



11th
**WORLD
BAMBOO
CONGRESS
PROCEEDINGS**
Xalapa, Mexico



2018 THE WORLD BAMBOO ORGANIZATION. ALL RIGHTS RESERVED.
worldbamboo.net
worldbamboocongress.org

ISSN 2150-1165



SPONSORS





CONTENTS

PART 1: WELCOME

Letter from the Executive Director, WBO

Letter from the President, WBO

11th WBC International Organizing Committee

11th WBC National Organizing Committee

Letter from the President of the International Organizing Committee

From the 11th WBC Technical Committee

11th WBC Technical Committee Members

The World Bamboo Pioneer Award

Music: Cornelius Boots

WBC Sessions / Themes

World Bamboo Ambassador Stories

The Damyang Call

PART 2: KEYNOTES

PART 3: PAPERS

PART 4: POSTERS

The background of the image features a dynamic, abstract design. It consists of several thick, curved bands in two colors: a bright lime green and a medium blue. These bands are layered and overlap, creating a sense of depth and movement. The green band is positioned at the top, while the blue band is more prominent in the center and lower areas. The overall effect is reminiscent of a stylized landscape or a modern graphic abstract.

WELCOME

Letter from the Executive Director, WBO



To WBC participants, and all who are involved in bamboo around the world,

On behalf of the World Bamboo Organization, I welcome you to Xalapa to this 11th World Bamboo Congress.

The need to manage & utilize bamboo as a sustainable resource with myriad applications is being acknowledged and touted around the world by many. The attention of global alliances in both the public and private sector continues to expand positively as bamboo becomes more recognized as a sustainable solution to many of our planet's needs. Conservation, protection of biodiversity and best management practices of forests (natural and planted) continue to be seen as vital to mitigate climate change. Alternatives for fuel, fiber, food and building material are not just desired, but a must.

I am gratified by the expanding recognition bamboo is receiving. We have been working a long time in anticipation for this moment of acceptance. It is humbling now that people are listening. The whisper of bamboo is becoming a roar.

The World Bamboo Congress has brought together passionate people who have long believed in the benefits of bamboo, who have worked to prove that bamboo does matter, and who come to share their knowledge and experiences with like-minded colleagues in an atmosphere of mutual respect. As a grass-roots, bottom-up organization, the WBO continues to work hard to keep bamboo strong.

My sincere appreciation goes to the team of World Bamboo Ambassadors who do amazing work, who gladly share their passion with the world, and who are dedicated in this shared mission.

Thanks to all of you, participants and speakers, and to the organizers of this event. Together, we know that bamboo is growing.

Sincerely,

A handwritten signature in black ink, appearing to read "Susanne Lucas".

Susanne Lucas
Chair, International Organizing Committee, 11 WBC Mexico

Carta de la Directora Ejecutiva, WBO



Para los participantes de Congreso Mundial de Bambú (WBC), y todos los que están involucrados en el bambú en todo el mundo,

En nombre de la Organización Mundial de Bambú (WBO), les doy la bienvenida a Xalapa en este XI Congreso Mundial de Bambú.

La necesidad de gestionar y utilizar el bambú como un recurso sostenible con innumerables aplicaciones está siendo reconocida y promocionada en todo el mundo por muchos. La atención de las alianzas mundiales tanto en el sector público como en el privado continúa expandiéndose positivamente a medida que el bambú se vuelve más reconocido como una solución sostenible para muchas de las necesidades de nuestro planeta. La conservación, la protección de la biodiversidad y las mejores prácticas de manejo de los bosques (naturales y plantados) continúan viéndose como vitales para mitigar el cambio climático. Las alternativas para el combustible, la fibra, los alimentos y el material de construcción no solo son deseables, sino también imprescindibles.

Me gratifica el creciente reconocimiento que está recibiendo el bambú. Hemos estado trabajando mucho tiempo en anticipación de este momento de aceptación. Se convierte en algo respetable ahora que la gente está escuchando. El susurro del bambú se está transformando en un rugido.

El Congreso Mundial de Bambú ha reunido a personas apasionadas que siempre han creído en los beneficios del bambú, que han trabajado para demostrar que el bambú sí importa, y que comparten sus conocimientos y experiencias con colegas de ideas afines en una atmósfera de respeto mutuo. Como organización de base y ascendente, la WBO sigue trabajando duro para mantener el bambú fuerte.

Mi más sincero agradecimiento al equipo de embajadores mundiales de bambú que hacen un trabajo increíble, que con gusto comparten su pasión con el mundo y que están dedicados a esta misión compartida

Gracias a todos ustedes, participantes y oradores, y a los organizadores de este evento. Juntos, sabemos que el bambú está creciendo

Sinceramente,

A handwritten signature in black ink that reads "Susanne Lucas". The signature is fluid and cursive, with "Susanne" on the top line and "Lucas" on the bottom line.

Susanne Lucas

Executive Director, World Bamboo Organization

Presidente del Comité Organizador Internacional, 11th WBC

Letter from the President, WBO



Dear Participants,

For almost thirty years, the World Bamboo Organization, the only independent global network on bamboo, has forged high quality links with - and between - the best players in the sector. At the heart of its international network of more than 5,000 volunteers is an intense desire to understand and share knowledge, techniques and the latest discoveries related to bamboo.

This rhizomatic matrix operates freely, without central government, without obligations or constraints of any kind. The WBO considers that the individual is the sole master of his choices and interactions. Free to create and develop his space and his field of research. Only the exchange of intelligence and know-how passes through this human group as the energy of a bamboo forest flows through the interlacing rhizomes and leads to its expansion. This flexibility, this adaptability, is the cradle of fruitful exchanges that are in no way restrained by categorical, professional or social affiliations. In this space of freedom, the words of the professor, the researcher or the architect, have the same value as that of the farmer, the transforming artisan or the entrepreneur. Only debate matters. It is this openness that has always led the meetings of the dozen World Bamboo Congresses. This is what has always made its strength and originality.

These moments of exchanges so fruitful, which mark the participants of a deep trace, persist beyond time, by the passion of networking. This way of thinking and acting, transcends the traditional virtues of pyramidal structures, to bring out for individuals another way of being in the world. A bit like a mature bamboo is the energy carrier to be transferred to newcomers or to share with the congener already present. And that without waiting for the slightest interference, just naturally. In the human world, this new way of interacting with others, with horizons and openness to the world, is a source of new wealth. This is what WBO strives to put

forward in its many network interfaces. Everyone is free to use the depth of resources of these wells of knowledge and exchange.

To strengthen its potential for international collaboration, the WBO has set up a network of forty-five Ambassadors. Beyond their professional and social functions, they act as the official representative of WBO in the countries where they are. These bearers of ideas and interactions act like agents of knowledge and knowledge in their area of activity, a true "bamboo-hub". Researchers who radiate and interact internationally. With more, and more often, the establishment of the World Bamboo Workshop will open new consciousness to the use of a renewable resource. A real job of education and promotion to young people.

Participating in these exchanges, you add the value of your knowledge and you enrich the strength of knowledge of others. This is the primary and fundamental function of the WBO. Thank you for participating.

A handwritten signature in dark blue ink, appearing to read "MA." The "M" is a stylized, upward-curving shape, and the "A" is a simple, vertical, slightly slanted line ending in a dot.

Michel Abadie
President, World Bamboo Organization

Carta del Presidente del WBO



Queridos participantes,

Por casi treinta años, la Organización Mundial del Bambú (WBO), la única red independiente de bambú, ha forjado vínculos de alta calidad con –y entre- los mejores jugadores del sector. En el corazón de su red internacional de más de 5,000 voluntarios, hay un intenso deseo de comprender y compartir conocimientos, técnicas y los últimos descubrimientos relacionados con el bambú.

Esta matriz rizomática opera libremente, sin gobierno central, sin obligaciones o restricciones de ningún tipo. La WBO considera que el individuo es el único maestro de sus elecciones e interacciones. Libre para crear y desarrollar su espacio y su campo de investigación. Solo el intercambio de inteligencia y del “saber cómo”, pasa a través de esta agrupación humana, como la energía de un bosque de bambú fluye a través de los rizomas entrelazados y conduce a su expansión. Esta flexibilidad, esta adaptabilidad es la cuna de intercambios fructíferos que de ninguna manera están restringidos por afiliaciones categóricas, profesionales o sociales. En este espacio de libertad, las palabras del profesor, el investigador o el arquitecto tienen el mismo valor que el del granjero, el artesano transformador o el emprendedor. Solo el debate importa. Es esta apertura la que siempre ha liderado los encuentros de una docena de Congresos Mundiales de Bambú. Esto es lo que siempre ha hecho su fuerte y su originalidad.

Y estos momentos de intercambios tan fructíferos, que marcan a los participantes de manera profunda, persisten más allá del tiempo, por la pasión del trabajo en red. Esta manera de pensar y de actuar trasciende las virtudes tradicionales de las estructuras piramidales, para ofrecer a los individuos otra forma de ser en el mundo. Un poco como un bambú maduro que es un portador de energía, que se transfiere a los recién llegados o que comparte con el congénere ya presente. Y eso sin esperar la menor interferencia, sólo naturalmente. En el mundo humano, esta nueva forma de interactuar con los demás, con horizontes y apertura al mundo, es una fuente de nueva riqueza. Esto es lo que la WBO se esfuerza por presentar en sus múltiples interfaces de red. Todos son libres de usar la profundidad los recursos de estas fuentes de conocimiento e intercambio.

Para fortalecer su potencial de colaboración internacional, la WBO ha establecido una red de cuarenta y cinco embajadores. Más allá de sus funciones profesionales y sociales, actúan como representantes oficiales de la WBO en los países donde se encuentran. Estos portadores de ideas e interacciones actúan un poco como portadores de sabiduría y conocimiento en su área de actividad, un verdadero "Bamboo-hub". Investigadores que irradian e interactúan internacionalmente. Con cada vez más frecuencia, el establecimiento de un "Worshop Mundial de Bambú" abre nuevas conciencias al uso de un recurso renovable. Un verdadero trabajo de educación y promoción para los jóvenes.

Al participar en estos intercambios, agregas el valor de tus conocimientos y enriqueces la fortaleza del conocimiento de los demás. Ésta es la función principal y fundamental de la WBO. Gracias por tu participación.

A handwritten signature in dark blue ink, appearing to read "MA." followed by a period. The "M" is a stylized, upward-curving shape, and the "A" is a more standard vertical shape with a horizontal bar across it.

Michel Abadie
Presidente, WBO

11th WBC INTERNATIONAL ORGANIZING COMMITTEE

Susanne Lucas, Chair
Executive Director, WBO

Michel Abadie, Co-Chair
President, WBO and Executive Director, Bamboo for Planet

Hector Archila Santos
Engineer, University of Bath UK and CEO, Amphibia Group

Guillermo Mortera
Executive Director, Es Bravo

Nirmala Chongtham
Researcher, Panjab University

Martin Mortera
Project Manager, DICMA Trade

Sonja Sheasley
Corporate Sponsorship Director

11th WBC NATIONAL ORGANIZING COMMITTEE

Mauricio Guillaumin - Chair

Logistics Coordinator/Coordinador de logística
Bambuver A.C.

Eduardo D'esezarte, Co-Chair

Coordinador de consecución de recursos/Coordinator of Sponsors
Bambúes Edel S. de P.R. de R.L.

Jessica Zalapa, 11WBC Secretariat

Information Coordinator /Coordinadora de información/
Secretary de Bambúes y Forestales A.C.
BamBas

Sergio Hernandez Martinez

Finance Coordinator/Coordinador financiar
11th WBC Treasurer

Ma. Fernanda Gutiérrez

Design Coordinator/Coordinadora de diseño
UNAM / Industrial Design

Carlos Chávez

Design Coordinator/Coordinador de diseño
UNAM / Sustainable Materials

Pablo Hernández

Comité de consecución de recursos/Sponsorship Committee
Bambú Cid / Plant Propagation

Wiliams Lagunes

Logistics Committee/ Comité de logística
Bambúes Edel

Daniel Augusto Santamaría

Cultural Coordinator/Coordinador de cultura
BamBas

Letter from the President of the National Organizing Committee



Dear Ladies and Gentlemen,

Respectable representatives of governmental and non-governmental authorities, sponsors, entrepreneurs, researchers, artisans, students and in general to all the members of the world's bamboo community, on behalf of the National Organizing Committee of the 11th World Bamboo Congress, it is an honor to give you the welcome to our country and to our beautiful city of Xalapa Veracruz during these 5 days where we will approach a full agenda of diverse topics such as the one we have gathered, to exchange points of view and reach agreements that will allow us to promote growth, employment, and production of this important plant.

Since the 10th World Bamboo Congress held in Korea in 2015 to nowadays, in our different workplaces we have worked to achieve fundamental progress in the management of bamboo. However, the road is still long and with much to achieve. Global forums like this will allow us to unify and strengthen our efforts around the development of this wonderful plant and its wide possibilities for development.

On behalf of each of the members of the National Organizing Committee, we thank you for your presence at this event and we wish you a happy and gratifying experience.

“Mi casa es tu casa ¡Viva México!”

Mauricio Guillaumin C.

Mauricio Guillaumin Croda

President of the National Organizing Committee

Carta del Presidente del Comité Organizador



Apreciables Señoras y Señores,

Respetables representantes de autoridades gubernamentales y no gubernamentales, patrocinadores, emprendedores, investigadores, artesanos, estudiantes y en general a todos los miembros de la comunidad del bambú del mundo, en representación del Comité Organizador del 11 Congreso Mundial del Bambú, es un honor darles la bienvenida a nuestro país y recibirles en nuestra hermosa ciudad de Xalapa Veracruz durante estos 5 días dónde abordaremos una agenda nutrida de diversos temas como la que hemos conjuntado, para intercambiar puntos de vista y llegar a acuerdos que nos permitirán potenciar el crecimiento, empleo y producción de este importante cultivo.

Desde el Congreso Mundial realizado en Corea en 2015 a la fecha, en nuestras diversas trincheras hemos trabajado para lograr progresos fundamentales en el manejo del bambú; sin embargo, el camino aún es largo y con mucho por lograr. Foros globales como éste nos permitirán unificar y fortalecer nuestros esfuerzos en torno al desarrollo de este maravilloso cultivo y sus amplias posibilidades de desarrollo.

De parte de cada uno de los miembros del Comité Organizador, les agradecemos su presencia a este evento y les deseamos una feliz y provechosa experiencia.

“Mi casa es tu casa ¡Viva México!”

Mauricio Guillaumin C.

Mauricio Guillaumin Croda

Presidente del Comité Organizador Nacional, 11th WBC

From the 11th WBC Technical Committee

The 11th World Bamboo Congress comes to Mexico, the country with its diverse landscape of mountains, jungles, beaches and ancient ruins and of course – bamboos. Since the announcement of the Congress, there has been a lot of enthusiasm and positive response as evidenced by the fact that 103 papers and 12 abstracts for posters were received from 25 countries. The theme of this congress is divided into three main sections: Environment, Society and Economy which further consists of sub themes encompassing various aspects of bamboo. The submitted papers are very diverse covering Taxonomy, Propagation, Environment, Community and Economic development, Industry, Food and Pharmaceuticals, Business and Architecture. We will have the opportunity of listening to 12 keynote speakers who will share their rich knowledge of bamboo and experiences with all of us.

The 11WBC Technical Committee consists of a strong team of 26 members who are experts in their respective fields. We have all worked together sincerely to evaluate all the papers submitted for presentation and selected the best ones. It was indeed a tough job but was made easy due to the cooperation and dedication of all the members. Special thanks to Eric Hasel (France), whom we had requested to evaluate some of the papers as it was beyond the purview of the Technical Committee.

To Michel Abadie, President WBO and Susanne Lucas, Executive Director WBO, our heartfelt thanks for their efforts and for having carried the baton of the Congress. Thanks also to the 11WBC National Team for their concerted efforts in shaping and bringing out the best for this event.

We look forward to a great Congress and hope that it will bring about new ideas and aspirations for socio-economic development through this wonderful plant - Bamboo.

Co-Chairs of Technical Committee



Nirmala Chongtham



Hector Archila

Del Comité Técnico de 11th WBC

El 11th Congreso Mundial de Bambú (WBC) viene a México, un país con un diverso paisaje de montañas, selvas, playas y ruinas antiguas y, por supuesto - bambúes. Desde que fue anunciado el Congreso, se ha manifestado bastante entusiasmo y respuestas positivas, como lo demuestra el hecho de que se recibieron 103 documentos y 12 resúmenes de carteles de 25 países. La temática del Congreso se divide en tres secciones principales: Medio ambiente, Sociedad y Economía, los cuales constan de subtemas que contienen varios aspectos del bambú. Los trabajos presentados son muy diversos, en los que se incluyen temas sobre taxonomía, propagación, medio ambiente, desarrollo comunitario y económico, industria, alimentos y productos farmacéuticos, negocios y arquitectura. Tendremos la oportunidad de escuchar a 12 oradores principales que compartirán sus amplios conocimientos de bambú y experiencias con todos nosotros.

El Comité Técnico de 11WBC consiste en un sólido equipo de 26 miembros, expertos en sus respectivos campos. Verdaderamente hemos trabajado juntos para evaluar y seleccionar todos los mejores trabajos, mismos que serán presentados. Fue realmente un trabajo difícil, pero se hizo fácil gracias a la cooperación y la dedicación de todos los miembros. Un agradecimiento especial a Eric Hasel (Francia), a quien hemos solicitado que evaluará algunos de los documentos, ya que estaba fuera del alcance del Comité Técnico.

A Michel Abadie, Presidente de la OMB y Susanne Lucas, Directora Ejecutiva de la OMB, nuestro más sincero agradecimiento por sus esfuerzos y por haber llevado el testigo del Congreso. Gracias también al Equipo Nacional por sus esfuerzos concertados en dar forma y sacar lo mejor para este evento.

Esperamos tener un gran Congreso y que genere nuevas ideas y aspiraciones para el desarrollo socio-económico a través de esta maravillosa planta: Bambú.

Co Presidentes del Comité Técnico



Nirmala Chongtham



Hector Archila

11th WBC Technical Committee Members

Co-Chair

Dr Nirmala Chongtham – India

World Bamboo Ambassador

Food and Nutrition

Department of Botany

Panjab University

Email: cnirmala10@gmail.com

Co-Chair

Dr Hector F. Archila - UK

World Bamboo Ambassador

Architecture and Engineering

CEO at Amphibia BASE Ltd

Researcher at University of Bath, UK

Email: hector.archila@bath.edu

Dr Jean-Luc Kouyoumji - France

World Bamboo Ambassador

Architecture

FCBA - CTBA Technical Center For Wood And Furniture;

Timber Construction Group, Research Division

Email: jean-luc.kouyoumji@fcba.fr

Ximena Londoño – Colombia

World Bamboo Pioneer

World Bamboo Ambassador

Taxonomy

El Paraíso del Bambú y La Guadua

Email: ximelondo@gmail.com

Dr Lynn Clark - USA

World Bamboo Ambassador

Taxonomy and Phylogeny

Iowa State University

Department of Ecology, Evolution, and Organismal Biology

Email: lgclark@iastate.edu

Dr Cherla Sastry – Canada
World Bamboo Pioneer
Community and Economic Development
Professor (Adjunct) Forestry
University of Toronto
Email: cherla.sastry@sympatico.ca

Dr M.S. Bisht - India
Food and Socio-economic Development.
Centre for Science Education
North-Eastern Hill University
Email: msbisht@nehu.ac.in

Dr Andras Darabant - Austria
Forestry and Ecology
Department of Forest and Soil Sciences
University of Natural Resources and Life Sciences, Vienna.
Email: darabant@gmail.com

Neelam Manjunath - India
Architecture
Manasaram Architects
Email: mansarch@gmail.com

David Wang - China
Economical aspects
World Bamboo Ambassador
MIT, Massachusetts
Email: david.chinfei.wang@gmail.com

Li Fang Tang - Taiwan
World Bamboo Ambassador
Community and Economic development
Yunlin Story House
Email: lifangtangtw@gmail.com

Darrel DeBoer - USA
World Bamboo Ambassador
Architecture
DeBoer Architects
Email info@BambooBuildingEssentials.com

Eduardo Ruiz-Sanchez - Mexico

Taxonomy

Universidad de Guadalajara

Email: ruizsanchez.eduardo@gmail.com

Dr Caori Patricia Takeuchi – Colombia

Engineering

Universidad Nacional of Colombia

Email: cptakeuchit@unal.edu.co

Dulce Blanca Punzalan – The Philippines

World Bamboo Ambassador

Community and Economic development

Director, Filbamboo Exponents Inc.

Email: dulzbtp@yahoo.com

Manuella Mendes Araújo- Brazil

World Bamboo Ambassador

Plant Propagation

Biofábrica CAIG / Agrimex

Email: manuellamendes@joaosantos.com.br

Hugo Gutierrez - Brazil

World Bamboo Ambassador

Propagation and Plantation

Joao Santos Group

Email: germangutierrez@joaosantos.com.br

Elemer Briceño Elizondo – Costa Rica

World Bamboo Ambassador

Ecology and Environment

Cambio Climático y Modelaje de Ecosistemas

Escuela de Ingeniería Forestal

Instituto Tecnológico de Costa Rica

Email: ebriceno@itcr.ac.cr

Dr Peggy Stern - Ecuador

Ecology and Environment

Consultant

INBAR - LAC

Email: pegstern@gmail.com

Wiliams Lagunes Castro - Mexico

Propagation and Plantation

Bambues Edel

Email: wlagunes@gmail.com

David Trujillo –UK

Civil/Structural Engineering and Standards

Senior Lecturer

Coventry University

Email: david.trujillo@coventry.ac.uk

Dr Kent A. Harries - UK

Structural Engineering and Mechanics and Standards

University of Pittsburgh

Email: kharries@pitt.edu

Dr. Edwin Zea-Escamilla – Switzerland

Life Cycle and Sustainability Assessment

Centre for Corporate Responsibility and Sustainability

University of Zürich

Email: edwin.zea@ccrs.uzh.ch

Dr Juan Carlos Camargo – Colombia

Forestry and Bamboo Growth Dynamics

Associated Professor

Technological University of Pereira (UTP)

Email: jupipe@utp.edu.co

Luís Felipe López - The Philippines

Civil/Structural and Earthquake Engineering

Head of Engineering at Base Bahay Foundation

Email: luisfl@yahoo.com

Dr Rebecca Reubens - India

World Bamboo Ambassador

Designer, Sustainability

Rhizome Design Co.

Email: rreubens@gmail.com

The World Bamboo Pioneer Award

In Honor of Bamboo Pioneers

Susanne Lucas

Executive Director, World Bamboo Organization

www.worldbamboo.net / susannelucas@gmail.com



<http://www.worldbamboo.net/mission/bamboo-pioneers>

Living creatures all around the world depend on bamboo for their survival. This includes *Homo sapiens*. We all know that for centuries, human cultures have cultivated and utilized bamboo for their daily needs and through innovation improved their livelihoods and economies.

On the village level, farmers and craftsmen developed techniques which were passed down from generation to generation. In more modern times, man has looked to science for solutions and progress. Through committed research, we have discovered new approaches of how bamboo as a managed resource can lead to the betterment of mankind.

Dedication, determination and collaboration are required to advance any scientific endeavor. There exist individuals whose lifelong commitment to bamboo science and culture deserve our attention and honored recognition. Today, as part of the inauguration of the 11th World Bamboo Congress, we honor 4 of these great Bamboo Pioneers:

Linda Garland
Rafael Guillaumin Fentanes
Ned Jaquith
Ximena Londoño Pava



Linda Garland (1948-2016)

Linda Garland was the founder and president of the Environmental Bamboo Foundation, an institution that has been instrumental in the development of the modern use of bamboo throughout Indonesia and beyond.

Linda was born in 1948 in Ireland, the daughter of a Spitfire pilot and a nurse of Louis Mount Batton's front line. Linda was genetically coded to be a courageous spirit, willing and able to fight for a cause. After starting a career as an 18-year-old designer, Linda unfortunately was involved in a very bad car accident that broke almost every bone on the left side of her body and left her hospitalized for a 2-year recovery process. She was subjected to an experimental procedure of several platinum bone implants. After recovery and a process of deep existential reflection, Linda traveled the world and ended up chasing a textile back to its source in Bali, Indonesia.

She fell in love with Bali, and a few years later (mid-1970's), Linda discovered the island's giant bamboos, and the multitude of bamboo utilization in the traditional way of life in Indonesia. L

As a creative designer, Linda integrated giant bamboo into many of her interior designs. Many of her clients were very high profile, such as Dr. Kajima of Kajima Enterprises, David Bowie,

Richard Branson and several other inspiring people. Linda helped bring bamboo into high fashion in the late 70's and early 80's, and in the process helped several villages create cottage industries. Linda was awarded the Upakarti Award (the very prestigious nation-building achievement recognition award for those in the arts) from Indonesian President Suharto. Her achievements in catalyzing the formation of over 10 cottage industry areas in Bali had been noticed; all flourished into many multi-million-dollar institutions in Bali and elsewhere in Indonesia.

Sofas, chairs, beds, and jewelry: there was no limit to what Linda and her design team created from bamboo. Unfortunately, however, this caused a huge shockwave of demand for bamboo and wood in the replication and interpretation of these designs. Subsequent projects by many other designers "catching the drift" of these new ideas of modernized vernacular style, and within 5 years many unsustainable activities started to destroy bamboo and wood forest areas to supply the demand of these designers. This came at a time when logging in Indonesia was becoming very apparent with large plots of forests disappearing from one year to the next. It was from here that Linda, with her love of bamboo and compassion for the environment, created the "Environmental Bamboo Foundation".



The EBF was conceived as an idea and working group in the mid 80's and was finally officialized in 1992 with Indonesian environmental heroes such as Dr. Emil Salim. The EBF had several objectives; on the one hand it focused on promoting bamboo as a timber alternative with a "learning by doing" approach to developing many bamboo technologies, as well as working with many communities (especially in East Indonesia) to reforest and restore degraded lands with bamboo. These works were noticed by Professor Walter Liese of Hamburg University (*World Bamboo Pioneer 2009*) who worked on many trials of the "modified boucherie Sap Replacement system" of preserving bamboo. The EBF, aided by Dr. Liese and his network, went on to develop the "vertical soak and diffusion system" of preserving bamboo as the most appropriate technology solution for rural farmers in Indonesia who could preserve bamboo "as easy as filling a cup full of water". This work was recognized by Dr. Dina Nath Tewari of the Forestry Research institute of Dehra Dun (*World Bamboo Pioneer 2015*) who awarded Linda an honorary PhD for her achievement in developing the vertical soak and diffusion system.

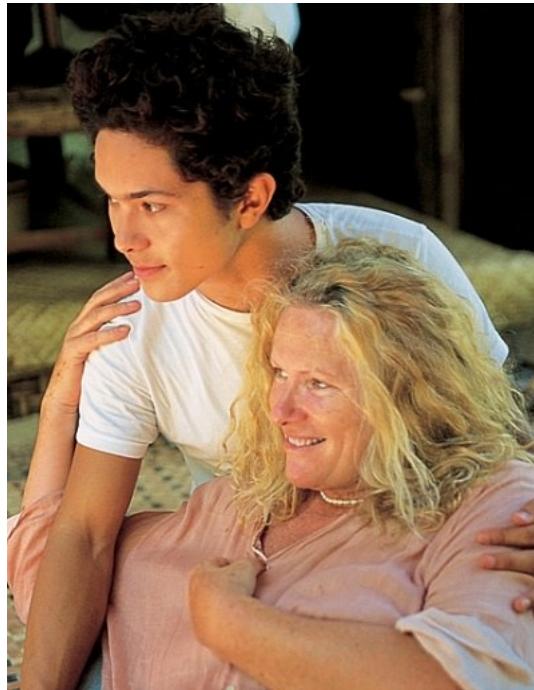
Linda hosted the International Bamboo Congress of 1995 (4th WBC) in her home in Bali, which brought together many different people important to the development of the bamboo sector in an interdisciplinary and interindustry dialogue. Linda indeed showed the world what bamboo could do and set the example of its realities. She inspired many people with her confidence and her abilities, her talents and her charm, and she became known as the "Queen of Bamboo".

I'm not sure if she liked that moniker, Queen of Bamboo, but she achieved a high rank of respect, no doubt. After the IV IBC, she realized many projects and achievements as her Environmental Bamboo Foundation became internationally recognized. Her research into preservation techniques brought advancements in the improved understanding of best management practices, and the IV IBC Proceedings were a compilation of the most recent developments in bamboo science and culture. Remember, this was well before the world-wide-web, and this kind of information was critical for bamboo to advance in modern-day applications.

With the support of Indonesia's Ministry of Environment, the Environmental Bamboo Foundation finalized the First National Strategy, which outlined the conservation and utilization of bamboo for Indonesia, launched by the Minister of Environment Dr. Sarwono Kustmajaya in 1997.

She opened her door (and her heart) to students and designers, investigators and dreamers. Bali already held mystique to many, but now it had become a bamboo mecca, thanks to Linda. People came to meet her, to talk with her, to see what she was doing. Linda pioneered a new world of bamboo – one with tradition but with technological and design innovation – and she realized the vast environmental benefits, which are today touted to mitigate climate change.

Her work lives on in the 1000 Bamboo Villages program that was launched at the COP 21 during the formation of the Paris Agreement. In Indonesia, bamboo has been identified as a key to restoring degraded landscapes whilst at the same time creating a community-based restoration economy in participating villages.



with son Karim

Linda was simply a visionary, a World Bamboo Pioneer like no other, and we are so grateful. Thank you, Linda. May you always feel the bamboo breeze against your cheek, thanking you for crusading for its respect and its promise, as we will all remember your valuable contribution.

Linda's son, Arief Rabik, who continues her passionate work, is here with us today to receive his mother's award.



Ned Jaquith (1939-2012)

Ned Jaquith was founder, owner and manager of Bamboo Garden Nursery in North Plains, Oregon, USA. This nursery is the largest bamboo nursery in the United States, with most likely the largest collection of temperate bamboos growing on more than 20 acres. It sells to growers and to the public, and hosts workshops, tours and special events.

Ned Jaquith was born in Kingman, Arizona USA in 1939 to Nina Rose and Odhus Jaquith, who worked in the nearby desert gold mines. As a small child, he followed his maternal granddad around the garden. During World War II, his parents had a large garden and sold small amounts of produce to a nearby grocery store. Ned was always in the garden helping, despite being only five years old. As a teenager, he had his own vegetable garden. From the age of six until leaving for college, they lived in the small town of Winterhaven, California, one half mile from Arizona and four miles from Baja California, Mexico. Due to Hollywood movies featuring Tarzan and Jungle Jim, and frequent trips to the San Diego Zoo, he developed a fondness for the tropical look of bamboo.

In 1976 Ned moved to Portland, Oregon, bringing a start of *Bambusa oldhamii* with him, not realizing that it was not a species hardy for the Pacific Northwest. It perished, as did his next bamboo, a *Phyllostachys vivax*, which was given to him by a friend (it flowered shortly after it was planted). In 1980, Ned went to a plant sale in Pasadena, California, hosted by the friends of

the Huntington Botanical Garden. There, he bought starts of 12 different bamboos, and joined the newly formed American Bamboo Society.

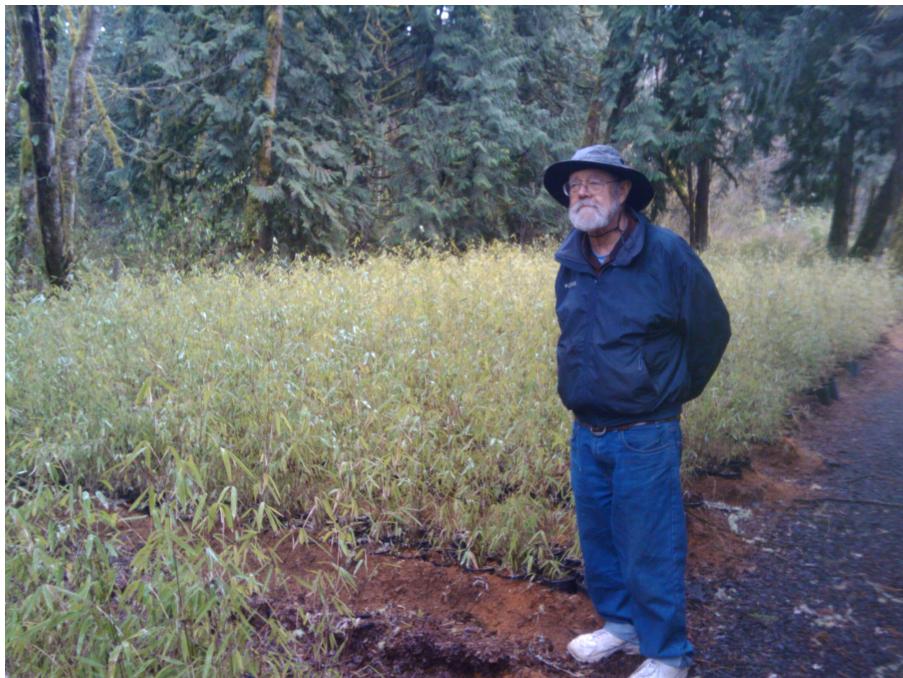
In 1983 Ned helped create the Pacific Northwest Chapter of the ABS, with friend and colleague Daphne Lewis. The next year, he was elected to the Board of Directors of the ABS and attended his first overseas bamboo meeting in Puerto Rico (what now is considered the 1st World Bamboo Congress). Through the years following, he published PNW chapter newsletters and wrote articles for both the national and local publications. He served as vice president of the PNW in 1991-92, President of the PNW in 1997-98, and again president of PNW in 1999 to 2001. In 2003 he was awarded an Honorary Lifetime membership to the American Bamboo Society.



Ned started the nursery Bamboo Garden at his home in 1983, and moved to Milwaukie, Oregon in 1984. Nearly 300 different species of bamboo were collected at that site, when finally, it had

outgrown the small lot. It was time to move to the present 20-acre location in North Plains. Ned had the ability to propagate and grow bamboo so successfully that Bamboo Garden amassed the largest collection of rare temperate bamboo in the country. If a rare species became available, Ned seemed to get a start, and then, in turn, he donated the resulting start to the chapter and national auctions. He also loved to grow bamboo from seeds, which takes a great deal of skill, and tons of patience.

Bamboo Garden Nursery has supplied bamboo for many large commercial landscaping projects including: Tacoma Zoo, Portland Classical Chinese Garden, Portland Japanese Garden, Oregon Zoo, Wellesley College in MA, Wayne Morse Courthouse in Eugene, OR, Asia Trail of the National Zoo in Washington DC, Shangri La Project in Vancouver, BC, and many others. The staff works closely with landscaping companies, providing healthy and beautiful bamboo for commercial and residential landscapes, locally and afar.



*Ned with his seedlings of *Fargesia nitida*, 2010*

Ned loved to travel to just about anywhere to see bamboo. He visited nurseries, arboreta, botanical gardens, private gardens and the wild to see bamboo around the world. He attended every annual conference of the American Bamboo Society, as well as several European Bamboo Society events. He attended the World Bamboo Congress in Costa Rica and Belgium. Sadly, Ned was diagnosed with cancer in July 2012, and despite the best efforts from local doctors and immense support from friends and family, Ned passed away in late September, 2012.

After his death, his wife and friends founded a charity named the Ned Jaquith Foundation. This non-profit foundation commemorates the legacy of Ned Jaquith, a consummate horticulturist and nurseryman specialized in bamboo, and who was particularly interested in bamboo

research, propagation and art. He also was a guy who loved life, cherished his friends, and knew how to laugh.

The purpose of the Foundation is to encourage and support bamboo research projects increasing the collective knowledge of bamboo. The Foundation supports the goals of the American Bamboo Society (ABS) but is a separate working body, administered by an advisory committee. Grant funding is provided to students and researchers who wish to work within the field of bamboo, focused on such issues as botanical identification, wild and domestic collection, genetic preservation, propagation techniques, bamboo art and bamboo-related environmental concerns (i.e. habitat restoration, etc.). The Foundation has non-profit status, allowing individuals, commercial businesses and other societies & organizations to give donations as United States tax-deductible contributions. For more information about the grant application process and the grants that have been awarded, please see the website, www.nedjaquithfoundation.org

Ned was truly a great friend of bamboo, and to anyone who loved bamboo. He generously shared his knowledge and his plants. To honor Ned, Mexican bamboo specialist Eduardo Ruiz-Sanchez named a newly discovered Mexican species after him; *Chusquea nedjaquithii*.
<Phytotaxa 184 (1) 2014>

He was a true pioneer in bamboo in the United States, and he is genuinely missed. He lives forever in the Moso grove. His wife, Nancy Oberschmidt is here today to receive his World Bamboo Pioneer Award.



Ximena Londoño (1958 -)

Ximena Londoño de la Pava lives in a paradise. The Paradise of Bamboo and *Guadua*. The place she dreamt of as a child, when she ran free through the coffee plantation and the *Guadua* stands at the farm La Esmeralda, in the mythic archeological region of Pueblo Tapao in the municipality of Montenegro, Quindío, Colombia.

Her father, Héctor Londoño Convers, one of the founders of the Coffee Growing Committee in the State of Quindío moved his family, made up by his wife Sofia de la Pava de Londoño and their children, from Cali to this farm in 1960. Her contact with the farmland in Quindío from such a young age marked her life and made her aware of the subject of agriculture and of *Guadua*.

Ximena Londoño graduated as an agricultural engineer from the National University of Colombia, campus of Palmira, specialist in the taxonomic botany of the American bamboos, with emphasis on the *Guadua* genus. She has created a small thematic park in one part of her grandparent's farm that has no equal in Latin America because of the exuberance and beauty of nature that is highlighted here by this giant grass, *Guadua*.

Her graduation thesis as a candidate to agronomic engineering at Universidad Nacional de Colombia was a comparative study of the plants associated to the *Guadua* stands of Valle del Cauca and Quindío. With the degree in her hand, she travelled to the Amazons to work in a Colombo-Dutch project to incorporate *Guadua* in the daily activities of the settlers of that region: as fuel, as a means to build housing, rural infrastructure etc., contributing thus to counter arrest the logging of the jungle and the expansion of the agricultural frontier.



From that time onwards, Ximena emerged as one of the most serious scholars of *Guadua* in the country. She travelled to Washington D.C., where she devoted herself to studying the botanical characteristics of the *Guadua* genus at the Smithsonian Institute under the mentorship of Dr. Thomas R. Soderstrom (*World Bamboo Pioneer 2015*), a world expert in the taxonomy of the Bambusoideae. She was awarded several research scholarships from the Smithsonian

Institution, the National Geographic Society, the American Bamboo Society, the Missouri Botanical Garden, the International Timber Organization, and Colciencias among others, which allowed her to do botanical work in several Latin American countries, like Brazil, Guyana, Ecuador, Colombia and Peru, and to advance in the taxonomic knowledge of the American bamboos. She has been an independent researcher since then, living a very active life around the botanical research of bamboo.

Ximena Londoño has several scientific publications to her name, among which we can highlight *American Bamboos*, by Judziewicz, Clark, Londoño & Stern, a book edited by the Smithsonian Press. And, what is most important, she has described for science more than fifty species of Neotropical bamboos. In 1988 she started the largest collection of bamboos in Colombia that includes 75 species from Asia and America. This collection is located at the El Bambusal farm, a portion of the old La Esmeralda farm, inherited from her mother Sofía de la Pava de Londoño. In 2001 at El Bambusal she started a process of change going from conventional agriculture to organic agriculture. Today, in this location, paradise is deployed. The Paradise of Bamboo and Guadua, perhaps the loveliest corner in Quindío, with a thematic park that charms and entralls.



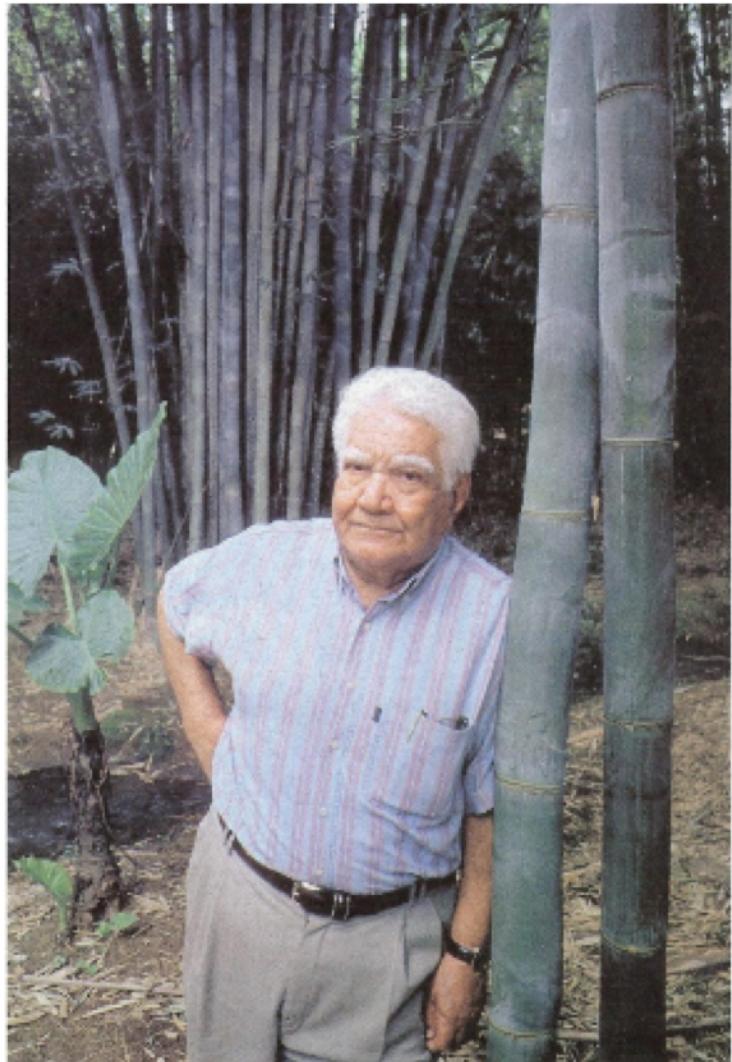
Together with a group of friends, Ximena established the Colombian Bamboo Society, a non-profit organization she leads and chairs since 1998. She is also the chair of the Colombian Committee for the Standardization of Bamboo-Guadua at ICONTEC and member of the international Bamboo Phylogeny Group led by Dr. Lynn G. Clark.

This woman dedicated to bamboo has received multiple awards and recognitions. Among which it's worthwhile to highlight the one granted in 2011 as the *Woman of Bamboo in Latin America*, awarded by the International Network of Bamboo and Rattan (INBAR), and the one received from the Higher University Council of Universidad Nacional de Colombia for her outstanding achievements in research, granted in 2017.

At El Bambusal, Ximena Londoño has reenacted life in a different way, in fantastic rows and aisles of *Guadua*, in a swamp that is out of this world, where the spirit of bamboo sways, hanging from the branches of the *Guadua* plants, while water gurgles from earth attracted by this giant and quaternary grass that summons hundreds of birds and dozens of mammals and reptiles who have come back to their ancient homestead.

<This text is by Miguel Angel Rojas, from Rojas, M.A. 2017. La Mujer del Bambú. En Así Somos, Comfenalco Quindío, Ed. 115. Pp. 48-49>

We are thrilled to have Ximena with us here today to accept her Award!



"La existencia del BAMBÚ es la prolongación de la vida..."

Rafael Guillaumin Fentanes

Rafael Guillaumin Fentanes (1926–2013)

Rafael Guillaumin was the son of a coffee family in Huatusco, Veracruz. In the early 1990's he went looking for alternative crops and discovered bamboo. After working for over 50 years in the coffee sector, mainly as an exporter, he ventured into the manufacturing of lime and tourism due to the declining price of coffee. His business activities also included livestock, sugar cane, and eco-tourism activities. He served as an advisor of the Mexican Association of Coffee Exporters, as a member of the National Confederation of Coffee Producers, was Former President of the Produce Foundation Veracruz, A.C., General Director of Cordial Tourism (Hotel

Los Cocuyos) Regional Councilor of INIFAP, Chairman of the Advisory Committee of the Veracruz Council of Bamboo Acknowledgments and subsequently he founded Bambuver.

Although Rafael was aware of bamboo as an ancestral product, in 1996 he discovered new uses of bamboo in other countries and saw it as a viable option to develop an agroforestry and commercial interest, which could contribute to the improvement of the environment, via reforestation.

Given this perspective, he had the vision of promoting the cultivation of bamboo throughout Mexico and established the company Bambuver AC, in 2000. The company grew strong, and to date, is dedicated to the promotion of the cultivation of bamboo for forestry, for construction purposes, for added value via technology and industrialization, and more recently as biomass for alternative energy.

Rafael Guillaumin spent 12 years traveling to many countries to learn all he could about bamboo cultivation, propagation, harvesting, and manufacturing. Costa Rica, Ecuador, Colombia, Cuba, Venezuela, Brazil and India, showed him adaptable technologies, appropriate species, and best management practices. It was a true exchange. He shared his personal knowledge and motivated farmers in the field to also work in bamboo. He planted nearly three million plants of different varieties in states such as Veracruz, Chiapas, Tamaulipas, San Luis Potosi, Oaxaca, Puebla, Tabasco, Jalisco and Colima, among others.



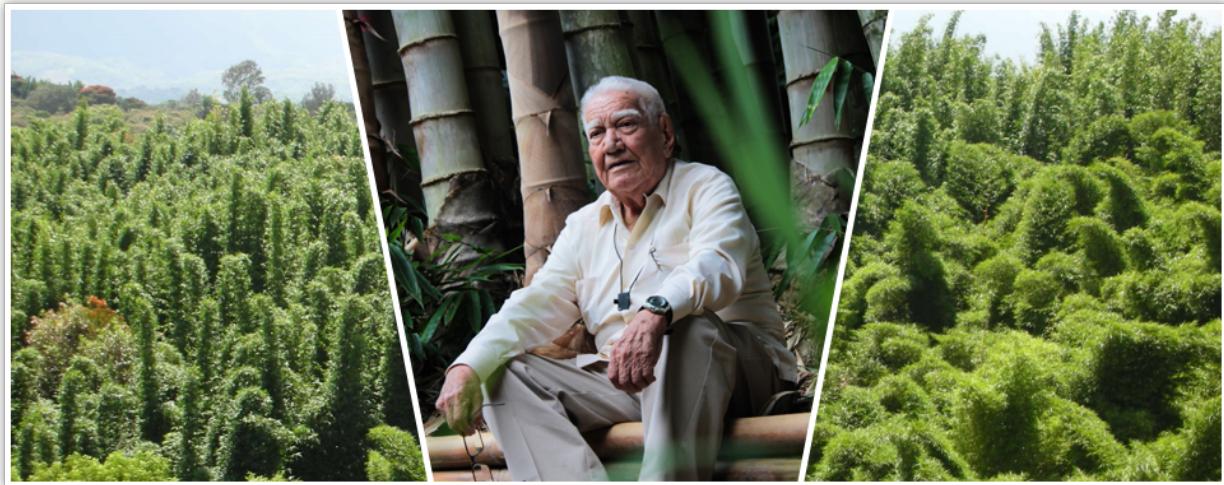
More than a farmer, Rafael was a pioneer in industry. His work and projects generated demand for bamboo, and he developed markets and useful products for various applications. For all these reasons, Rafael Guillaumin Fentanes won the 2009 National Award for Forest Merit, in the non-timber forest category, convened by the Ministry of Environment and Natural Resources, through the National Forestry Commission, delivered at the inaugural ceremony of the Forest Expo 2009 in Mexico City. Later, in the month of November of that same year, his work was recognized by the Colombian Bamboo Society, within the framework of the II Congress of Bamboo and Guadua, held in Armenia Colombia.

During the following years, Rafael Guillaumin continued his work promoting the culture of bamboo. In the year of 2010, he had the opportunity to participate in the construction project of the dome to house the commemorative stele of the 100 years of existence of the National Autonomous University of Mexico (UNAM). Throughout his career, he worked tirelessly to publicize bamboo in prestigious publications such as: *Expansión*, *Content*, *El Financiero*, *La Jornada*, *Leading Magazine*, among others. Thanks to his teachings and encouragement, Bambuver collaborators have been speakers at national and international events. He was a true mentor and friend of all who were interested in bamboo. He collaborated with many organizations and institutions, too, including Conacyt (2000 Bamboo Technology And Research Center), Conafor (2004 Alternative National Integral Development Of Bamboo), Conofovi (2002, Proposal For The Development Of A Methodology For The Construction Of Houses Using Bamboo As A Raw Material), Veracruz Bamboo Council, Veracruz University, UNAM (2001), Technological Institute of Orizaba (2002), DMCYT University of Guadalajara (2003), UAM-UNIT Xochilmilco, College of Postgraduates (2002 Forest Program), UNCADER, CRUO-UACH Autonomous University of Chapingo, Institute of Electrical Investigations, TEZCAPIF AC Alternative Therapeutic and Pedagogical Environmental Training Center, and many others

One of Rafael's main objectives via Bambuver was always social actions. From different places in the marginalized areas, groups came to Bambuver to request information, receive instruction, and sometimes Rafael went to the localities to give the necessary training. For example, a group of peasants of the Sierra de San Luis Potosí, a group of peasants of the Sierra de Puebla, and, on the coast of Chiapas, more than 20 communities adopted the planting of bamboo as an element of protection against natural disasters, as a result of the ravages caused by Hurricane Stan in 2005. He taught five courses in the mountains of Totonacapan in Veracruz. His work is very evident in the region around Huatusco, where producers, craftsmen and workers have joined Bambuver AC to be trained and make a living. Just drive into the community of Huatusco, and you will see bamboo everywhere, thanks to Rafael!

The main objective of Rafael Guillaumin and Bambuver AC has not been the economic one. The main objective has been to make a difference; a difference in the community and the region and the state. It has managed to form an organization today that has an industrial unit producing raw materials for construction, decoration and the furniture industry, and has

become a supplier of bamboo nursery plants for the development of commercial and ornamental plantations throughout the entire country.



Relevant Publications:

Reuters Published November 4, 2004, The Bamboo Steel Vegetable. International Publication, Entrepreneur Magazine Vol.2 No.001
Guillaumin Fentanes, R., 1999. Programs of Integral Development of Bamboo, Bambuver A.C.
Guillaumin Fentanes R., 2001. The Bamboo and its expectations. Agroentorno No. 26.29.
Guillaumin Fentanes R., 1999. Bamboo Vegetable Steel. Expansion No. 778: 95 El Financiero.
March 11, 1999. Mexico, towards the production of bamboo sliver to make paper. The Financial.
May 12, 1999. A Natural Business. Reform.
September 20, 1999. Bamboo, in search of its commercialization. Reportage. Opinion, Xalapa section.

Assistance to International Congresses:

World Bamboo Congress, in Costa Rica, 1998, World Bamboo Congress in India, 2004, International Bamboo Congress, Manizales Colombia, 2004.

Rafael Guillaumin has been a man of work and conviction, no doubt, and at the end of his years, the greatest of his satisfactions and to which he dedicated passion and dedication, was the bamboo, which is why we remember him with such affection and admiration. He was known by his infinity of friends or collaborators as Don Rafael, Rafa, or Fallo. This singular man dedicated the best part of his life to plant bamboo, and in return, reaped joy, enthusiasm, and spiritual strength which overshadowed his natural physical deterioration. He harvested the recognition of thousands of visitors to his space which he alone transformed into bamboo forests.

His son, Maurico Guillaumin, (Chair of the 11WBC Mexico National Organizing Committee) says this about his father:

"It is very natural to praise his memory as a pioneer in the country. I admire him, not for the absence of failures and successes, but for having converted all of them; in experience he has bequeathed us the knowledge that is acquired with the courage to try and with the humility to accept the error and correct it, and the generosity, for sharing it. He said it many times in his participation in forums, congresses, conferences or talks "I do not come to teach them, because I know little. I will feel very satisfied if in the end, I managed to sow in you, the interest to learn." I am left with the desire to turn their stems <bamboo> into paper, into food, into energy. He left me in charge, yes. With what was without doubt, it was with the satisfaction of having sown the seed of what sooner rather than later, will become lungs that oxygenate our environment and make it more beautiful: Bamboo Forests."

Rafael Guillaumin was like the bamboo, "The strong winds, perhaps doubled, but never broke." Mexico's first World Bamboo Pioneer! His son Mauricio is here today to accept his father's Award.

MUSIC

SOLO BAMBOO SHAKUHACHI “A Future Voice from the Distant Past”

A Concert-Presentation by Cornelius Boots

cornelius.boots@gmail.com / <http://corneliusboots.com/>



Shakuhachi--the root-end bamboo, vertical flute of Zen Buddhism--is like a talisman from feudal Japan. Legends of spies, monks and samurai abound in its colorful origins, yet its basic 5-hole, no-mouthpiece design strongly echoes an even more distant time of prehistoric bone flutes. Oddly, it is this same stripped-down, no-frills design that allows the shakuhachi's dynamic adaptation into modern and forward-leaning music.

In the hands of cross-stylistic woodwind pioneer Cornelius Boots, the *jinashi* (100% bamboo) shakuhachi and its baritone brother, *Taimu*, take on blues, rock and heavy metal along with original compositions and the classical *honkyoku* (Zen nature) pieces. A licensed master in the dynamic Zen lineage of *Watazumido*, Boots is also a top graduate of both the classical clarinet and jazz studies departments of the famed Jacobs School of Music.

Active internationally since 1990 as a composer-performer, Boots' latest album of solo shakuhachi adventures, *Bamboo Rising*, was released in April 2018 with support performances and workshops taking place in the summer at both the World Shakuhachi Festival London and the World Bamboo Congress in Xalapa, Mexico. Through collaborations with his life partner Dr. Felicia I. Chavez, who works in sustainability, spirituality and social equity, Cornelius is currently exploring the cross-disciplinary applications of shakuhachi to areas such as cultural diversity, ecological sanity and systems thinking.

His World Bamboo Congress presentation will include selections from his growing, eclectic solo repertoire; an overview of his devotion to music, connection to Zen, struggle with shakuhachi, fixation on bamboo; and at least one joke.

General Genres: World Music / New Music / Folk-Blues / Japanese (Traditional and Contemporary)

Specific Styles:

Bamboo Gospel / Rare Zen / Rustic Avant-garde / Hermit Blues



WORLD BAMBOO CONFERENCE

Xalapa, Mexico

Sustainability = Environment + Society + Economy

“Bamboo: a viable alternative for a sustainable future”

Sustentabilidad = Ambiente + Sociedad + Economía.
“Bambú: Una alternativa viable para un futuro sustentable”

Sessions / Themes / Los Temas :

• Environment / Ambiente

• Society / Sociedad

• Economy / Economía

World Bamboo Ambassador Stories



Selected Ambassadors will present their work and how they promote bamboo

Hector Archila
Colombia/UK
hector_archila@yahoo.com

Maira Bisquett Chang
Chile
bamboobiz.chile@gmail.com

Bryan Benitez McClelland
Philippines
bryan@bambike.com

Guillermo Mortera
Mexico
aamortera@yahoo.com

Martin Mortera
Mexico
guaduamx@hotmail.com

Katia Sei Fong
Uruguay
katiaseifong@gmail.com

The Damyang Call

= A Significant Result of the 10th WBC Korea



“Bamboo for Planet”

We, people of bamboo, invite all government leaders from all countries of our planet to recognize the essential contribution of bamboo in the fight against climate change.

We testify that bamboo is one of the best CO₂ sequestering agro-forestry plants, which is able to restore and protect lands from erosion and degradation, that bamboo can produce high quality woody fiber material from a quickly renewable resource, and that bamboo can be sustainably managed to provide economic revenue for human populations in need.

We urge governments to free bamboo, a giant grass, from the restrictions of outdated national forestry codes to stimulate social and economic developments.

We urge governments to launch innovative policies to stimulate the multi-use of bamboo potentiality on energy, building, medicine, transportation, agro-forestry, nutrition, and other modern innovative capacities.

We plead for governments to support research, exchange knowledge and improve communication on bamboo development for the sake of all humanity.

FROM THE WORLD BAMBOO ORGANIZATION

El Llamado de Damyang

= Un Resultado Significativo del 10º Congreso Mundial de Bambú (WBC) Corea



“Bambú para el Planeta”

Nosotros, gente de bambú, invitamos a los líderes del gobierno de todos los países del planeta a reconocer la contribución esencial del bambú en la lucha contra el cambio climático.

Testificamos que el bambú es una de las mejores plantas agroforestales de captura de CO₂, que puede restaurar y proteger las tierras de la erosión y la degradación, que el bambú puede producir material de fibra leñosa de alta calidad a partir de un recurso rápidamente renovable y que el bambú puede ser manejado de manera sustentable para proporcionar ingresos económicos para las poblaciones humanas necesitadas

Instamos a los gobiernos a liberar el bambú, un pasto gigante, de las restricciones de los anticuados códigos forestales nacionales para estimular desarrollos sociales y económicos.

Instamos a los gobiernos a lanzar políticas innovadoras para estimular el uso múltiple de la potencialidad del bambú en la energía, la construcción, la medicina, el transporte, la agroforestería, la nutrición, y otras capacidades innovadoras modernas.

Suplicamos a los gobiernos que apoyen la investigación, el intercambio de conocimientos y a mejorar la comunicación sobre el desarrollo de bambú para el bien de toda la humanidad

DE LA ORGANIZACIÓN MUNDIAL DE BAMBÚ