

ANNUAL REPORT

International Network for Bamboo and Rattan



2012



In partnership for inclusive and green development

Message from the Chair and Co-chair



Tesfai Tede
Chair, INBAR Board of Trustees



Jiang Zehui
Co-chair, INBAR Board of Trustees

2012 was the 15th anniversary of INBAR's establishment. The 8th session of the INBAR Council, held in November, illustrated just how far INBAR has evolved as a development organization in its first 15 years. It was inspiring to hear from those present of their support for INBAR, their desires to develop further their bamboo and rattan economies, and their hopes of doing this with INBAR's help. Not only is this a credit to the work INBAR does, and to the way it works by building partnerships, sharing experiences and supporting green development, but it is also a credit to the support INBAR itself has received from its many partners. At 15, INBAR is truly coming of age.

Climate change is changing development priorities, and as the need for greater resilience to unpredictable and extreme climatic events increases in the next decades, along with longer term solutions to limiting global warming, bamboo in particular has been found to have significant potential to contribute solutions. INBAR's work to demonstrate new flood-resistant bamboo houses, bamboo charcoal as a substitute for wood charcoal, and the roles of bamboo in farming systems all address critical and long term problems. It is heartening that the results of this work are receiving such broad attention amongst INBAR's member countries, partners, and the world's development community.

At the Council session, delegates agreed to appoint the current Vice-Chair, Ethiopia, as the Chair, and to appoint Indonesia as the Vice-Chair, for the next biennium. The Board expresses its grateful thanks to the Government of Bangladesh, outgoing Chair, for its excellent support for the work of the Council, the Board and the Secretariat over the past two years, and is delighted to welcome Ethiopia as a worthy successor.

The Board of Trustees is delighted to extend its gratitude to the Host State for its considerable, and increasing, support to INBAR, as well as to the governments of Ecuador, Ethiopia, Ghana and India for support for INBAR's regional offices. We also thank INBAR's donors and the very many people and organizations with which INBAR works, who contribute so much to its success, and to the increasing success of bamboo and rattan-based development throughout the world.

Message from the Director General

2012 was a year of celebration and consolidation for INBAR. Celebration, in that we marked our 15th anniversary, and consolidation, as we deepened our relationships with our member countries.

A major highlight of the year was INBAR's continuing work with its partners on climate change. This year, the standard we and our partners developed for the management of bamboo for carbon credits was adopted by China, and INBAR is now developing an international standard from this that can inform development of similar standards throughout the bamboo-growing countries of the world. New partnerships with China and East Africa-based organizations will enable us to trial these standardized methodologies in five East African nations over the next few years, to test their broader applicability. Our work on bamboo charcoal has already led to many hundreds of hectares of avoided deforestation in Ethiopia and Ghana, and is providing more healthier-to-use fuels and stoves, which are expected to result in fewer respiratory illnesses, and provide sustainable income generation for producers.

In 15 years, INBAR has contributed to many changes in the role bamboo and rattan play in sustainable development. In the mid-1990's, practical realization of their potential for development was still a long way off, except in a few locations, notably parts of China, India and Ecuador, and this was one of the reasons INBAR was established.

Over the years, INBAR and its partners have developed and demonstrated various ways in which bamboo can contribute to alleviating poverty. Examples are the production of bamboo charcoal in Africa, and women-led bamboo incense-stick production in India. INBAR has enabled more accurate monitoring of trade with specific WCO bamboo and rattan custom codes, mapped bamboo species diversity, and developed new ways of managing bamboo forests that can preserve their biodiversity. INBAR has reached out to organisations and individuals to build partnerships for bamboo and rattan development and, for example, trained over 20,000 people in 2012 alone, from decision-makers to craftspeople, from householders to researchers in bamboo and rattan. We celebrated these, and many other achievements in November with partners and supporters from all over the world. At the event, participants issued the "Beijing Declaration" which shows the commitment to bamboo and rattan as agents for sustainable development of our member countries and other partners, and will provide a strong foundation for our work in the future.



Goosje Hoogendoorn
Director General

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The Council, Board and Staff

Council

The Council membership on 31st December 2012 comprised:

Argentina	Chile	India	Mozambique	Philippines	Tanzania
Bangladesh	China	Indonesia	Myanmar	Rwanda	Togo
Benin	Colombia	Jamaica	Nepal	Senegal	Tonga
Bhutan	Cuba	Kenya	Nigeria	Sierra Leone	Uganda
Burundi	Ecuador	Madagascar	Panama	Sri Lanka	Venezuela
Cameroun	Ethiopia	Malaysia	Peru	Suriname	Viet Nam
Canada	Ghana				

Board of Trustees

The 16th meeting of the INBAR Board of Trustees was held in November 2012:

Name	Nationality	Board Position
Tesfai Teclé	Eritrea	Chair
Jiang Zehui	China	Co-Chair
Maharaj Muthoo	India	
Gerardo Segura Warnholtz	Mexico	
Tachrir Fathoni	Indonesia	
Andrew Bennett	United Kingdom	
Wu Zhimin	China	
Coosje Hoogendoorn	Netherlands	Director General

Staff, Consultants and Advisors on 31st December 2012

Executive Management

Coosje Hoogendoorn (Director General)
Li Zhiyong (Deputy Director General)
Judy Zhu (Treasurer)
Ren Hong
Wang Dong

Environmental Sustainability Programme

Lou Yiping
Li Yinna
Li Yanxia
Liu Bo
Yang Hanmei
Yannick Kuehl

Livelihoods and Economic Development Programme

I.V. Ramana Raja Rao
Abraham Bobo
Bharat Parekh
Bedilu Kifle Gebretsadik
Bhargavi Motukuri
Carmelita Bergalona
Claire Parfondry
Donald Dickson Kibhuti
Esperanca Rosita Elias Chamba
Grace Emmanuel Luvanda
Jin Wei
Malavika Belavangala
Rajaonison Andrianjaka Hanitriniela
Semalawit Daniel Zegeye
Xie Yi

Trade Development Programme

Jolanda Jonkhart
Fu Jinhe
Li Xin
Liu Kewei
Nripal Adhikary
Oliver Frith
Wu Junqi

NTFP Global Partnership Programme

Manoj Nadkarni

Regional Office Teams

Adriana Bastidas
Alvaro Cabrera
Biruk Kebede
Doris Cangas Piarpuazan
Kwaku Oppong
Lorena Noite
Luis Puente
Michael Kwaku
Nana Wiafe Zodiak Akenten
Osei Kwame Junior
Paulina Soria
S. Anand
Shimelis Beza beh Woldegiorgis
T.P. Subramony
Tsefaye Hunde
Tezera Chemet Teklewold

Membership Unit

Hao Ying
Pi Meiling

Development and Communications Unit

Dionne Cottrill
Li Kun

Networking and Partnerships Unit

Andrew Benton
Liu Qian
Zhu Zhaohua

Human Resources, Finance and Services Teams

Cao Yang
He Jun
Helen He
Ren Ping
Song Ji
Sun Shaohui
Tang Shaoxia
Yang Jianwei

An expanded, highly effective, network of committed stakeholders

Expanding and deepening bamboo and rattan partnerships: *Strong, effective synergistic partnerships for development with bamboo and rattan can bring benefits to all, from individuals to nations. In 2012, INBAR deepened its relations with its member states with two high-level workshops and the 8th biennial Council session, which brought together representatives of INBAR's member countries to review its progress. We developed formal partnerships with seven organizations in Asia and Latin America working in research, community-based development and technical training. With Zhejiang Agriculture and Forestry University, we established the Centre for China-Africa Agriculture and Forestry Research (CAFOR).*

Jamaica – INBAR's latest member country



Jamaica became INBAR's 38th member country on 1st January, and INBAR welcomed the Jamaican ambassador to its Beijing HQ to raise the flag in early April. Jamaica is thought to have about 47,000 hectares of *Bambusa vulgaris* bamboo, and wants to develop and use it further as the basis for a national bamboo sector. The government has set up a bamboo advisory committee with a wide cross-section of stakeholders to develop pilot projects and national bamboo plans, and to support the development and implementation of relevant policies and legislation, in order to generate additional income and employment from bamboo in the Island state. Trials have already commenced on the production of bamboo shoots. Jamaica's accession will enable INBAR to offer advice and support to assist Jamaica in developing bamboo as part of its envisaged greener economy.

8th INBAR Council meeting held in Beijing

The eighth meeting of INBAR's 38 nation council of member countries was held in Beijing in November 2012. Proceedings were led by Dr. Mohd. Abdur Razzaque, Minister of Food, Government of Bangladesh and Chair of the INBAR Council, with the support of Mr. Sileshi Getahun Hailu, State Minister of Agriculture, Government of Ethiopia, and Vice-Chair of the INBAR Council, as well as the Chair and Co-chair of INBAR's Board of Trustees, and INBAR's Director General.

In addition to discussing a range of procedural matters, including amendments to facilitate decision-making, member countries expressed their support for INBAR and its work, and explained how they envisage developing their own countries bamboo and rattan sectors through INBAR. The Council thanked Bangladesh for its services as Chair in the preceding two years, appointed Ethiopia as Chair for the next biennium, and welcomed Indonesia as the new Vice-Chair.



New partnerships

- INBAR is working with the Kodagu Model Forest Trust in India, a component forest of the International Model Forest Network, to establish a processing centre to make high-quality bamboo panels from the abundant *Dendrocalamus brandisii* bamboos that grow in the 4000 sq km forest, and a biomass and charcoal briquetting unit to provide alternative energy sources. The Trust has supplied *D. brandisii* bamboos to INBAR's project in Gujarat, and to our Action Research Sites in Ethiopia, Madagascar, Mozambique and Tanzania as part of an IFAD-funded project, where they are being developed for both environmental uses, such as preventing land degradation, and to increase the incomes local residents earn from their current bamboo-processing work, mostly relatively low-value crafts and furniture.
- INBAR commenced a partnership with Jan Chetana Sansthan (JCS), an NGO that works with tribal communities and women who are the most marginalized, disadvantaged and exploited sections of society in South Rajasthan, India. JCS has already helped develop a burgeoning women-led charcoal producing sector in the region, with the women of the Self-Help Groups, the owners of a new charcoal processing unit where raw materials, including bamboo, are collected, processed and sold. The initiative is expected to reach out to all 65,000 households with which JCS works under its different programmes, in the next two years.
- INBAR and the TECHO Foundation (<http://www.techo.org/en/>) have started working together to promote bamboo housing in Latin America as a way of reducing vulnerability to climate change and improve the living conditions of the poorest, especially those living in slums.
- INBAR is part of the "Amazon Forest Enterprises" project, which is implemented by the Amazon Environmental Research Institute in Brazil, with the support of the US Forest Service. Participants from Colombia, Brazil, Ecuador, Peru and Bolivia are presently validating methods of training rural producers in economic and financial analysis, and INBAR will replicate the methods and publish training materials together with the project. A regional network specializing in financial and economic analysis for rural and communal forest enterprises is being created.



INBAR has signed an MoU with the government of Yiling, in China's eastern Jiangsu province, to establish a bamboo training centre. A ground-breaking ceremony was held for the centre in November.



INBAR has signed an agreement with the Hong Qi rattan company in Hainan for training on rattan furniture-making.

Training courses and awareness-raising events

In 2012, INBAR and its partners ran formal technical training courses for project participants in China, Ecuador, Ethiopia, Ghana, India and Peru, and a range of study tours, thematic and regional workshops, too. In total we trained 20,395 people in cultivation, processing and product development with bamboo and in the development of supportive bamboo policies. Over 3380 people participated in INBAR awareness-raising events, which highlighted the potential and practice of bamboo-based development and the investments required to support it.

Many of our technical training courses are designed for trainers, who can replicate the trainings with others. This year, in the EU biomass project in Ethiopia and Ghana, former trainees trained over 2000 more people in bamboo charcoal-making, and others established businesses to produce charcoal stoves that are supplying the projects' beneficiaries.

The 15th edition of INBAR's annual Ministry of Science and Technology (MOST)-sponsored awareness-raising workshop was held in September. The workshop is focused around Lin'an and Anji in Zhejiang province, where integrated development with a variety of NTFPs has seen the local economy grow rapidly in the past 30 years. In the 15 years of the workshop, 491 participants from 51 countries have taken part, and almost 1000 have attended the international seminars that were held subsequently, including representatives of international organisations such as UNDP, FAO, ITTO, IUFRO, ICIMOD, Oxfam, and bilateral agencies such as SIDA, Save the Children Canada, and GIZ.



Photo: Anji Bamboo Society

Workshops for member countries

For the past two years, INBAR has been fortunate to work with China's International Centre for Bamboo and Rattan and China's Ministry of Commerce to run awareness workshops in China for officials of INBAR member countries and potential member countries. This year, we welcomed participants from ministries and departments of the governments of Algeria, Benin, Bhutan, Burundi, Cameroon, Colombia, Ethiopia, Ghana, Indonesia, Jamaica, Kenya, Malaysia, Mexico, Mozambique, Myanmar, Nepal, Nigeria, Panama, Peru, South Africa, Sierra Leone, Sri Lanka, Suriname, Thailand, Uganda, Venezuela and Vietnam. Coupling theory sessions with awareness visits, which act as a forum for information exchange between countries, these workshops have become a well-respected staple of INBAR's menu of services to its member countries, and have resulted in increased commitment on the part of many governments to INBAR, and to developing bamboo and rattan in their own countries.



Volunteers and interns

In 2012, under the Asia Bamboo and Rattan Young Professionals Scheme, which is funded by the Norwegian agency Fredskorpset, INBAR hosted one young professional from the Ecosystems Research and Development Bureau in the Philippines, and has recently sent two young professionals to work there – one from INBAR and one from the Forest Research Institute in Myanmar. The scheme has enhanced INBAR-ERDB links, and as a result, both organisations are furthering their collaboration. Additionally, INBAR worked with over 50 volunteers in 2012 on tasks including media outreach, fundraising, climate change and translation and editing, as well as helping run many of the 15th anniversary activities.

The Centre for China-Africa Agriculture and Forestry Research (CAFOR)

The Centre for China-Africa Agriculture and Forestry Research (CAFOR) is a result of the deepening partnerships between INBAR and the Zhejiang Agriculture and Forestry University, one of China's foremost centres of learning and innovation in the agriculture and forestry sectors. The centre provides an education and research platform for South-South collaboration that will support Higher Education institutions in Africa by sharing research expertise and by training talented researchers, to provide a high quality information base on relevant aspects of the green economy, and to link China and African researchers for intercontinental research collaboration. The centre is based at the Zhejiang Forestry and Agriculture University in Lin'an, Zhejiang. Bamboo and mobilising sustainable forestry for coping with climate change are key elements of CAFOR's work programme. Visit <http://cafor.zafu.edu.cn> for more details.



Enhanced contribution of bamboo and rattan to environmental sustainability, particularly ecosystem services and coping with and combating climate change

Fostering bamboos' potential for climate-smart landscapes: *The potential of bamboo plants in mitigating climate change is known, but has not yet been tested globally. In 2012, INBAR and its partners developed a standard for managing bamboo forests for climate change, which was officially adopted in China. In our projects, we enhanced the range of bamboos available to producers to increase the quality of resources available, and give more options for production. At COP18, we co-hosted an event on China-Africa partnerships for climate change, increasing awareness and commitment to using bamboos' versatility for long-term strategic approaches such as the use of bamboo, rather than trees, for charcoal.*

Carbon accounting methodology

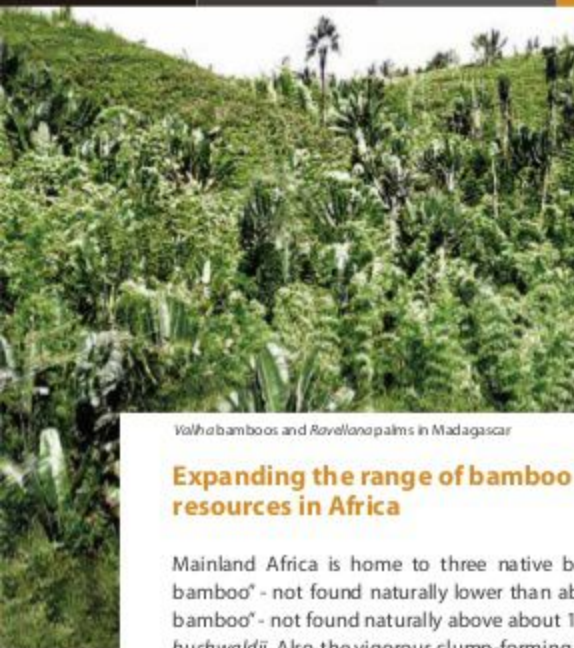
INBAR's work with the China Green Carbon Fund (CGCF) has resulted in an approved national standard in China for bamboo management for carbon credits. This means that China is the first country to formally accept bamboo as a tool for carbon off-setting. INBAR is working to adapt the standard so it can be adopted by other nations, initially Ethiopia, Kenya and Tanzania, in which INBAR, Zhejiang Agriculture and Forestry University (ZAFU) and CGCF will be running pilot demonstration projects on carbon off-setting with bamboo. This work will also enable INBAR, ZAFU and CGCF to test the "Payment for Ecosystem Services" potential of bamboo in carbon trading. INBAR hopes to extend this work to member countries in Asia and Latin America once successful cases have been developed in Africa.



Preliminary preparations for the pilot demonstration site in Ethiopia



"Off-setting with bamboo is a reality now! The development of the INBAR methodologies and other similar initiatives means that global stakeholders are now increasingly able to use bamboo as an effective tool in climate change mitigation" - Dr. Yannick Kuehl, INBAR Climate Change expert



Valhambamboos and Ravellonapalms in Madagascar



Expanding the range of bamboo resources in Africa

Mainland Africa is home to three native bamboo species – grove-forming *Arundinaria alpina* ("Highland bamboo" - not found naturally lower than about 2000m), clump-forming *Oxytenanthera abyssinica* ("Lowland bamboo" - not found naturally above about 1500m), and the less commonly-seen clump-forming *Oreobambos buchwaldii*. Also, the vigorous clump-forming *Bambusa vulgaris* is common in both Eastern and Western parts of sub-Saharan Africa.

Each of these species has been used by local people for subsistence and basic construction for centuries, but only recently has higher value-added production been possible. This year in INBAR's projects, *Bambusa tulda*, *B. balcooa*, *Dendrocalamus brandisii* and *D. asper* seeds were introduced to Ethiopia, Madagascar, Mozambique and Tanzania, where they were germinated and tested for their suitability in the prevailing climate and soil conditions. The *Bambusa*'s grew well in each country, and the *D. brandisii*'s were moderately successful, and all are being propagated further, but *D. asper* rarely grew well. In Benishangul Gumuz, Ethiopia, over 220,000 Lowland bamboo plantlets were propagated from seed, and 4775 more mature, introduced bamboos were planted in 4 villages (woredas) covering 8.5 ha. Such reforestation is intended to enlarge the genetic resource base with this range of useful bamboos that can be used for weaving, furniture, construction, charcoal briquettes, commoditized crafts and landscape protection.

In Bhutan, *B. tulda* and *B. balcooa*, both excellent bamboos for construction, have been imported and seedlings germinated ready for nursery and plantation development in Samtse district in the far southwest, and Sarpang district in the south, where demonstration bamboo houses are to be built. Afforestation is expected to be completed soon, and within a few years, the plants will start supplying Bhutan's nascent bamboo construction industry. Additionally, a small plantation is being developed in Samtse using rhizome cuttings to ensure bamboos will be available for local communities to process in the near future.

INBAR at COP 18

INBAR had an active presence at the 18th session of the Conference of the Parties to the UNFCCC (COP 18), Doha, Qatar, co-hosting a side event titled 'China-Africa Partnership: Climate Change Mitigation and Adaptation through Bamboo Development' with the China Green Carbon Foundation (CGCF), outlining bamboo's unique characteristics, its role in climate change mitigation and adaptation, and presenting the winning idea – bamboo for household energy in Africa – at the Ideas Marketplace at the Agriculture, Landscapes and Livelihoods Day 5. INBAR also participated in the Seminar on "Forestry Carbon Sinks" event held on 29th November at the China Pavilion – where we signed a MoU with CGCF, ZAFU and the People's Government of Anji County, Zhejiang Province, China to promote research and demonstration of methodologies for sustainable bamboo management in Anji County, China.



INBAR's 15th Anniversary

INBAR at 15 years

In 15 years, INBAR has developed a unique role in finding and demonstrating innovative ways of using bamboo and rattan to alleviate poverty and protect environments and biodiversity, setting up programmes to prove their value and to help people apply what we have learned. The INBAR network is now widely recognized as a major source of expertise and statistics on bamboo and rattan. INBAR is an organisation with active field based projects in our member countries. INBAR works on technical innovations that help people make use of bamboo and rattan in development programmes, and assists the development of new institutions and policies that support the contribution of bamboos and rattans to sustainable growth and poverty reduction.

INBAR was established by treaty on 6th November 1997, and celebrated its 15th anniversary in 2012.

High Level Forum

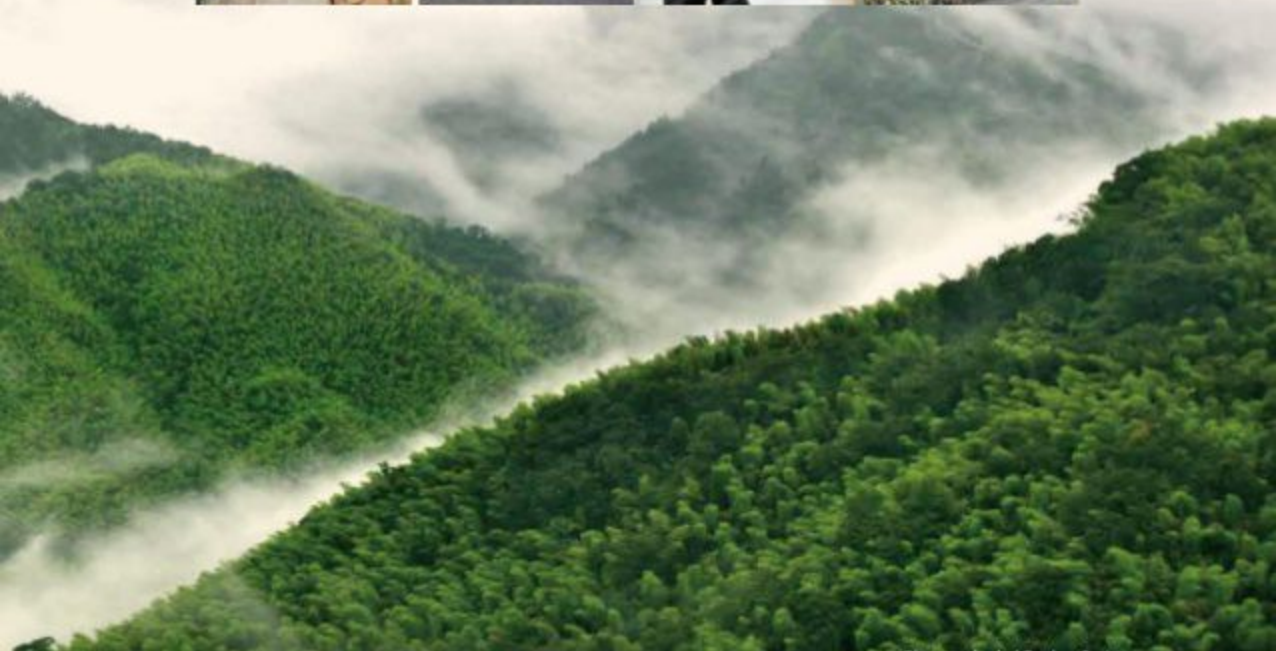
INBAR held a high level forum to discuss the potential of bamboo and rattan-based development in its member countries with vice-ministerial level attendees. Participants agreed to issue a "Beijing Declaration" on bamboo and rattan development.





8th Bamboo Cultural Festival

Many attendees of the Beijing events subsequently joined the visit to the China 8th bamboo cultural festival, this time held in Yixing in Jiangsu province. Here they saw the state of bamboo-based development in Yixing, attended the ground-breaking ceremony of a bamboo training centre, and enjoyed a special evening performance dedicated to bamboo and rattan-based development.



Attendees then travelled to Huangshan in neighbouring Anhui province to see China's International Centre for Bamboo and Rattan's (ICBR) new bamboo research base, and to visit bamboo factories and plantations.



15th anniversary publications



- In Partnership for Inclusive and Green Development – INBAR 15th anniversary (published by INBAR)
- Bamboo musical instruments (published in partnership with INBAR)
- One hundred bamboo poems (published in partnership with INBAR)



What makes INBAR unique

- INBAR is the only independent, intergovernmental organisation that links bamboo and rattan stakeholders at all levels, from producers to consumers, decision makers to marketers.
- INBAR is unique in its focus on bamboo and rattan – the two most important non-timber forest resources with great potential to help the world's poorest people and simultaneously conserve the environment.
- INBAR fosters research on new ways of using bamboo and rattan to address poverty and environmental degradation, and supports the application of these new bamboo and rattan innovations in development programmes.
- The INBAR secretariat, with its HQ in Beijing, China, remains small and efficient, so it can continue to evolve and respond effectively to changes in the way global development operates, including the increased importance of South-South collaboration.



Photo competition and exhibition

INBAR ran a photo competition for bamboo photographers in China, and the winners were exhibited at the anniversary events.



Photo: Chen Lixin



Photo: Fu Shuxiang



Photo: Zang Weijian



Photo: Wu Guangmin

Better ways and means of inclusive livelihood development, particularly in rural areas

Versatility and practicality: *The range of products that bamboo can be used for sets it apart as a tool for development. It's ease of cultivation means that afforestation, or reforestation, is rapid, and its fast growth means first harvests come just a few years later. In 2012, we worked with partners and communities in Africa to increase communities' income generation options with bamboo. After bamboo flowering and subsequent die-back, we supported rebuilding of the resource base for future community-based production, and we investigated bamboo's potential for generating electricity within communities.*

Expanding livelihoods options in Africa

INBAR's IFAD-funded "Mainstreaming Pro-Poor Livelihood Opportunities and Addressing Environmental Degradation with Bamboo in Eastern and Southern Africa" project works in Ethiopia, Madagascar, Mozambique and Tanzania to develop bamboo for land and water management, increased livelihood opportunities and improved energy security coupled with reduced deforestation.

A wide range of activities in each nation in 2012 has started the development of nascent bamboo-based incomes for thousands of people, with training courses on bamboo plantations and nurseries, on community-led resource inventories, on product design and production, on furniture-making (particularly in Madagascar, where bamboo furniture has been very popular for decades), on charcoal production (including briquetting), and on bamboo for fisheries, handicrafts and construction.

The project also focuses on building south-south links between the national projects – trainers from Ethiopia have recently worked in the Madagascar and Mozambique sites, sharing knowledge and new technologies, and building partnerships for development. New partnerships are also being developed to ensure long terms sustainability – especially with existing and recently-established NGOs in each country that will act as community-based focal points for bamboo-based development in the future.



New-style bamboo boat produced in Ethiopia



Making bamboo furniture in Madagascar



After the flowering - Benishangul Gumuz, Ethiopia

Despite the flowering and subsequent die-back of many of the Lowland bamboos in the project area in 2010 – 2011, INBAR's work with the Benishangul Gumuz Food Security and Economic Growth Program, which is led by Save the Children (Canada), and the work of the EU-funded project on biomass-based household energy, has resulted in sustainable management and harvesting of bamboo in the participating woredas (villages), the establishment of a bamboo processing workshop, and training in bamboo furniture making which is now being used by local craftsmen to produce their own products. INBAR is a thematic lead in the Program on bamboo. Many training courses on how to germinate and grow the bamboo seeds produced by flowering have been provided to women, who now run small bamboo nurseries for profit near their homes, and who have also been trained in charcoal production, for which the new bamboos will provide a long-term, sustainable supply of raw materials well into the future.

Generating electricity from bamboo

INBAR and Enea Consulting released the first official study describing the potential use of bamboo biomass for energy production. The new report *Electrical Valorization of Bamboo in Africa*, analyzes bamboo-to-electricity technologies in Rwanda. Utilizing bamboo to produce electricity provides a sustainable alternative to traditional wood charcoal consumption in developing countries, and thus has the potential to reduce the pressure on deforestation.

INBAR provided on-site data from communities in Rwanda for the report, including biomass production per hectare of bamboo, bamboo moisture and sugar content, electricity needs and usage. ENEA then assessed the use of bamboo with three technologies typically used to make electricity from wood, and concluded gasification technology offers the most efficient means of producing electricity from bamboo for a 20-70kwh power plant. However, gasification technology is not as stable as that used for combustion and requires very qualified maintenance personnel.

According to the research, steam engine combustion technology offers the best option for a >70kwh power plant. Furthermore, the technology is easy to maintain and commonly available. Researchers also concluded that bamboo varieties widely available in Rwanda are suitable for electricity production, noting that bamboos with high sugar content were the best.

INBAR plans to use the results to further develop its work on environmentally-friendly, sustainable energy in Africa.

Enhanced, more innovative and sustainable market environments

Robust value chains bringing real benefits: *Developing robust bamboo and rattan value chains, from growing and harvesting bamboo to marketing and sale of products, makes development sustainable. In 2012, we enhanced bamboo production in post-earthquake Sichuan province, China, and are developing an environmental monitoring system that will increase marketability of products from the region. We supported the construction of innovative houses and other buildings in Bhutan and Ecuador in new value chains that are inspiring others to follow suit, and produced new bamboo water-storage tanks to store rainwater safely and cope with climate change-induced water shortages.*

Enhancing marketability and competitiveness in Sichuan

The EU-funded project, "Sustainable revival of livelihoods in post-disaster Sichuan: Enhancing eco-friendly, pro-poor bamboo production supply chains to support reconstruction efforts" aims to increase livelihood opportunities through environmentally sustainable production of bamboo materials in Sichuan province, China, especially in earthquake-affected areas. Implementation commenced in eight counties of Sichuan in 2010. In 2012, the project continued to support and help grow the developing bamboo sector. Overall, seven technical training courses were provided to more than 430 technicians and management staff from 192 bamboo Small and Medium-sized Enterprises (SME) and cooperatives, and an updated training manual on environmental standards was completed at end of 2012. Maintaining adherence to environmental standards is an essential component of the project, and INBAR is working with the authorities to produce a suitable Environment Monitoring Indicator System for the target SMEs in the project.

Technical demonstrations have been carried out in six of the eight pilot bamboo-processing businesses that were established in the project, and the businesses have developed closer relationships with other demonstration enterprises working on other aspects of the production chain. Three customer awareness-raising events were held in Sichuan and Beijing involving more than 1000 bamboo consumers and retailers. One 30-minute and one seven-minute TV documentary film were produced and broadcast at a range of events. They have also been uploaded to several websites.



Focus on Changing

Changing county in Sichuan is rich in bamboo resources – its 42,650 ha of bamboo accounts for approximately 80% of its total forest area. As a result of the work in the EU-Switch funded project, the Changing government and INBAR reached an agreement in July 2012 to promote green, bamboo industrial development, with four main aims: 1) establishing a green and low-carbon bamboo industrial development zone ("bamboo land"); 2) developing an on-line e-business platform; 3) conducting an International Bamboo Products Design Innovation Competition; and 4) supporting the establishment of a world-wide bamboo species collection in Changing. The products design competition will be held in mid-2013, a master plan for the bamboo land has been prepared and relevant research started, using best practices from the EU-funded project. INBAR is supporting the e-platform and the species collection through the EU project.



Cooking on bamboo

In Ghana, INBAR's innovative bamboo biomass project that is supporting communities replace wood fuels with bamboo, has helped form 78 Micro and Small Enterprise (MSE) groups at the two project sites and trained about 180 individual charcoal producers: 50 of the MSEs had produced over 40 tons of bamboo charcoal by the end of 2012. Bamboo charcoal is now used by an estimated 1000 households in urban areas, and 500 more in the rural communities. In 2012, the use of bamboo firewood by households and the coconut and palm oil extraction cottage industries at the project sites has increased from 10 tons to about 28 tons daily, resulting in an approximately six-ton reduction in the daily use of timber-wood for fuel. In total, a reduction of approximately 672 tons of wood has been achieved since the start of the project.

A national MSE association has been established to liaise with stakeholders and promote bamboo charcoal business nationally. Bamboo charcoal policy recommendations have been developed for consideration as part of Ghana's national energy policy development - these recommendations have been included under the draft Ghana Bio-energy Policy, which is at present with parliament.

In Ethiopia, more than 9200 households (with 74,752 members) have started to use bamboo as firewood and 45.5 tons of bamboo charcoal has been produced by the locally-established bamboo charcoal MSEs, whilst an industrial associate of the project has produced 500 tons of bamboo charcoal and briquettes. A common facility / training centre has been established and 72 bamboo charcoal MSE associations have been established at district and regional levels. The project has inspired one bamboo flooring company to produce bamboo charcoal from all the bamboo waste by-products left after making flooring, rather than just the waste culm sections used before, as well as two factories to commence producing charcoal briquettes from their waste.

Additionally, in Ethiopia, policy recommendations for community-based alternative biomass energy have been developed and included into the National Policy on Growth and Transformation - this endorses bamboo as a sustainable energy resource.

Bhutan builds bamboo

In Pakpay Village, Samtse District in the far southwest of Bhutan, Bhutan's Social Forestry and Extension Division (SFED) and the Dzongkhag Forest Sector of Samtse, completed the construction of a 100 m² community centre of bamboo as part of a new CFC-funded project. Trained carpenters from an INBAR-supported bamboo construction in Tingtibi in 2011 played a crucial role in construction. A second structure is now under construction in the district capital. In order to start the development of building guidelines and codes for Bhutan, INBAR plans to grade bamboo construction components developed in the project using portable testing kits developed with funding from the Indian Council of Agricultural Research (ICAR). The project has also transferred boucherie bamboo treatment kit technology to Bhutan that will enable pressurized treatment of construction-use bamboo poles with preservative – essential to give the houses a long life – and ensure the buildings are viable as both long-term dwellings and investments.



Lifting communities above flood waters

INBAR's World Bank funded project in Ecuador on "Flood-resistant elevated bamboo houses: Promoting innovative housing resilient to climate change disasters" ended in 2012. The project built 12 flood resistant school rooms, four homes, three shelters and a bamboo information center in Ecuador, working closely with local organizations, governments and NGOs to ensure long-term sustainability of the results, and their replication and adaptation.

Before the project, INBAR calculated there were only 30 builders capable of building a good-quality bamboo house, and all in Manabi province. Because of their scarcity, bamboo builders were charging four times more than other construction workers for their services, and hence building with bamboo was very expensive. During the project, 500 builders were trained to build with bamboo, expanding the skills base, and enabling more people to tap the growing market, whilst helping reduce the costs of construction.

Presently, Ecuador does not have formal regulations for building bamboo homes, and so they are not legal constructions. The project produced a bamboo construction code that is expected to be approved by the Ministry of Housing and the Provincial Chambers of Construction in 2013, when for the first time ever, well-built bamboo houses will be legal in Ecuador, and producers and those living in them will be protected by law.

INBAR worked in the project with Hogar de Cristo, a local NGO in Guayaquil that has provided around 200,000 prefabricated bamboo homes at low cost to poor and disadvantaged families over the past 40 years. INBAR is now also working with the TECHO foundation, a social NGO that promotes community housing in deprived areas of Latin America, to replicate the results and build more bamboo homes.





Safe collection and storage of drinking water

A new project to help address water shortages in Ethiopia by collecting and storing rainwater safely in bamboo-framed containers commenced in 2012. Funded by Environment Canada, Canada's Ministry of Environment, the project is developing prototype bamboo-framed water tanks, as well as well-managed bamboo resources for their production. It is enhancing the capacity of rural communities in the demonstration sites to sustainably manage and harvest locally-available bamboo resources under changing climates, and also aims to map conventional water sources and available bamboo in Tikur Inchinni woreda, the project area, with a view to applying the results more broadly. INBAR will also organize a study tour in 2013 for East Africa Representatives to promote wider adoption of the technology across the region.

Prototyping in Nepal, where bamboo is already used for low-tech water tanks, included testing various water-proofing and water distribution methods and filtration processes, particularly bio-sand filters and DC pumps, and has produced tanks that preserve water in potable condition. Two tanks will soon be built *in situ* in Ethiopia.

New product standards

INBAR, with ICBR and China's State Forestry Administration has established a working group on bamboo standards that will promote the development of standards in INBAR member countries, including those for sustainable construction with bamboo. In Peru, a national group for the development of standards has been established and a new standard for earthquake resistant bamboo housing E-100 was presented at the first Peruvian Bamboo Workshop in November 2012.



Publicity and Publications

Enhancing INBAR's online services

- INBAR launched a new online quarterly newsletter in 2012, containing the latest updates on INBAR's work. Meanwhile, INBAR's Latin America and the Caribbean, and South Asia, newsletters continue to reach out to an increasing number of stakeholders in those regions with targeted news items from both INBAR and other institutions.
- INBAR revamped its website, with a simpler design, structure and colours.



Publications

- Annual Report 2011
- In Partnership for Inclusive and Green Development – Road map to 2015
- Carbon Off-setting with Bamboo - WP 71
- In Partnership for Inclusive and Green Development - INBAR 15th Anniversary book



Selected INBAR staff-authored publications

- Lobovikov, M., D. Schoene, Y.P. Lou. 2012. Bamboo in climate change and rural livelihoods. In Mitigation and Adaptation strategies for Global Change 17: 261 – 276. Springer.
- Looney, N. J., J. Hoogendoorn, J. d'Arros Hughes, R. Kahane, M. Hermann, D. Keatinge, H. Palmier. 2012. Realising the benefits of enhanced agrobiodiversity. New Agriculturalist, January 2012, <http://www.new-ag.info/en/research/innovationItem.php?a=2357>
- Kibwage, J.K., O.B. Frith, S.K. Paudel. 2011. Bamboo as a sustainable building material for meeting housing needs in East Africa: a value chain case study in Ethiopia. Journal of Bamboo and Rattan 10 (1&2): 19 - 36. VSP.

Documentary - bamboo for post-disaster reconstruction

INBAR's 30-minute TV documentary (English and Chinese versions) and seven-minute TV film (English version) on bamboo and its potential role in post-disaster reconstruction in Sichuan province, China, and longer term applications for the housing sector has been completed and was distributed via the internet. It is available on the INBAR website.



<http://www.inbar.int/project-highlights/eco-friendly-pro-poor-bamboo-production/>

Events

INBAR participated in a range of international events in 2012, including:

- UNEP Regional Forum for Climate Change Adaptation, 12-13th March, Bangkok, Thailand.
- Global Conference on Women in Agriculture, 13 - 15th March, New Delhi, India.
- World Bamboo Congress, 10 - 15th April, Antwerp, Belgium.
- Bamboo Green Growth and Carbon Finance Workshop, 26-27th April, Phnom Penh, Cambodia.
- 36th session of the UNFCCC Subsidiary Body for Implementation (SBI) and of the Subsidiary Body for Scientific and Technological Advice (SBSTA), 14-25th May, Bonn, Germany.
- Rio +20, 20 - 22nd June, Rio de Janeiro, Brazil
- UN-HABITAT: World Urban Forum 6, 1 - 7th September, Naples, Italy.
- 4th International Biochar Conference, 7th September, Beijing, China.
- CSR Asia Summit, 18 - 19th September, Beijing, China.
- UNFCCC COP 18, 26th November - 7th December, Doha, UAE

Reaching out in Rio



At Rio +20, INBAR took part in a day-long side event co-organized by FAO, ICFPA, and BRACELPA entitled "Forests: the heart of the green Economy", and held meetings with Brazilian bamboo stakeholders including the Brazilian Bamboo Network, to discuss opportunities for enhancing cooperation.

INBAR was also invited by the Brazilian Ministry of Science and Technology and Innovation (MCTI), to participate in the Pop Science exhibition in partnership with the Laboratory for Investigation in Living (LILD), and the Pontificia Catholic University of Rio de Janeiro (PUC-Rio). The INBAR portion of the exhibit featured bamboo products, publications, posters and the film of the "Eco-Friendly, Pro-poor Bamboo Production" project.

The exhibition was open to the general public, and particularly focused on engaging youth. It was very well attended, particularly by families and school groups.

Summary audited financial statements

Principal Donors 2012



INTERNATIONAL NETWORK FOR BAMBOO AND RATTAN BALANCE SHEET

AS OF 31 DECEMBER 2012
(In US dollars)

	31 DECEMBER 2012	31 DECEMBER 2011
ASSETS		
Non-current assets		
Fixed assets-Cost	375,678	367,968
Less: Accumulated depreciation	335,438	311,988
Fixed assets-Net	40,240	55,980
Recoverable deposits	5,469	6,145
Current assets		
Accounts receivable	2,314,536	2,062,451
Cash and cash equivalents	1,857,140	1,249,966
Total current assets	4,171,676	3,312,417
TOTAL ASSETS	4,217,385	3,374,542
NET ASSETS AND LIABILITIES		
Current liabilities		
Accounts payable and accrued liabilities	381,097	576,677
Total current liabilities	381,097	576,677
Net assets		
Restricted	2,365,055	1,484,165
Unrestricted	1,471,233	1,313,700
Total net assets	3,836,288	2,797,865
TOTAL NET ASSETS AND LIABILITIES	4,217,385	3,374,542

Summary audited financial statements

INTERNATIONAL NETWORK FOR BAMBOO AND RATTAN STATEMENT OF ACTIVITIES FOR THE YEAR ENDED 31 DECEMBER 2012 (In US dollars)

	PRC	IFAD	Membership Fee	EC	CFC	EVC	CITI	Others	2012	2011
Revenue										
Grants:										
Restricted:		640,840		1,132,139	371,691	211,740	449,979	588,724	3,395,113	3,387,691
Unrestricted	1,078,499		512,819						1,591,318	1,430,860
Contribution in-kind	918,705								918,705	918,705
Interest income								6,048	6,048	15,420
Publication sales and Affiliates								510	510	247
Others								13,607	13,607	51,829
Sub Total	1,997,204	640,840	512,819	1,132,139	371,691	211,740	449,979	608,889	5,925,301	5,804,752
Programme activities										
Environmental Sustainability	33,663		2,173	393,427				27,079	565,408	836,871
Trade Development Programme	160,886		20,386	584,214	287,267	113,637	109,066	95,368	1,261,958	957,466
Livelihood and Economic Development	33,663	521,812	8,494					122,087	686,056	961,168
Networking and Partnerships	232,362		250,551					280,266	743,179	819,307
Sub Total	460,574	521,812	281,804	977,641	287,267	113,637	109,066	504,800	3,256,601	3,574,812
Management and administration										
Secretariat expenses	514,598		137,100						661,698	611,775
Board and Council expenses	51,593		8,281						59,874	56,781
Sub Total	566,191		145,381						711,572	668,556
In-kind expenses	918,705								918,705	918,705
Total Restricted amount		119,028		154,498	84,424	98,103	340,913	83,924	880,890	526,268
Total Unrestricted amount	51,734		85,634					20,165	157,533	116,411
Excess revenue over/(under) expenditure	51,734	119,028	85,634	154,498	84,424	98,103	340,913	104,089	1,038,423	642,679

Summary audited financial statements

CONTRIBUTIONS FROM PROJECT PARTNERS FOR INBAR PROJECTS

Some of the programme activities recorded in the statement of activities for the period from January 1, 2012 to December 31, 2012 are jointly carried out by INBAR and its project partners. Besides INBAR's funding, such programme activities are also funded by project partners. According to signed contracts, project partners' committed contribution to those programme activities are set out below:

	2012	2011
Common Fund for Commodities		196,075
State Forestry Administration, China	851,200	
Federal Micro and Small Enterprises Development Agency, Ethiopia	12,168	46,116
Ethiopian Rural Energy Development Promotion Center	12,168	12,636
Bamboo and Rattan Development Programme, Ghana	6,084	972
Forest Research Institute of Ghana	6,084	432
International Centre for Bamboo and Rattan, China		12,063
Nanjing Forestry University, China	18,200	18,900
EUPIC (EU Project Innovation Centre)	5,075	10,956
Benelux Chamber of Commerce in China	12,537	14,316
Agro Enterprise Centre, Federation of Nepalese Chamber of Commerce and Industry		32,114
Government of Ethiopia		32,114
Forest Department of Sichuan Provincial Government, China	125,519	98,417
Support Programme for Rural Micro Enterprises Poles and Regional Economies, Madagascar		17,437
Rural Income Promotion Programme, Madagascar		47,005
Ministry of Science and Technology, China		65,376
Wen Zhao Bamboo Charcoal Ltd., China		73,980
Services for Alternative Development in the South, Ecuador	40,940	40,940
Catholic University of Guayaquil, Ecuador	37,926	37,926
Center for Research, Training Evaluation and Advocacy, Peru	41,940	41,940
Integrated Program for Coffee Development, Peru	41,940	41,940
Hogar de Cristo, Ecuador	1,500	1,500
Peace and Hope, Peru	1,500	1,500
Ministry of Agriculture, Livestock and Fisheries, Ecuador	7,500	7,500
Ministry of Agriculture, Peru	3,750	3,750
Ministry of Housing, Construction and Sanitation, Peru	1,500	1,500
Asociacion de Pequeños Productores de Banano, Ecuador	16,500	16,500
Government of Pichincha, Ecuador	24,650	24,650
Corporation Noble Guadua, Ecuador	5,000	5,000
Government of Lambayeque, Peru	10,436	10,436
Government of Piura, Peru	10,436	10,436
Total	1,294,553	924,427

The Centre for International Migration and Development (CIM), Germany, provided significant financial support for two INBAR positions - the forest and climate change expert, and the manager of the Non-Timber Forest Products Global Partnership Programme during the period January 1, 2012 to December 31, 2012

INBAR's offices and member countries



ANNUAL REPORT 2012

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The International Network for Bamboo and Rattan (INBAR) is an intergovernmental organisation established in 1997. INBAR is dedicated to improving the social, economic, and environmental benefits of bamboo and rattan.

INBAR plays a unique role in finding and demonstrating innovative ways of using bamboo and rattan to protect environments and biodiversity, alleviate poverty, and facilitates fairer pro-poor trade. INBAR connects a global network of partners from the government, private, and not-for-profit sectors in over 50 countries to define and implement a global agenda for sustainable development through bamboo and rattan.

International Network for Bamboo and Rattan (INBAR)
P. O. Box 100102-86
Beijing 100102, P.R. China

Tel: 00 86 10 64706161
Fax: 00 86 10 64702166
Email: info@inbar.int
<http://www.inbar.int>

Compiled and edited by Andrew Benton
Designed by Paulina Soria
Produced by Megan Cai, Jin Wei

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