Rattan for Sustainable Economic Development: A case study of expanding rattan’s design potential through technology innovation

Leroy Hurt
Doctoral Candidate, Northcentral University
Rattan market

Global rattan trade = US$ 2.5 billion

Increasing demand from 1989 - 2007

Deforestation challenges

Sources:
Photos: WWF Sustainable Rattan Program
Data: I.M. Pabuayon, “The changing market for NWFPs and strategic directions for the bamboo and rattan sector,” XIII World Forestry Congress, October 2009
Rattan basics

Flexible and versatile
- Can produce practically any design of any length, size, shape or diameter for a wide variety of architecture and furniture applications.
- Can bend 360 degrees with minimum radius of 50mm.
- Minimum diameter of 1-3/8” to unlimited diametrical expansion.
- Can be used with wood working joints unlike traditional rattan or bamboo.

Superior physical strength
- Resistant to bending and shearing stresses even with sharp curvatures unlike wood, bamboo or traditional rattan.
- Lighter than wood.
- Can have metal or other material as a core base.

Weather and temperature resistant
- Each laminated layer creates sealant impervious to water.
- Resistant to sudden changes in weather and temperature conditions.
- Does not rot or is susceptible to woodborers unlike wood.
- Resistant to scratches and de-lamination when treated with polyurethane coating.
**Rattan basics**

**Cost efficient**
- Utilizes 97% of rattan poles unlike other rattan manufacturers which only utilizes 20% of the poles and wastes the rest.
- Simple to install with minimal labor requirements when prefabricated.
- Can be repaired seamlessly and quietly on-sight.

**Abundant raw material supply**
- Grows much faster than wood as it is vine-like and grows several hundred meters long.
- Easier to cultivate, harvest and transport compared to wood.
- Not limited by rattan pole size and can use reject poles from other rattan manufacturers.
- Estimated one hectare of rattan is enough to construct 1,200 pieces of furniture per month for 5 years.

**Elegant and classy**
- Unlike wood, it appears as one long continuous piece without nails, seams or visible joints.
- It has a natural rattan pole finish that can be painted or dyed to any desired color or finish.
- Can be made in unlimited length without variation in grain or color.
Rattan products today

Traditional methods and material

Source: Design of the World, WWF Rattan Programme
Furniture and Other Accessories

- Tables
- Chairs
- Beds
- Vases, jugs and kitchenware
- Sculpture
- Lamp Base and Chandeliers
- Accessories
Rattan product potential

Architectural Components
- Columns and Pillars
- Ceiling
- Wall Panels
- Handrails and Balusters
- Hanging Rods
- Molding and Cornices
- Door Jambs
- Window Frames
- Fences
Pre-fabrication of components allows for easier export, installation, and also reduces manufacturing costs.

Range of colors and styles to create demand
List of Accolades:

- 1994 – Won prestigious KATHA Award for its Aztec Furniture Collection in annual CITEM (Center for International Trade Expositions and Missions) Furniture Show in Manila
- 1995 – Designed and made papal throne and altar that Pope John Paul II used during World Youth Day ’95 in Manila
- 1996 – Supplied furniture to 1996 APEC (Asia Pacific Economic Conference) Heads of State Summit
- 1999 – Supplied furniture to ASEAN heads of state meeting at Subic
- 1998 – Featured in the Philippine Pavilion in the Lisbon World’s Fair in Portugal
- 1999 – Won Department of Trade and Industry’s Golden Shell Award
- 2000 – Won Gold ADEX (Award for Design Excellence) Award from California-based Journal Design Magazine
- Has been featured in countless magazines and industry journals
- Used by Habitat, the country’s leading high-end furniture producer, and renowned Filipino sculpture and artist Claude Tayag
### Major furniture clients in the Philippines

- Furniture for Ceremonial Hall of the Presidential Palace
- Montemar Beach Resort & Hotel – Bataan
- Vista de Loro – Puerto Azul
- Punta Fuego Resort
- Wack Wack Golf & Country Club
- Tagaytay Highlands Golf & Country Club
- Ayala Greenfields Golf & Country Club
- Holiday Inn – Clark
- Aquino Center, Hacienda Luisita, Pampanga
- Networld Hotel
- Clark Development

- Boehringer Ingelheim – Citibank Towers
- Pearl Farm Resort
- 357 Boracay Resort
- Noa-Noa Island Resort
Rattan and job creation

- Shangri-la Boracay Resort and Spa – Boracay Island
- Ayala Land Serendra 1 – Fort Bonifacio, Taguig
- Kawayan Cove - Nasugbo, Bantangas
- Island Cove and Resort
- Canlubang Golf & Country Club - Laguna
- Anvaya Cove Resort – Bataan
- Serenity Columbarium
- Asya Resort – Boracay Island
- Canyon Woods – Tagaytay
- Misibis Island Resort – Cagaray Island, Albay
- Numerous upscale private homes
Rattan and job creation

Started out in 1992 exporting furniture to Italy, UK, USA and Singapore and now exports to over 25 countries worldwide including Spain, France, United Arab Emirates, Saudi Arabia, Russia, South Africa, Japan, Korea, China, Malaysia, Australia, New Zealand and the Caribbean.

Notable international clients:

- Raffles Hotel – Dubai
- Embassy Suites Hotel – Anaheim, CA
- Comfort Suites Hotel Resort – Nassau, Bahamas
- Marriott Hotel – Miami, FL
- Ambrosia Villa Luxury Island Resort – Anguilla, Caribbean
- Millennium House – Chicago, IL
- Bloomingdales – USA
- Has sold furniture to the Clintons, Janet Jackson and a host of other celebrities
Basic info on Yrezabal & Co’s existing Philippine operations:

- Established in September 1992 as a VAT and tax exempt company under RA7459 by inventor and owner Eduardo R. Yrezabal
- 2,000sqm factory located in Metro Manila, Philippines
- No. of workers: **250**
- Current factory capacity: 1,200 furniture pieces / month
- Patents owned: 3 patents registered in the Philippines
- Licensees: 3 licensees in the Philippines
- Continues to develop new applications for Permacane or improve current product line.

Licensing and export growth potential:
- North America
- Europe
- Japan
- Russia
- China
- Support from Philippine Department of Trade and Industry and Department of Science and Technology
- Development projects in coordination with International Network for Bamboo and Rattan (INBAR)

Product strength

- Licensing and export growth potential:

Rattan and job creation

- Licensing and export growth potential:

Support from Philippine Department of Trade and Industry and Department of Science and Technology

Development projects in coordination with International Network for Bamboo and Rattan (INBAR)

Product strength
Rattan value chain impact

Definitions

- Rattan gatherers: workers who harvest the rattan
- People’s organizations: local cooperatives consolidate harvested rattan for distribution
- Kapatas: local entrepreneurs who buy the harvested rattan for distribution
- Permittees: larger organizations that buy harvested rattan for distribution
- Provincial traders: regional buyers
- National traders and wholesalers: national buyers
- Manufacturers and exporters: creators and distributors of products
- Retailers: sellers of products

Source: Philippines Rattan Value Chain Study by International Resources Group for USAid, February 2006
Rattan for Sustainable Economic Development: A case study of expanding rattan’s design potential through technology innovation

Leroy Hurt
Doctoral Candidate, Northcentral University
Environment Friendly

The possibilities are endless...
Rattan product design
Permacane is a unique rattan lamination and cladding technology developed by Eduardo Yrezábal from the Philippines

- Involves passing ordinary rattan poles through a specially designed machine to produce shredded rattan strands.
- Strands are reconstructed to produce a wide-range of unique furniture and architectural components.

Revolutionary for the field of rattan because:
- Rattan can now be used for architectural applications
- Rattan poles smaller than 1.25 inch in diameter can be used, with high efficiency and very little wastage of raw material

Revolutionary for the field of wood, rattan and bamboo crafts in general because:
- Can now make long seamless pieces
- Can make any curving design or form any shape
Permacane was originally developed by the inventor due to the dwindling supply of usable rattan poles in the Philippines that have diameters greater than 1.25”.

- Only around 20% of rattan harvest is traditionally usable to rattan manufacturers.
- Permacane process enabled the inventor to enlarge rattan poles by layering the shredded rattan poles, thereby enlarging them.
- Eventually evolved to cladding over any material such as steel, plastic or stirofoam.
From simple rattan pole enlargement and cladding of other materials, the technology eventually evolved to be able to form unique shapes and bends.
Illustration of cladding and assembly process

Cylindrical Cladding

Handrail

Joints
Can add any finishing color or protective coating just like normal rattan and wood
Architectural Components
Column cladding can be done on-site

**BEFORE**

**AFTER**
On site counter cladding

BEFORE

AFTER
Fence and Column Cladding

BEFORE

AFTER
Sample Column Projects
Sample Handrail Projects
Furniture and Other Housewares
Chairs
Sculpture
Website
http://www.yrezabal.com

E-mail
info@yrezabal.com