



# CFC and INBAR: fifteen years of cooperation on **bamboo and rattan** development

**Local development and research grants have created innovation and value chains for bamboo and rattan in 10 countries, and raised awareness with many more.**

*For fifteen years, the Common Fund for Commodities has been instrumental in furthering the development of bamboo and rattan in Asia, Africa and Latin America. Through its support to the International Network for Bamboo and Rattan (INBAR) in some eleven projects totaling US\$5.58m, new knowledge and tools have been created in how bamboo and rattan can be harnessed to improved livelihoods in rural areas and protect the environment. CFC has supported work by INBAR in its member countries on topics ranging from value chain development and enterprise establishment to policy advice and development of national standards. Key results of this work that are in action today include improved tracking of international trade in bamboo and rattan via better World Customs Organisation's Harmonised System Codes;*

*building standards in Peru and Ecuador, with regional standards for Latin America as a whole; facility centres for rattan processors in Ghana, with improved products and greater market competition; government commitments to use bamboo in development plans in Ethiopia and Kenya; and a broad portfolio of development results that show clearly how bamboo and rattan can be used effectively for green, sustainable development, and which serve as models for further development in the future.*

Since INBAR became the International Commodity Body for Bamboo and Rattan in 2001, it has developed a strong partnership with the Common Fund. Work has focused on fostering and testing in situ innovations on value chain development in the bamboo and rattan sectors throughout the bamboo and rattan growing regions of the globe, working in partnership with a wide range of international, national and local organizations, to build capacity to innovate with bamboo and rattan, and implement appropriate support mechanisms and infrastructure for the sector in the longer term.





A well managed subtropical bamboo stand can yield about 20t/ha of bamboo culms per year, whilst in the tropical region, yields can top 40t/ha. China is the largest producer of bamboo products, and has the largest area of bamboo stands, with a domestic market of about \$20 bn USD per annum, and exports of a little less than 2bn per year. Growing and harvesting bamboo is not a full time occupation, but usually focused around particular times of the year – August and September for soil cultivation and forest maintenance, October and November for harvesting culms, and spring for harvesting bamboo shoots. For a producer, bamboo provides on average about 30 – 50% of their income, whilst allowing them considerable flexibility to explore other income sources. A full time bamboo factory worker in Eastern China earns about 3000 RMB per year, and again, processing is often not all year round and so they have opportunities to explore other income sources, too. In total, 7.75 million people work in the bamboo sector in China – though few are full time. In India, roughly 8.6 million people are dependent on bamboo for their livelihoods.

Rattans are usually collected from the wild. The availability of rattan varies widely in different countries – Indonesia has over three quarters of the world's rattan stocks, but a few years ago the government introduced a ban on exporting raw rattan to encourage value addition in country, and the effects of this have been mixed, with some suggesting that it has driven exports into the informal sector. Countries such as China have very little rattan left, and processors there use mostly imported rattan. South Asia still has considerable rattan, as does Myanmar, where the informal rattan trade sector is thought to be large. In Indonesia, the Philippines and Vietnam production of rattan furniture is big business, usually involving small-scale producers in large export orientated production chains. Over 80, 000 people in Indonesia earn their livings from producing rattan furniture alone.

### Bamboo Supply chains in Africa

The CFC-funded East Africa Bamboo Project (EABP) focused on bamboo development in Ethiopia and Kenya and was supervised by INBAR and implemented by UNIDO. The project ended in 2010 and is regarded by the Government of Ethiopia as one of the most successful under the Ministry of Agriculture and Rural Development. Its long-term objective was to promote the development of the sustainable production and use of bamboo products in East African countries, with a focus on markets as the driving force behind such development, and is thought to have been the first ever to do this. The project has enabled INBAR, CFC, UNIDO and government partners in Ethiopia and Kenya to reach out with bamboo to many national partners, and to demonstrate the huge difference bamboo can make.

*Since 2001, the International Network for Bamboo and Rattan (INBAR) has been one of the commodity organizations designated by CFC as an International Commodity Body (ICB). Throughout the fifteen years of cooperation with INBAR, CFC has provided financial support to five regular INBAR projects and to six smaller, so-called Fast Track, projects. In this contribution from INBAR, highlights are presented from some projects, focusing specifically on the value chain development and substantive income impact of these projects. Important thereby is the facilitating and innovative nature of these activities, resulting in wider uptake at Government and commercial level.*

*Bamboo and rattan are two of the most important Non-Timber Forest Products (NTFP), with an estimated global trade value (national and international) of about \$60bn per year. Both have been used as a source of softwood and poles for centuries and bamboo, and to a lesser extent rattan, objects from musical instruments to religious artifacts, housing to agricultural implements and baskets, are integral to many indigenous cultures. Bamboos are woody grasses that produce annually a new crop of poles. Their poles (called "culms") can be used whole for uses such as construction and agricultural implements, or split to produce strips of softwood that can be laminated into boards and other fabricated wood products or for weaving. Bamboo leaves are also used for livestock fodder, tar-oil for medicine, and charcoal for purification and latterly as a substitute for timber-wood fuel charcoal.*

*There is an estimated 37 m hectares of bamboo in the world, approximately 3% of the world's forest cover. Rattan is a climbing palm that grows in the tropical forests of Asia and Africa, and its survival depends upon that of the forests in which it grows – certified rattan products have recently reached European markets. It has been traditionally used for weaving and for furniture, for which the international market remains strong. Over the past thirty years, understanding of the potential of bamboo and rattan to contribute to international development has grown, and in 1997, the "International Network for Bamboo and Rattan" was established as an intergovernmental organization.*

The project trained over 1500 people in Ethiopia and Kenya, and set up nurseries, a training center, processing facilities and provided equipment. By the end of the four year project, the incomes of participants had increased over 100% on average, whilst 10 of the 50 urban participants in Addis Ababa had opened their own shops to sell their wares. The sudden demand for bamboo caused by the project also initially caused a rise of 400% in the price of raw bamboo, something that the project has addressed in the long term by supporting the development of both community-based and privately owned bamboo nurseries and plantations.

The project was a result of the CFC-funded 2003 "Workshop on Market Based Development with Bamboo in East Africa", which brought together bamboo researchers, government officials and bamboo practitioners from Ethiopia, Kenya, Uganda and Tanzania to discuss and reach agreement on the components of the East Africa Bamboo Project. Today, the inherent economic value of bamboo is now recognized in Ethiopia, and is increasingly so in Kenya, with relevant government agencies encouraging farmers to pay due attention to this resource. Investors, from individual small scale bamboo entrepreneurs to large companies, have become keenly interested in the bamboo sector.

Subsequent to EABP, a follow-up CFC/EC-funded INBAR project looked at producing bamboo charcoal and bamboo firewood in Ghana and Ethiopia, as a substitute for timber. Working with communities, hundreds of tree wood-charcoal producers were trained in bamboo charcoal production, and the benefits of bamboo charcoal promoted, as initial perceptions of bamboo charcoal as not as good as wood charcoal because it was lighter, needed to be addressed. In fact, bamboo charcoal burns hotter than wood charcoal, and produces fewer noxious fumes, and is thought that it may help reduce the incidences of respiratory problems for those living in homes with little or no ventilation. Longer term results show that one family of five needs just over 1 hectare of bamboo per year to meet their fuel needs, rather than using timber or other plant-based woody biomass, and given that about 80% of residents in Sub-Saharan Africa still use fuelwood or charcoal as their main fuel source, this offers huge potential for reducing forest destruction.

The project ran policy workshops with governments to promote development and implementation of policies that support bamboo charcoal business development, opened a technology centre in conjunction with the Ministry of Mines and Energy in Ethiopia, whilst the Government of Ghana's Bamboo and Rattan Development Programme is supporting the establish-

*Roadside rattan furniture makers in Accra and Kumasi now have access to facility centres and training as a result of INBAR/CFC's collaboration*



Photo: INBAR

ment of a National Bamboo Charcoal Technology Centre. The project built a huge amount of capacity and belief in bamboo in government ministries – this was demonstrated clearly at the Bamboo Summit in Addis Ababa in November 2014, the first of its kind in Africa, which was attended by ministers from many of INBAR's African member nations, with the opening address by the President of Ethiopia, H.E. Mulatu Teshome. In April, the Kenya Bamboo Workshop discussed ways of ensuring bamboo is included in Kenya's Vision 2030 – the Governments plan for sustainable growth and development for the next 15 years – a result of the increased interest and awareness of bamboo generated initially by the EABP.

Currently, INBAR is offering assistance to the Ministry of Agriculture, Ethiopia, and its China partner the International Centre for Bamboo and Rattan, for the establishment of the Ministry-run "Africa Bamboo Centre", a technical and training base that is intended to provide significant support for bamboo-based development in the entire continent. INBAR is also in discussions with the Worldbank and Ethiopia's Ministry of Agriculture to run the bamboo component of the Sustainable Land Management Programme II initiative in Ethiopia.

The CFC-funded 2003 Workshop and the EABP have clearly been instrumental in fostering this commitment to bamboo for long term green development at the highest levels in Ethiopia and Kenya, and more and more countries are taking note.

### **Innovating with rattan in West Africa**

In 2008, INBAR and CFC collaborated on a Fast Track project entitled "Assessment of the feasibility of rattan processing and marketing for sustainable income generation in West Africa" to build the capacity of rattan processors in Ghana to innovate higher-value products and to market them well. Most rattan producers in Ghana work by roadsides where they can easily sell to passers-by, but there has been little attempt to improve the relatively basic production methods used, and the quality of the products could be improved. To help, this small project trained 24 rattan producers in better methods of production, and in design, as quality and innovation for rattan products is essential to opening market presence – rattan products are not essential, and the market depends on their marketability. The work was complemented by a review of the rattan sector in Ghana and Togo, with recommendations for its improvement.

Once the project had ended, producers continued to ask related agencies in Ghana, as well as INBAR, for more training and help with developing their businesses. As a result, the government of Ghana decided to invest in Common Facility Centres for rattan producers in Accra and Kumasi, to act as incubation

centres for rattan producers, where they can work using high quality tools, get training and support, share opportunities with fellow producers, and have a safe place to sell their wares, one that could develop over time as "the" place to go to buy high-quality rattan products. Concurrently, the rattan producers set up a rattan producers association, and INBAR coordinated and produced proposals for technical support for the centres, including establishment costs and the procurement of tools and equipment.

The two centres are operational and act as training *cum* facilitation centres. There are now many improved rattan designs in the market, and competition has been created amongst the producers leading to an increase in quality. Consumers are reportedly more satisfied with the products and sales have increased – and there has been an appreciable increase in acceptance of local rattan products compared to before the CFC project started. Moreover, the government now sees the rattan sector as an avenue for job creation for youth and the unemployed, and is preparing to work with other partners including donors to help realize this.

### **HS codes**

One of INBAR's key responsibilities as an International Commodity Body (ICB) is the collation and provision of trade data on bamboo and rattan products. INBAR has been working on the identification of bamboo and rattan in the WCO Harmonized Commodity Description and Coding System (Harmonized System or HS) since 2002, in order that more bamboo and rattan-specific HS codes will contribute to the development of healthy bamboo and rattan sectors and sustainable development – bamboo and rattan had hitherto been lumped with wood products, and so it was not possible to track their trade. In 2007, a set of more specific codes proposed by INBAR were introduced by WCO making 16 6-digit HS codes for bamboo and rattan commodities, covering 7 categories, among of them 10 codes for bamboo, 4 for rattan, and 2 codes for mixed bamboo and rattan, and these are still in use today.

The enhanced recognition of bamboo and rattan products in the international market will provide the possibility for developing countries to monitor, assess and stimulate the evolving trade and developing markets of bamboo and rattan. Accurate and timely monitoring of international trade in bamboo and rattan enables policy makers and researchers to better understand the effects of their decisions and recommendations on the sectors and their participants, and to take appropriate steps to support them further. Entrepreneurs and investors can understand the potential of overseas markets, whilst producers can use the data to inform development of products targeted to specific markets.



Figure 1: World exports of bamboo and rattan in 2012 in US\$ million

	US\$ million	Percentage (%)
Bamboo and rattan raw materials	96	5
Industrialized bamboo products	541	29
Bamboo woven products	476	25
Bamboo and rattan furniture/seats	291	15
Preserved bamboo shoots	276	15
Rattan woven products	209	11
<b>World export of bamboo and rattan in 2012</b>	<b>1889</b>	<b>100</b>

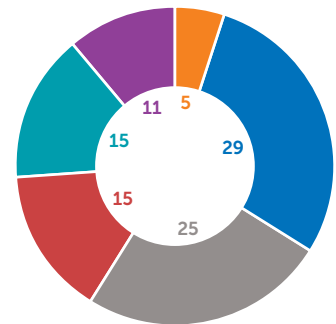


Figure 2: World exports of bamboo and rattan products from 2007 to 2012 in US\$ million

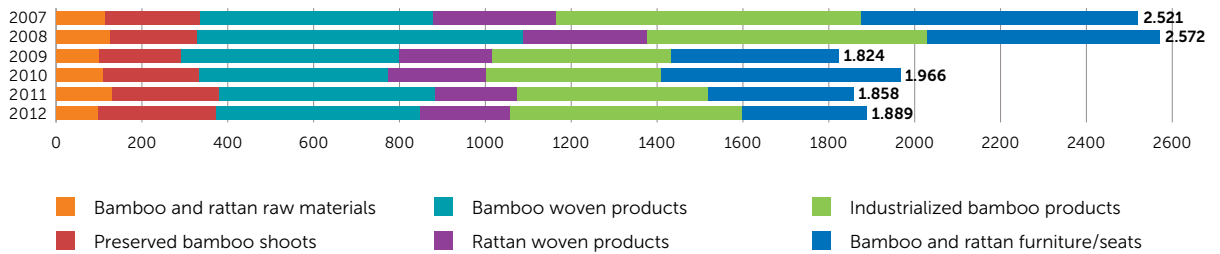
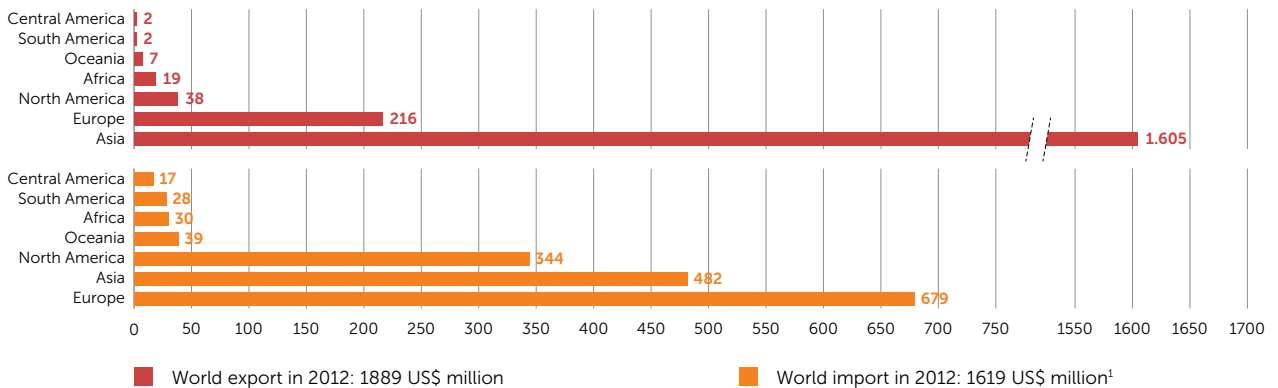
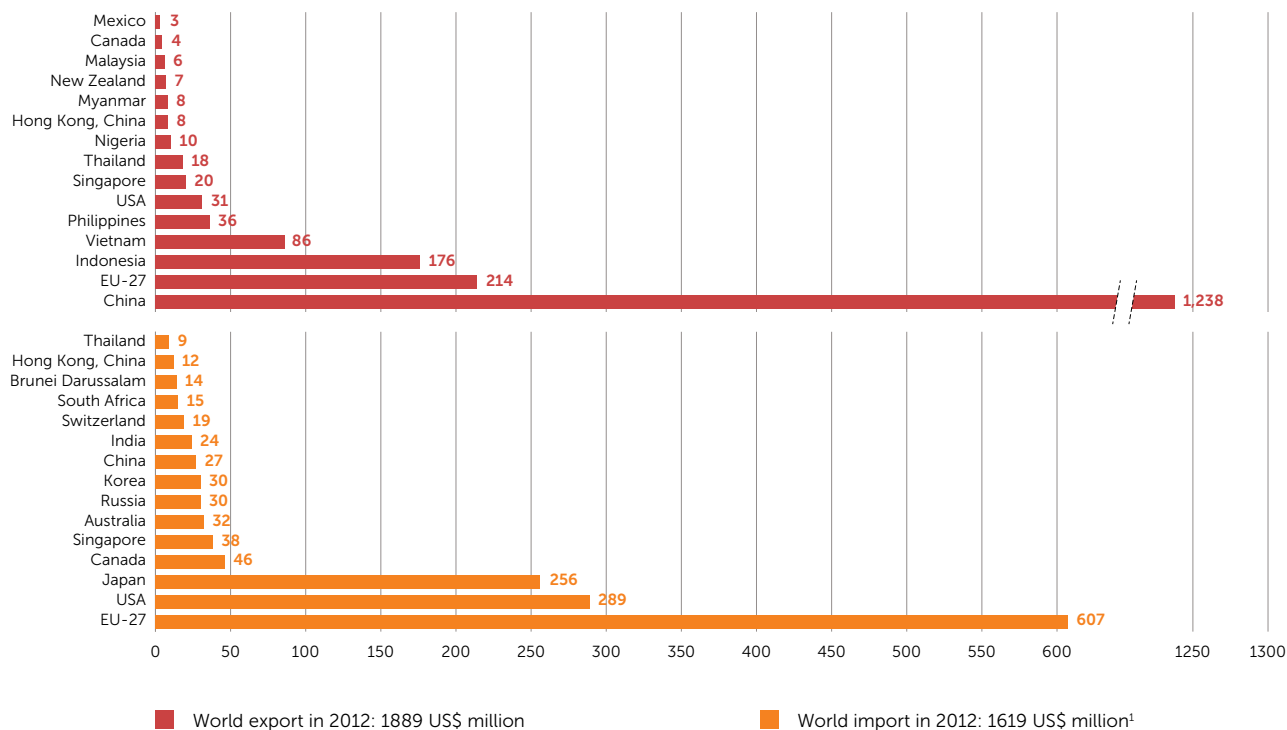


Figure 3 Main trading areas of Bamboo and rattan products in 2012 in US\$ million



<sup>1</sup>The \$270m difference between the import and export values is due to differing levels of costs such as transportation and taxes levied on imports and/or exports in different countries.

Figure 4 Major exporters and importers of bamboo and rattan products in US\$ million



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### Bamboo construction in Latin America

INBAR's CFC-funded work on bamboo in Latin America with the EC takes an inter-commodity approach to promote more diversified sources of income for the rural poor and avoid dependence on one commodity only. The project, with complementary funds from the EC and the Worldbank, works in Ecuador and Peru and aims to develop and improve bamboo-based businesses. Construction is the main production chain for bamboo in Ecuador and Peru – more than 1.2 million people live in bamboo homes in Ecuador and a similar number in Peru. However, despite its ubiquity, construction with bamboo has been illegal in both countries until recently – meaning that bamboo homes cannot be insured, and neither can those building them, and so the sector is unregulated and standards are non-existent, resulting in potentially dangerous structures and limited investment.

The project has so far set up a value chain for construction covering 2,000 people and built over 200 homes. As a result, the government of Peru approved national construction codes for bamboo in 2012, and in 2013 the project organized a regional conference to update these national codes – and a manual for

*In Ecuador, the project has innovated modern versions of the traditional "pack-flat" bamboo homes of the charity Viviendas del Hogar de Cristo*

Photo: INBAR



constructing with bamboo in Peru is now available. In Ecuador, a similar approval process is reaching its climax – formal approval by the Ministry of Housing. The project has also developed a regional construction code for bamboo, as the bamboo species used for construction in the region are the same, which can be used by other countries in the region to develop their own national codes. As a result of the project, and the training and capacity building in technical and management aspects of bamboo forests, and the development and use of a simple financial model that producers and growers can use, bamboo is now seen as a valuable crop with much potential, and has been included in national plans in relevant ministries in both Ecuador and Peru.

This is just a part of INBAR's work to boost bamboo for construction worldwide, much of which has been funded by CFC. INBAR's first CFC-funded housing project was implemented by its partner the International Center for Bamboo and Rattan in earthquake-hit Sichuan province in 2008. The Wenchuan earthquake killed 80,000 people and destroyed the homes of many more. INBAR and ICBR took steps with CFC to build a series of prefabricated bamboo houses that could be erected rapidly and provided warmer and quieter homes than the alternatives in use. This itself encouraged INBAR to look deeper into the

potential of bamboo in the Wenchuan area, and we have subsequently worked with EC and Citi Foundation and EU Switch Asia Programme-funding to develop an integrated programme of bamboo-based livelihood enhancement schemes that have helped create over 50,000 jobs.

In Bhutan, CFC Fast Track funding has enabled INBAR to work on substituting timber components of traditional Bhutanese housing with bamboo, and building capacity of government agencies to consider bamboo as an alternative. As well as building demonstration houses, we have developed demonstration nurseries – the first in the country – where best practice bamboo cultivation is demonstrated, and conducted a market study for bamboo in Bhutan, which has recently been published. Over 178 ha of bamboo have been planted. In partnership with the Social Forest and Extension Division (SFED) of the Royal Government of Bhutan, INBAR worked with District Forestry Offices to build local capacity on bamboo production, as well as enhance the local resource base. Before 2010, no modern houses using bamboo as the primary structural element had been constructed in Bhutan. However, following the initial house, the country has now built an additional three bamboo structures. New technologies, such as portable "boucherie" preservation

*There is growing interest in the substitution of wood charcoal with bamboo charcoal in many nations, as countries seek greener ways to fuel their development*



Photo: INBAR

technology have helped to overcome traditional barriers to bamboo construction in the Kingdom. Modern construction techniques for building bamboo-framed structures have been adopted by community forest management groups.

INBAR has also worked with CFC on a project to develop pre-fabricated bamboo housing in Ethiopia – INBAR takes its catalyst role in bamboo housing very seriously, and CFC has been an important partner in enabling us to do so. Recently, and building on our work with CFC, INBAR became a founding partner in the Global Housing Sustainability Network, a new initiative of UN Habitat. INBAR has also been instrumental in operationalising a Technical Committee of the International Standards Organisation (#TC165) that covers the development of international standards for engineered bamboo construction.

A new CFC Fast Track programme currently under development will support the Nepalese private sector to work with disaster-affected communities to develop bamboo resources and supply chains so that they can significantly contribute towards post-disaster, earthquake-resistant reconstruction, renewed local livelihoods, and mountainous area restoration. The programme will respond to the enormous demand for rebuilding materials following the devastating earthquake that struck on the 25th April adversely affecting over 8 million people, by contributing to environmentally sustainable post-disaster reconstruction in Nepal. The programme will support two agencies, Himalayan Bamboo and the Adobe and Bamboo Research Institute, to

Photo: INBAR



Photo: INBAR



develop their bamboo supply chain models, creating vertical linkages to rural smallholder farmers, in disaster affected areas. Ten demonstration school structures and 150 houses will be built, and awareness raised amongst relevant groups to encourage the inclusion of bamboo housing in public procurement, development agency and humanitarian relief programmes.

Specific information on the outcomes of the projects mentioned in the article or others in the growing CFC/INBAR project portfolio can be obtained from INBAR: [info@inbar.int](mailto:info@inbar.int)

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*China's domestic market in bamboo and bamboo products is worth some 20 BN USD per year*