboo Sector Development also wrapped up in 2024. Meaningful progress was made on completing the bamboo national resource assessment and bamboo and rattan value chain analysis. The country's National Bamboo and Rattan Strategy is completed and awaiting a national launch.

A Malawi-based project on bamboo sector development is currently ongoing. In 2024, its bamboo resource assessment study was published. At the same time, the bamboo and rattan value chain assessment study as well as the bamboo roadmap study are both in the final stages of completion.

In Burundi, a new bamboo sector development project was initiated. Altogether, a bamboo resource assessment, value chain analysis and bamboo policy analysis were all initiated in 2024. These studies will focus on

understanding the countries' quantity and quality of bamboo and rattan resources and mapping the distribution, identifying key players and their roles, and developing policies that promote the sustainable resource management and development.

Nigeria, the final country in Africa that is benefiting from a Bamboo Sector Development project, saw the undertaking of its own bamboo national resource assessment, with results to inform future sector planning and development.

Latin America and the Caribbean

Revitalizing Ecuador with bamboo-driven growth

In Ecuador, the project Support for Economic and Productive Reactivation in the Province of Manabí through Sustainable Development with Bamboo delivered tangible impacts, greatly improving local livelihoods. In 2024, the project strengthened the bamboo sector by establishing four associations, linking 70 farmers, processors and industry stakeholders. In total, 252 farmers received training on sustainable bamboo management, while 45 technicians were trained in bamboo construction. Additionally, 72 beneficiaries participated in Community Savings Banks to strengthen their bamboo production processes. To support informed decision-making, five studies were prepared, covering topics such as bamboo supply estimation across seven municipalities, export models and operation costs, public-private management, public procurement for construction with bamboo, and a Communal Housing Plan with indicators for sustainability, energy efficiency and climate change mitigation.

Major pieces of equipment were fabricated, including a mobile preservation tank capable of processing 75 culms per day and solar bamboo dryer at 400 culms per day. To promote sustainable practices, 252 basic kits were distributed to farmers on the sustainable management of bamboo forests and farms. The project also facilitated 13 agreements with the Ministry of Urban Development and Housing and local governments for bamboo house construction. As part of demonstration efforts, three productive structures — a sheep pen, nursery (built) and cattle corral — were designed and built, highlighting the practical uses of bamboo for rural development.

Synergistic development across Latin America and the Caribbean

INBAR and key partners in Latin America worked closely to implement the project Promote Bamboo as a Nature-based Solution for Livelihood Development and Environmental Management for Climate Change Mitigation and Adaptation in the Latin American and Caribbean Region. Spanning Costa Rica, Panama, Cuba, the Dominican Republic, Colombia, Ecuador and Peru, the project focuses on enhancing the bamboo sector across countries in Latin America and the Caribbean Region through strategic stakeholder engagement, policy research and capacity building.

In 2024, rapid assessments of bamboo resources and markets were conducted to analyze the bamboo sector stakeholders in Panama, Cuba, Costa Rica and the Dominican Republic. As a result, key coordination platforms have been established, such as the National Bamboo Network in Costa Rica, a Roadmap for the National Bamboo Commission in Panama, a draft proposal for the Comprehensive Bamboo



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Projects in Latin America are demonstrating bamboo's potential as a low-carbon construction material.

Development Plan in Cuba, and the consolidation of the Bamboo Sectoral Board in the Dominican Republic. Also, three studies on policies that impact the bamboo sector were completed in Costa Rica, Panama and Cuba, with ongoing research in the Dominican Republic.

The project also undertook a regional study on the bamboo market in collaboration with the National University of Costa Rica. Substantial efforts were made to build capacity, conducting 27 training programs on sustainable bamboo management and value addition that benefited 437 individuals. Furthermore, the establishment of four Bamboo Demonstrative Scenarios in construction, charcoal, watersheds and ecotourism, and soil and water conservation highlights the project's efforts to showcase sustainable bamboo practices and promote holistic growth in the region. On the communications front, the project promoted bamboo sector initiatives through a wide range of articles, videos, fliers, graphic designs and a strong social media presence. The V Latin American and Caribbean Bamboo Symposium in Costa Rica was organized,

which had participation of over 150 bamboo sector stakeholders from at least 18 countries. Moreover, a Bamboo Study Tour to Colombia was organized with participants from Costa Rica, Cuba, Panama and the Dominican Republic.

Championing sustainable development for economic recovery

In Ecuador, a project on Post-Pandemic Local Economic Reactivation of the Province of Manabí by Strengthening Sustainable Construction with Bamboo came to a close. The project made great strides in strengthening bamboo construction through education, training and research. An 11-month training course was launched for 87 students, alongside four short-term courses for 82 bamboo construction professionals. A study tour for 47 students provided hands-on learning from bamboo masters in Las Tunas, Manabí. Additionally, a new labor competency profile for bamboo construction professionals is now under evaluation by the Ministry of Labor. Finally, five research projects related to sustainable bamboo construction are underway in collaboration with universities in both Ecuador and the US.



Building a future greener, stronger with bamboo

Sustainable construction with bamboo is also becoming a reality in Ecuador through the project Bio-Economy Generated in Corridors Free of Deforestation through Promoting the Sustainable Construction with Bamboo. The project has trained 297 beneficiaries on bamboo restoration, sustainable management and value addition, while providing 93 toolkits to outstanding producers to enhance their sustainable practices. Four nurseries were built and one upgraded, leading to the production of 4023 bamboo plants. *Guadua angustifolia* was planted across 7.22 ha, and 17.77 ha of *Dendrocalamus asper* and *G. angustifolia* brought under sustainable management regimes. Ten sustainable management plans were prepared, and four farmers received the first Good Forestry Practices certification from the Ministry of Agriculture, delivered at a special event by Minister Danilo Palacios. Additionally, 21 beneficiaries participated in an exchange tour to Manabí for knowledge sharing on bamboo preservation and collection, and a bamboo preservation and treatment center was also upgraded.

The project also strengthened enterprises by training 16 businesses in administrative, financial, tax and organizational development while providing basic tools for entrepreneurial endeavors. At the same time, legal recognition was secured from the Association for Forest Production of Bamboo alongside two awareness and validation workshops on sustainable bamboo management, with the final Good Practices Guide delivered to the Ministry of Agriculture for future implementation. Outreach efforts included the development of brochures, a logo, a video and a website as well as social media platforms for the Bamboo Collection Center. Robust participation across four fairs and a business roundtable helped position bamboo products in the market.

Spreading innovation across a border region of Peru

Continuing until 2026, the project on Productive and Technological Innovation with Bamboo in the Cross-Border Regions of Peru — Bambú Nororiente played an active role in injecting vitality into the bamboo industry in Peru. In 2024, fourteen bamboo roundtables were held, engaging 359 participants

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*Bamboo plantations
growing across
northeastern Peru.*



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In Chishui, China, a workshop aimed to empower bamboo weavers and cultural inheritors by enhancing their skills in innovative design.

from 86 institutions and leading to two draft municipal ordinances under legal review in Bagua and Castilla Municipalities. Four cooperatives and three producer organizations were supported via five workshops, delivering benefits to 96 individuals. A Training of Trainers on sustainable bamboo management put expert knowledge in the hands of 42 beneficiaries, while 80 hectares of bamboo farms were brought under sustainable management with the distribution of 80 bamboo tool kits. Other training sessions on bamboo silviculture and preservation techniques benefited 1664 individuals under Bamboo Farmer Field Schools.

In addition to these endeavors, concrete results included the establishment of three bamboo preservation centers, the construction of two classrooms with support from 40 French volunteers and training workshops on bamboo construction and charcoal for 67 beneficiaries. Six SMEs participated in five fairs to promote bamboo products, and three videos were produced on bamboo management and preservation. The project also co-organized National Bamboo Week, powerfully raising awareness among over 400 participants and further

promoting sustainable bamboo use and development.

Asia

Promoting sustainable actions at World Heritage Sites

The United Nations Educational, Scientific and Cultural Organization and China Youth Development Foundation (UNESCO-CYDF) Mercedes Benz Star Fund FIT (Funds-in-Trust) project Conservation and Management of World Heritage Sites in China Phase IV: Bamboo for Carbon Neutrality in Rural Areas capped off its achievements in 2024. With generous funding from UNESCO, the project promoted sustainable bamboo practices and cultural heritage through a range of activities including public events, training and education. Two major events themed “Green and Low Carbon Consumption at a World Heritage Site” were co-organized by INBAR and UNESCO in collaboration with the Chishui Forestry Bureau. Additionally, a training workshop on Innovative Pattern and Product Design of Bamboo Weaving was organized for 35 participants.



To empower the next generation of bamboo leaders, the Youth Education Program on Empowering the Youth for Bamboo Weaving made a positive impact on 320 students. Moreover, key publications were developed and published, including China's Bamboo-Related Intangible Cultural Heritage as well as Innovation in Bamboo Weaving and Guidelines for Green and Low-Carbon Consumption at World Heritage Sites, helping to guide future stakeholders in intangible heritage crafts and best practices in sustainable consumption.

Learning about carbon sequestration in Anji

In 2024, the project Utilization of Atmospheric Measurements to Establish the Carbon Sequestration Capacity of Bamboo Forests advanced climate action and key research in the bamboo sector by conducting a third-year assessment of carbon stock across 30 sampling plots in Anji, and also by preparing the third-year emissions inventory report for the studied bamboo forest area in Anji County. Additionally, INBAR, The World Meteorological Organization and Zhejiang University of Technology organized an international conference on

methodologies for estimating the carbon sequestration capacity of forests, shining a light on bamboo's critical role in climate change mitigation.

Advocating for bamboo in both policy and certification

Working closely with the World Conservation Monitoring Centre of the UN Environment Programme, the project GCRF Trade, Development and the Environment Hub (Trade Hub) saw two major developments. A policy synthesis brief titled, "Bamboo's Solution to Plastic Pollution," was published to demonstrate bamboo's potential as a sustainable alternative to plastics. Also, project staff prepared and published the journal article, "Global Bamboo Forest Certification: The State of Art," in *Advances in Bamboo Sciences* as an important contribution to global knowledge on bamboo certification and sustainability.

Utilizing glued laminated bamboo to green the construction industry

Two main accomplishments emerged from previous work related to the project Life Cycle Assessment (LCA) Research

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Experts visited atmospheric carbon measurement sites in Anji County, China, as part of the International Conference on Carbon Storage in Forests.

on Carbon Emission of Structural Glued Laminated Bamboo Products. An LCA on structural glued laminated bamboo products was conducted, with a promising article submitted to the *Journal of Cleaner Production*. Additionally, a new research initiative was launched into the LCA of glued laminated bamboo structures compared to conventional materials such as concrete, steel and timber, which will generate important insights into sustainability in bamboo construction.

Collaborating for innovation in structural engineered bamboo

Under the research project on Leadership of Bamboo Construction Enterprises in China, researchers met with Shandong Jianzhu University to collaborate in applying as a joint partner for the Engineer Technology Innovative Centre of China's Ministry of Housing and Urban-Rural Development. Future research within the project scope aims to target several key manufacturers of structural engineered bamboo products and their latest demonstration structures across Zhejiang, Shandong, Hunan, Jiangxi and Sichuan Provinces in China.

Bio-energy and livelihoods: Twin pathways for farmer empowerment in India

In India, the GIZ-INBAR project Promote Bamboo Plantations for Bio-Energy and Other Livelihoods finished in 2024. Throughout the year, project implementers organized 60 training and awareness programs focusing on scientific bamboo plantation and management techniques benefiting 4000 farmers, farmer leaders and local facilitators. To further boost plantation efforts, over 4000 farmers received quality planting materials, ensuring sustainable and productive bamboo cultivation. Moreover, a series of

animated audio-visual modules on bamboo propagation techniques, plantation methods, harvesting and post-harvesting management techniques were prepared for awareness building and training purposes.

Taking stock of northeast India's bamboo resources

The northeastern region of India also benefited from INBAR's efforts. Building on the project work for The Assessment of Bamboo Resources, Enterprise Development Needs and Opportunities in Northeast Region of India and Suggestions for Appropriate Infrastructure Development, a species-specific bamboo resource assessment study was conducted using a combination of high- and medium-resolution imagery. Moreover, an on-farm bamboo resource assessment across 1000 small-holder farms was undertaken using a mobile app. A value chain analysis, industrial needs assessment and market study were also carried out across the northeast region. Based on these insights and more, a Bamboo Sector Development Strategic Roadmap was prepared to guide the development of the sustainable bamboo industry in northeastern India.

Strategic preparations for Pakistan's bamboo industry

Finishing in 2024, the Bamboo Sector Development of Pakistan project broke ground in two major ways. First, a bamboo value chain analysis and a feasibility study were both published, generating valuable insights. Second, a national bamboo strategy validation workshop was organized, bringing together stakeholders to finalize the strategic framework to guide the industry's sustainable development. These will lay the policy bedrock for the holistic development of Pakistan's nascent bamboo industry.



▲ *INBAR is lending its technical expertise to a study of bamboo species across northeastern Peru.*

KNOWLEDGE SHARING & LEARNING

INBAR shared knowledge and coordinated training programs to raise awareness and build capacity among its Member States.



Sharing knowledge with the world: Workshops, webinars and study tours

From 1 to 7 October, a bamboo study tour was held in El Paraíso del Bambú in Colombia as part of the AECID-funded ARAUCLIMA program. Led by Ximena Londoño, the initiative brought together 12 participants from Costa Rica, Cuba, Panama and the Dominican Republic for in-depth training on bamboo and guadua management and utilization. The program combined theory and practice, covering neotropical bamboo taxonomy, propagation and plantation techniques, guadua construction and ecosystem services. Visits were paid to century-old guadua structures, nurseries, plantations, businesses and processing facilities. The study tour reinforced the importance of ongoing training in bamboo-related industries and encouraged greater knowledge exchange between participants. The tour reinforced bamboo's role in climate mitigation and rural development while fostering regional collaboration and future capacity-building initiatives.

Near the end of 2024, an EU-supported exchange in Ecuador introduced Guyanese forestry officials and community representatives to bamboo's economic and environmental potential. Supported by the European Union and implemented by Expertise France and INBAR, the study tour explored bamboo's role in land restoration, sustainable industries and governance. The delegation visited key bamboo sites, met with local officials and business pioneers, and gained insights into bamboo's various uses in construction, handicrafts and carbon sequestration. Ecuador's robust bamboo sector highlighted the plant resource's potential for rehabilitating mined-out areas in Guyana, aligning with its Low Carbon Development Strategy 2030. The study tour ultimately fostered

South-South cooperation and bolstered regional collaboration on bamboo development with support from the EU.

The Second International Young Scientists Forum kicked off on 12 December in Hangzhou under the theme, "Bamboo Resources in a Changing Climate." The forum brought together early-career researchers to discuss bamboo's potential for carbon sequestration, sustainability, and innovation. Lu Wenming, Deputy Director General of INBAR, delivered a speech highlighting bamboo's capability to provide renewable and locally sourced energy, durable construction materials, rapid soil restoration, diverse industrial products, ecosystem services and plastic substitutes. Other experts in attendance emphasized its use in livelihoods and rural development frameworks, mitigation strategies, sustainable management practices, technologies and businesses, and conservation efforts.

A landmark workshop was held from 20 to 21 December in Guwahati, India, organized by INBAR, the Asian Development Bank and the National Bamboo Mission. Focused on unlocking financial opportunities for the bamboo sector in North East India, the event gathered over 90 stakeholders from private enterprises, financial institutions and government agencies to assess bamboo value chains, market trends and financial needs. Day one showcased discussions on sector challenges and solutions, while day two centered on financial aspects, with insights from a range of financial experts and government representatives. Ultimately, the workshop highlighted the need for key policy reforms, investment promotion and new strategic financing models to support bamboo enterprises and enhance economic and environmental benefits in the region.



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Peru continues to foster a culture of sustainable bamboo management through hands-on training.

On 22 May, International Day for Biological Diversity, INBAR and partners launched a webinar on the Evaluation of Carbon Sequestration Capacity of Bamboo Forests, sharing crucial data from a bamboo forest carbon sequestration project funded by the Quadrature Climate Foundation. Experts at the session highlighted traditional (bottom-up) and observations-based (top-down) methods, using atmospheric measurements and inverse modeling for generating accurate greenhouse gas estimates, along with a range of other related topics. Given bamboo's rapid growth and high carbon uptake, these methods can be instrumental in climate change mitigation schemes. INBAR developed a bamboo carbon assessment manual to aid in conducting forest inventories and assessments. New cost-effective measurement methods are now under development as part of the carbon sequestration project.

From 28 to 29 August, INBAR LACO, in collaboration with partners in Ecuador and Peru, hosted a virtual training course on Basic Knowledge on Regulations, Inspection, and Partnerships in Bamboo Construction. The course aimed to strengthen the technical capacities of

public officials in planning, managing, executing and overseeing bamboo construction projects, covering topics like Ecuadorian construction standards, public procurement and strategic partnerships in Peru. The course attracted 68 participants from 23 institutions across Peru, Ecuador, Colombia and Costa Rica, highlighting the growing regional interest in sustainable bamboo construction. Participants who scored 85% or higher on a knowledge test received certificates of completion. This initiative underscores INBAR's commitment to promoting bamboo as a viable, eco-friendly construction material and fostering regional collaboration in sustainable development.

The webinar, *Harnessing the Potential of Bamboo for a Greener Future: Energy and Beyond*, held on 26 September, united over 150 global participants to explore bamboo's role in sustainable energy production, climate change mitigation and community-driven economic development. Organized by INBAR, the event highlighted bamboo's rapid growth, natural regeneration, adaptability and potential as a renewable bioenergy source. Experts also discussed bamboo charcoal, briquettes and biofuel



initiatives from East Africa, India and Brazil, showcasing its environmental and economic benefits. By fostering cross-regional dialogue, the webinar emphasized bamboo's potential as a viable alternative to fossil fuels and a driver of economic resilience in vulnerable communities. This event marked a significant step in promoting bamboo as a nature-based solution for energy security and climate adaptation, encouraging greater policy support and investment in the sector across the Global South.

On 24 October, a webinar on Bamboo Policy Integration Across Continents kicked off, hosting 80 stakeholders in the bamboo sector to discuss the resource's capability to promote socio-economic development, climate change mitigation and environmental sustainability, aligning with the UN Sustainable Development Goals. Organized by INBAR's Regional Office for Latin America and the Caribbean alongside key partners, the event showcased policy innovations from China, India, Africa and Latin America, including Peru's National Bamboo Strategy (2022-2025). Discussions emphasized integrating bamboo into national frameworks to

enhance livelihoods, energy security and climate resilience. The webinar, closely linked to the ongoing work of INBAR's Regional Offices across three continents and their field projects, emphasized the critical role of bamboo in achieving sustainable development through policy integration. It further highlighted INBAR's leadership in promoting bamboo as a nature-based solution on a global scale, fostering cross-continental collaboration and vital knowledge exchange.

The 2024 International Online Seminar – Bamboo in Africa: Pathways to Sustainable Construction and Development was held from 13 to 27 November, inviting experts from nine countries in Africa and the EU to explore the multifaceted role of bamboo in sustainable construction across the African continent. This seminar emphasized Africa's unique challenges and opportunities, while aiming to uncover innovative uses of bamboo that cater to local needs while promoting global sustainability. A global audience was in attendance, including students, educators, researchers, industry professionals and members of the public. Since its initiation in 2020, this

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Bamboo craftsmanship shined at the 8th International Handicrafts Exhibition of Cameroon in Yaoundé.



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The Second International Young Scientist Forum united youth from around the world to showcase bamboo as a powerful resource in the fight against climate change.

online platform organized by INBAR's Bamboo Construction Task Force has fostered a continuing dialogue on research achievements, technological advancements and educational initiatives that leverage bamboo as a sustainable construction material in different countries, sharing the latest knowledge with thousands of people from around the world.

Training a new bamboo workforce with curricula

In Kenya, INBAR and the Kenya Forestry Research Institute have played key roles in developing a TVET curriculum for bamboo technology, set to be introduced in the 2025-2026 academic year. The curriculum, created by TVET-Curriculum Development, Assessment and Certification Council and emerging through the Dutch-Sino East Africa Bamboo Development Programme (Phase II), covers bamboo nursery techniques, propagation methods, bamboo cultivation, post-harvest treatments and value addition. It aims to foster sustainable development and economic growth in Kenya's bamboo sector, while training a skilled workforce and cultivating an entrepreneurial spirit

in the country. This curriculum closely aligns with Kenya's strategy to prosper in the rapidly expanding bamboo industry in the region through policy support, practical training, multi-resource utilization and sustainable collaborative endeavors.

Also as part of the Dutch-Sino East Africa Bamboo Development Programme (Phase II), Uganda's Nabeya Forestry College introduced a certificate and diploma course in Bamboo Resources and Technology, approved by the National Curriculum Development Centre and the National Council for Higher Education for the 2024-2025 academic year. The curriculum blends theory and hands-on learning to equip learners with skills for employment, entrepreneurship and business creation in the bamboo sector. The curriculum's development and implementation are driven by Uganda's favorable bamboo policy as well as Uganda's Vision 2040, with the overarching goals of enhancing skills, promoting sustainability and generating economic opportunities, driving economic growth, environmental conservation and industrial innovation in the bamboo sector.



Surge of standards

INBAR's four Task Forces were industrious as always throughout the year. ISO TC165 / The Task Force on Construction had several key achievements, participating in the 26th ISO TC plenary in Nanjing, publishing one ISO standard and continuing to develop two others. The published standard (ISO 7567:2024 Bamboo structures – Glued laminated bamboo – Product specification) sets the standard for structural glued laminated bamboo products, marking a historic milestone as the world's first international standard for engineered bamboo products. Major progress was also made on co-writing a manual on round pole bamboo construction with Base Bahay Foundation, set to publish in 2025.

The Task Force on Rattan continued to refine two Voluntary Guideline Standards (VGS): 1) Inventory techniques of rattan stocks, and 2) Test methods for the mechanical grading of rattan canes. The Task Force on Bamboo for Renewable Energy produced an advanced draft of a VGS on bamboo biochar production for use in agriculture. Finally, the Task Force on Sustainable Bamboo

Management produced two advanced VGS drafts: 1) Guideline for certification of quality planting material of bamboo and 2) Guideline for bamboo nursery management and production of quality planting material of bamboo. These VGSs are crucial components of INBAR's advocacy work to encourage sustainable practices that are non-binding in nature, functioning as frameworks for future green policies.

Forest Stewardship Council (FSC) certification is a globally recognized standard for responsible forest management, ensuring sustainability, environmental conservation and socio-economic benefits for the local community. Last year, the Ethiopian Forestry Development secured 1000 hectares of bamboo forest in the Kafa Zone for FSC Interim Forest Stewardship Standard certification, with support from INBAR's Dutch-Sino East Africa Bamboo Development Programme and the UK-based Soil Association Certification Limited. Ethiopian FSC certification will secure premium prices for bamboo products, making them highly competitive in global markets while ensuring fair wages, ethical labor practices and community benefits.

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ISO/TC165 WG12
experts engaged in on-
site discussions during
the plenary meeting in
Nanjing, China.

Publications

A full list of INBAR publications can be found on the online Resources Center: www.inbar.int/resources/.

Annual Highlights

INBAR Annual Highlights 2023 (English, French, Spanish, Chinese)

Bamboo and Rattan Update

Volume 5 Issue 1 (March) Ending Poverty with Bamboo & Rattan (English, French, Spanish, Chinese)

Volume 5 Issue 2 (June) Gender Equality With Bamboo & Rattan (English, French, Spanish, Chinese)

Volume 5 Issue 3 (September) Powering the World With Bamboo (English, French, Spanish, Chinese)

Volume 5 Issue 4 (December) Bamboo Skylines: Cities of the Future? (English, French, Spanish, Chinese)

Bamboo as a Substitute for Plastic

Bamboo as a Substitute for Plastic Fact Sheet (English, French, Spanish, Chinese)

Three-year Action Plan for Accelerating the Development of the Bamboo as a Substitute for Plastic (BASP) Industry in China (English)

General Information

Guía Técnica para Fiscalizadores Construcciones de Bambú (Spanish only)

Infografía: Transformación del bambú (Spanish only)

Infografía: ABC del manejo técnico del bambú (Spanish only)

Bamboo, Rattan and Biodiversity: Fact Sheet (English, French, Spanish, Chinese)

Infografía: El bambú y su cadena de valor (Spanish only)

ISO 5257:2023 Bamboo structures - Engineered bamboo products - Test methods for determination of mechanical properties using small size specimens (English)

Guidelines for Green and Low-Carbon Consumption at World Heritage Sites (English, Chinese)

China's Bamboo-Related Intangible Cultural Heritage and Innovation in Bamboo Weaving (English, Chinese)

Trade Reports

Trade Overview 2022: Bamboo and Rattan Commodities in the International Market (English, Chinese)

Working Papers

Modelos de Alianzas Público-Privadas para el Desarrollo en la Cadena de la Construcción con Bambú (Spanish only)

Estimativa e Análise dos Recursos de Bambu e Distribuição de Espécies no Brasil (Portuguese only)

Mercado e cadeia de valor do bambu no Brasil (Portuguese only)

Roadmap do Bambu para o Brasil, Um Caminho Sustentável a Seguir (Portuguese only)

Rapid Assessment of the Bamboo Value Chain in Ethiopia: Products, Markets, and Supply Chains

Revisión y análisis sistemático de políticas nacionales y/o locales que contribuyen o limitan el desarrollo del sector del bambú en Panamá (Spanish only)

Análisis de Políticas para el Desarrollo del Bambú en Costa Rica (Spanish only)

Evaluación del recurso bambú en Costa Rica (Spanish only)

Evaluación Rápida Cadena Bambú Rep Dominicana UAFAM (Spanish only)

Evaluación Recursos y Actores Bambú Panamá (Spanish only)

Mobile App-Based Bamboo Resource Assessment in Punjab, Pakistan (English)

Value Chain Analysis of Bamboo in Pakistan (English)

Academic articles published by INBAR staff

Alexandre Meybeck, Lorenzo Cintori, Romina Cavatassi, Vincent Gitz, Alashiya Gordes, Isabel Albinelli, Carolyn Opio, Tarub Bahri, Nora Berrahmouni, Yanxia Li, Marco Boscolo. 2024. Natural resources management for resilient inclusive rural transformation. *Global Food Security*, Volume 42. ISSN 2211-9124, <https://doi.org/10.1016/j.gfs.2024.100794>.

Kalanzi, F., Kiyangi, I., Mwanja, C., Agaba, H., Malinga, M., Reza, S., & Jayaraman, D. (2024). Morphological Characteristics and Growth Performance of *Bambusa vulgaris* Schrad. Ex J. C. Wendl in Selected Agro-Ecologies of Uganda. *East African Journal of Forestry and Agroforestry*, 7(1), 76-86. <https://doi.org/10.37284/eajfa.7.1.1802>

Liu, K., Durai, J., Shi, Y., Xiong, Z., Yang, J., Symeonidis, A., & Escamilla, E.Z. (2024). Life cycle assessment (LCA) of the industrial production of structural glued laminated bamboo. *Journal of Cleaner Production*, Volume 485, 14436. <https://doi.org/10.1016/j.jclepro.2024.144367>

Lohani, T.K., Seboka, Y., Biliso, W.B., Reza, S., & Durai, J. (2024). An assessment of bamboo charcoal briquettes derived from the two main bamboo species in Ethiopia. *Advances in Bamboo Science*, Volume 9. <https://doi.org/10.1016/j.bamboo.2024.100106>.

Nadir, S., Kaushal, R., Kumar, A., Durai, J., Reza, S., Ndufa, J., Ronoh, E., Elema, M., Thiga, J., & Kumar, M. (2024). Hydrological Response of Bamboo Plantations on Soil–Water Dynamics in Humid and Semi-Arid Coastal Region of Kenya. *Water*, 16(13), 1894. <https://doi.org/10.3390/w16131894>

Yanxia Li, Yanjie Hu, Kun Li, 2024. Global bamboo forest certification: The state of the art, *Advances in Bamboo Science*, Volume 7. <https://doi.org/10.1016/j.bamboo.2024.100077>

Yue Zhang, Liangru Wu, Yanxia Li, Jinlai Yang, Huiming Yang, Yihe Zhao and Guangjing Chen, 2024. Bamboo shoot and its food applications in last decade: An undervalued edible resource from forest to feed future people. *Trends in Food Science & Technology*, Volume 146. <https://doi.org/10.1016/j.tifs.2024.104399>

Meetings

19th session of the UN Forum on Forests, 6 to 10 May, New York, USA

European Bamboo Expo 2024, 16 to 18 May, Dortmund, Germany

Congo Basin Forest Partnership Ministerial Meeting and Annual Meeting, 31 May to 5 June, Kinshasha, the Democratic Republic of the Congo

FAO 11th Global Bioenergy Partnership Week, 17 to 21 June, FAO HQ, Rome, Italy

XXVI International Union of Forest Research Organizations World Congress, 23 to 29 June, Stockholm, Sweden

African Carbon Market Conference, 24 to 26 July, Addis Ababa, Ethiopia

Summit of the Forum on China-Africa Cooperation (FOCAC), 4 to 6 September, Beijing, China

The 79th session of the UN General Assembly (UNGA 79), 10 to 24 September, New York City, USA

Summit of the Future, 22 to 23 September, New York City, USA

Sixteenth meeting of the Conference of the Parties (COP 16) to the Convention on Biological Diversity, 21 October to 1 November, Cali, Valle Del Cauca, Colombia

World Without Hunger Conference, 5 to 7 November, Addis Ababa, Ethiopia

UN Climate Change Conference (COP 29), 11 to 22 November, Baku, Azerbaijan

V Latin America and the Caribbean Bamboo Symposium, 19 to 23 November, Heredia, Costa Rica

The fifth session of the Intergovernmental Negotiating Committee on Plastic Pollution (INC-5), 25 November to 1 December, Busan, Republic of Korea

UN Convention to Combat Desertification – 16th session of the Conference of the Parties (UNCCD COP 16), 2 to 13 December, Saudi Arabia

The Second International Young Scientist Forum – Bamboo Resources in Changing Climate, 11 to 13 December, Hybrid

Activities

AECID Field Monitoring Session, 14 to 15 March, Portoviejo - El Carmen, Ecuador

Graduation Second Promotion Bamboo Workshop School for Sustainable Constructions, 15 March, El Carmen, Ecuador

Opening Ceremony Third Promotion Bamboo Workshop School for Sustainable Constructions, 6 April, Chone, Ecuador

Trainer of Trainers Final Evaluation and Graduation Ceremony in Sustainable Bamboo Management: IDB Project, 26 to 28 February, Tena, Ecuador

Inauguration of the Agroecological Store and Cultural Cafeteria Bamboo Structure, 22 March, Portoviejo, Ecuador

Bamboo Reforestation Activity, 26 July, Panama

INBAR International Photo Competition 2024, 22 April to 22 August, Global

International Horticultural Exposition Chengdu, 26 April to 28 October, Chengdu, China

AMUKINA bamboo preservation center receives “free of deforestation” recognition, 31 May, Tena, Ecuador

European Bamboo Expo 2024, 16 to 18 May, Dortmund, Germany

Inauguration of Ecotourism Bamboo Model and Demonstration Scenario in Oajaca, 18 September, Panama

Inauguration of Bamboo Model and Demonstration Scenario in Perez Zeledon, 23 July, Costa Rica

COFO 27 side event: Bamboo-based innovation to harness bioeconomy solutions, 24 July, Rome, Italy

2024 China International Fair For Trade In Services (CIFTIS), 12 to 16 September, Beijing, China

National Bamboo Week, 16 to 18 September, Peru

Bamboo Study Tour, 24 to 27 November, Perez Zeledon, Costa Rica

Trainings

Local Exchange of Experiences Amazonia – Bamboo Workshop School, 17 to 21 February, Manabi, Ecuador

Virtual and in-person course on bamboo bridges construction, 13 to 31 May, Canuto, Ecuador

Workshop in Construction: “Bamboo’s Sustainable Footprint”, 20 July, Dpto Cajamarca, Perú

Webinar OECD local skills week: Workforce developments and green investments: A focus on Latin America and the Caribbean, 25 July, Global

International Bamboo Exchange Experience Tour, 1 to 7 October, Colombia

Workshop in Construction: Bamboo Sustainable Footprint, 18 September, Global

Workshop in Construction: Bamboo’s Sustainable Footprint, 19 to 21 September, Bagua, Dpto Amazonas, Perú

International Online Seminar – Bamboo in Africa: Pathways to Sustainable Construction and Development, 13 to 27 November, Online

Webinar on Harnessing the Potential of Bamboo for a Greener Future: Energy and Beyond, 26 September, Online

International Bamboo Exchange Experience Tour: Central America and the Caribbean, 6 to 12 October, Panama, Costa Rica, Cuba, Dominican Republic

Webinar on Bamboo Policy Integration Across Continents: Lessons from Latin America, China, India and Africa, 24 October, Online

