



WWF

DESIGN GUIDE

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SUSTAINABLE RATTAN DESIGN

the Mekong Region

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TABLE OF CONTENTS

1. Foreword
2. About the book
3. Sustainability guide
4. About the designers
5. Sustainable rattan design

FOREWORD

The Greater Mekong region is one of the most diverse on the planet. Within the last decade, more than 1,000 new species have been discovered. The forests of Laos are home to the recently discovered “Saola” and a myriad of unique species. However this paradise is threatened by over-extraction of natural resources, wildlife trade, and the devastating impacts of climate change.

Rattan is a multi-million dollar business; global trade is estimated at US\$2 billion (INBAR, 2009). It plays an important role in creating jobs and income in the region.

Forest cover in the region has fallen from over 55 per cent in the early 1970s to 34 per cent today. Unsustainable rattan harvesting leads to such forest degradation and income loss for many people.

Rattan is a vine that grows in the natural sub-tropical and tropical forests in Southeast Asia. Reaching up to 7 metres in height, it climbs on the surrounding vegetation in order to develop. There is a growing economic interest in rattan, which could help protect the forest and secure the biodiversity.

WWF runs a Sustainable Rattan Programme to improve production, to ensure a future supply, and to prevent negative impacts on people and the environment.



Sabine Gisch-Boie
Rattan Project Manager
WWF

ABOUT THE BOOK

BACKGROUND

The philosophy behind this book is to show how design can contribute sustaining rattan resource and helping the rattan sector access the international market. This book demonstrates why it is important to think about design when addressing sustainability.

Sustainable design can be made in many different ways. One can find new uses for waste material or find other ways minimize material use. One can focus on high quality and use handicraft skills of to secure a superior product with a long lifespan.

It is important to maintain the core

values of sustainability in every step of the process. These values are: people – socially sound; planet - environmentally friendly; and profit - financially viable. Design is also about beauty, emotions and functionality. The challenge is to find a good balance and always question your products; how can you improve?

By using square elements or arcs to construct a piece of furniture, it is possible to take advantage of the unique properties of rattan material, and also avoid complicated joints and additional material.

To avoid additional materials such as nails and screws, inspiration can found in the traditional carpentry found in both the Mekong Region and Europe.



Em Riem, Khmer senior designer explains how new designs benefit them in terms of production cost reduction

Rattan plugs can be used to secure and strengthen the construction, while maintaining simplicity suitable for the European market. By using this technique, one can design furniture without any additional materials. This also makes it easier to recycle the product.

The plugging technique also has the advantage of simplifying logistics and transportation. Final assembly could be made in the destination country without any advanced skills or specific knowledge required. This makes it possible to cut transportation costs, reduce negative environmental impacts, and facilitate storage.

Simple and beautiful design can therefore contribute to a more sustainable rattan supply and processing chain. This book displays the work carried out by three Swedish designers as part of the WWF Sustainable Rattan Programme during six months in 2010.

POVERTY REDUCTION

Rattan sales account for about 30-50% of cash income for rural villages in the Mekong region. At the village level, the WWF Sustainable Rattan Programme strengthens the capacity of rattan harvesters through the

development and implementation of sustainable rattan management plans, as well as more efficient processing methods. As a result, the income from sales for harvesters and their families has increased by up to 20%. The competitiveness of the region's rattan sector in the global market place is being enhanced, contributing to economic development in Cambodia, Laos, and Vietnam.

STRATEGIC IMPORTANCE OF SUSTAINABLE DEVELOPMENT

90% of the rattan processed in the three countries originates from natural forests where sustainable harvesting practices are not applied. As a result, over-harvesting is widespread. This depletes an



A household handicrafts are one of important income sources to local communities in the Mekong region



A villager shows the length of rattan that can further grow in natural forest

important source of income for local people and provides a disincentive to keep the forests intact. Sustainable rattan harvesting functions as a safeguard against forest degradation. It secures people's livelihoods in the long-term and adds value to natural forests, thus making local people good stewards of the forests. The WWF Sustainable Rattan Programme also provides a good entry point to engage with the governments more broadly on sustainable forest management.

SWITCH TO CLEANER PROCESSING

Working with small and medium-size enterprises (SMEs), the WWF Sustainable Rattan Programme promotes cleaner production, leading to more efficient use of the raw material, reduced application of toxic chemicals, enhanced workers' safety, compliance with international product quality standards, and ultimately strengthened competitive-

ness of the rattan sector. WWF builds capacity with the rattan industries and communities to develop appropriate designs for the international market. The design of rattan products is key for market access. The producers in the Mekong region need to improve and develop attractive products that meet market requirements.

WWF's Sustainable Rattan Programme therefore has engaged with three designers with Masters degrees in Industrial Design from Lund University in Sweden, one of the top three design schools in the world, to build sustainable design capacity with the rattan entrepreneurs in the region.

LINKING MEKONG RATTAN TO THE INTERNATIONAL MARKET

Traceability of rattan and sustainability of the supply are becoming key criteria for international rattan retailers. Market links and more transparent trade have to be established between the Mekong region and international market if the rattan



A Khmer lady concentrates on her rattan products before the day ends

producers in Cambodia, Laos, and Vietnam are to survive. Rattan suppliers need support in order to fulfill the stringent requirements from European and US markets.

OBJECTIVES OF THE WWF SUSTAINABLE RATTAN PROGRAMME

By 2015, we aim have at least 50 % of targeted harvesters, SMEs, and other stakeholders are actively engaged in sustainable rattan management, improved supply chain management as well as in cleaner production and credible certification of rattan products in Cambodia, Laos, and Vietnam. The Programme aims to provide sustainable products to the international market, leading to improved forest protection, cleaner production, strengthened competitiveness, and a contribution to poverty alleviation.

ACTIVITIES

The WWF Sustainable Rattan Programme, co-funded by EU, IKEA, and DEG, is implementing five areas of activities:

(1) Improving rattan management and pre-processing at the village level by implementing sustainable rattan management plans, improving village group structures, developing business plans, and market

links;

(2) Strengthening supply chain management and introducing cleaner production by applying the “Design for Sustainability” approach, developing business plans as well as cooperating with financial and technical service providers;

(3) Introducing credible certification to forest management and rattan processing and establishing links with responsible buyers via the WWF Global Forest and Trade Network;

(4) Supporting government institutions to enforce and improve related legislation and policy frameworks;

(5) Communicate the Sustainable Rattan Production and Processing approach as a successful model for the rattan sector towards target audiences in the Mekong region and beyond.

SUSTAINABILITY GUIDES

Environment



Economy

Society

There are three foundations for sustainability: Environment, Economy and Social. Working with a sustainable design can help to save the environment, increase economic advantages, and bring people together. Today, many customers around the world demand that their products be sustainable.

By making designs out of natural canes with the peel left on, the result is automatically a sustainable product. The peel is very protective in itself and keeping it allows producers to avoid unhealthy diesel boiling and toxic surface treatments. The result is a less polluted **environment**, shortened production lane and reduction of expenses, which benefit the **economy**, and a safe, healthy and open environment for the workers, which improves the **social** aspects.

SUSTAINABLE DESIGNS

Different Approaches



Unique pieces



Recycled materials



Less material use



High end products



Flat pack

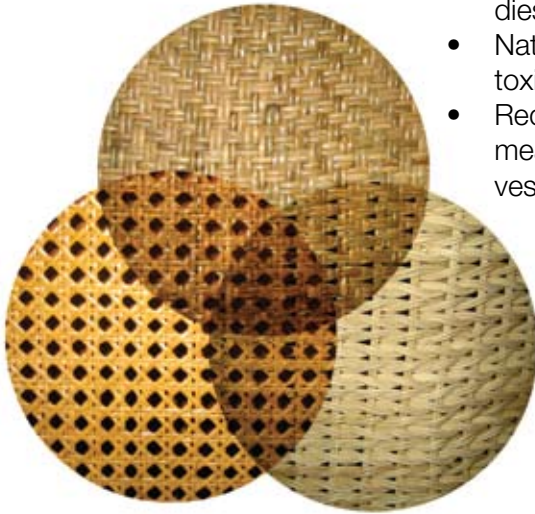


Non-nail, plastic and
chemical pieces

FINAL SUSTAINABLE RESULTS

Environment

- Natural cane with its peel left on needs no diesel boiling
- Natural cane needs no toxic lacquer
- Reduced material means less rattan harvesting



Economy

- No cost for boiling
- No cost for peeling
- No cost for bleaching
- No cost for nails
- Reduced shipping costs

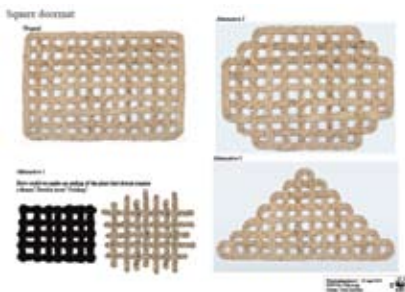
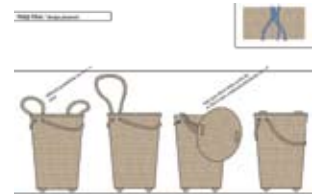
Society

- Healthy working environment
- Open workspace
- Less work
- Bringing people together

ABOUT THE DESIGNERS

CLARA LINDSTEN

Clara has been working for six months in Vietnam, a country with a dynamic enterprise development in the rattan industry. With her expertise and her great ability to adapt, she built capacities on sustainable design within six rattan processing companies that are now able to develop product designs matching international standards. Thanks to her excellent work, she is now engaged by the Vietnam Handicraft Association to continue building capacity on sustainable design for more companies. At the end of her WWF engagement, she concluded that *“I would like to mention how interesting I think it is that WWF involve with design. It offers completely new opportunities to find innovative solutions with a holistic approach”*.



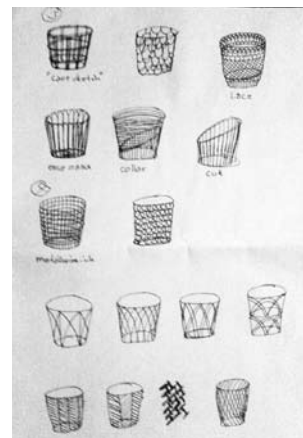
PER BROLUND

In association with Mr Em Riem, a well-known senior designer in Cambodia, Per has been working with the Rattan Association of Cambodia. Their focus has been on sustainable design, quality improvement, developing new techniques, and strengthening innovative product development. With his energy and creativity, he has generated enthusiasm with Cambodian companies for sustainable design and how it contributes to attracting new international buyers. *“The biggest impact of the project, I would say, is the awareness of the demand of sustainable design, increased knowledge and understanding of markets and trends, as well as an understanding of design and design processes”* concluded Per after his mission.



THERESE BROBERG

Therése spent six months in Laos, working closely with five Lao rattan companies on the importance of design in accessing international markets. Together with the companies and the advisory support of Michel Saada - a senior local designer, she developed simple tools to explain sustainable design. She started to learn the language and devoted energy to making the companies change their approach to sustainable design. After her mission, she mentioned *“Sustainability consists of three parts; people, planet, and profit. I think the factories will especially keep in mind the parts that are economically beneficial to them, such as no use of nails, glue, etc.”*



WASTE MATERIAL BASKET

Size: Ø 30 cm top
34 cm high

Material: Rattan and its waste

Species: *Calamus solitarius*

Weight: 1 kg

The rattan industry produces large amounts of waste. This basket is made of twisted waste, from peeling the canes, which helps to save the rattan sources. It's suited for all kinds of rattan species, and the outcome is a strong and sturdy basket that uses rattan efficiently in both an environmental and economical aspect.

Designer: Therese Broberg, Laos
Producer: Danlao Factory
Photographer: Noy Promsouvanh
© WWF 2011





STRING BASKET

Size: Ø 33 cm top
36 cm high

Material: Rattan

Species: *Calamus solitarius*

Weight: 0,35 kg

The aim of this design is to reduce as much material as possible but still keep the same function. In this way the basket becomes cheaper material wise, faster to produce, cheaper to ship because of the light weight, and it prevents the harvesting of excess rattan canes.

Designer: Therese Broberg, Laos
Producer: Danlao Factory
Photographer: Noy Promsouvanh
© WWF 2011





WOVEN FLOWERPOT

Size: Ø 26 cm
17 cm high

Material: Rattan

Species: *Calamus solitarius*

Weight: 0,3 kg

By keeping the peel on the canes, the diesel boiling and toxic lacquer treatment can be skipped. This invites to a much more pleasant and healthy working environment for the workers, as well as being less harmful for the environment.

This basket doesn't have any metal nails or glue, which makes it easy to recycle. A sustainable product should also encourage a sustainable lifestyle. In that aspect, a flowerpot is a great product where one can grow and nourish plants.

The flowerpot is made in a set of three and is being designed for a Swiss supermarket chain.

Designer: Therese Broberg, Laos
Producer: Danlao Factory
Photographer: Therese Broberg
© WWF 2011





FLAT PACK BASKET

Size: 29 x 29 cm top
24 x 24 cm bottom
30 cm high

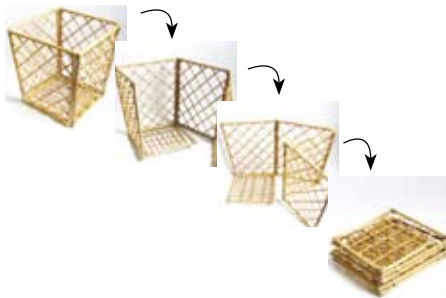
Material: Rattan

Species: *Calamus solitarius*

Weight: 0,3 kg

When exporting products around the world, it's important that the products are optimized for the containers and boxes. The flat pack is one of the most efficient way to solve this. This basket has been designed to be a regular sized basket when being used but while being exported it's folded into a small package. There are no loose parts, as it's all put together by rattan joints and rattan pins. By not using any metal parts, this basket can be made both by men and women, which encourages the social part of the sustainability. The flat pack itself is beneficial for both environment and the economy.

Minimize space use



Designer: Therese Broberg, Laos
Producer: Danlao Factory
Photographer: Noy Promsouvanh and
Therese Broberg

© WWF 2011





THE NEST – RATTAN LOUNGE CHAIR

Size: 160 x 160 x 200 cm

Material: Rattan weaving around rattan structure

Species: *Korthalsia leciniosa* & *Calamus palustris*

When talking about sustainable design you can approach it in many different ways. One important aspect is emotional design. It is possible to create a very sustainable product, but if no one appreciates it, it is a waste of time and resources. Therefore it is very important not to forget the aesthetic and emotional values of the design. If you can create an emotional bond between the buyer and the product you know it will be used for a long time.

Traditionally, rattan is not considered to be a high end material in South-East Asia. To change this attitude and change how the material is perceived, we wanted to show how one can create contemporary design by mixing old and new techniques and how rattan can be perceived as an exclusive material in the right context.

Designer: Per Brolund and Em Riem
Cambodia

Producer: Cambodian Modern Rattan

Photographer: Per Brolund

© WWF 2011





RATTAN CONNECTION

Size; 55 x 70 x 60 cm

Material: Rattan structure, Rattan plugs, Woven rattan seat

Species: *Korthalsia laciniosa* & *Calamus palustris*

As with all natural materials, each rattan cane is unique, varying in size and shape. By using square elements or arcs to build up the construction of the furniture, it is possible to take advantage of the unique properties of the rattan material and also avoid complicated joints and meetings. This improves the finish and quality of the products.

Using rattan dowels and wood glue, as well as square and arc-shaped rattan elements, not only strengthens construction but avoids additional materials such as nails and screws. This type of design also maintains an expression of simplicity in the product. Since it consists of 100% rattan, the product can be efficiently recycled at the end of the product lifecycle. The dowel joint technique also has the advantage of simplifying logistics and transportation. The final assembly can be completed in the destination country without the need for any advanced skill or knowledge.

The “Rattan Connection” collection consists of four chairs.

Designer: Per Brolund and Em Riem
Cambodia

Producer: Cambodian Modern Rattan Handicraft &
Khmer Rajana Rattan Handicraft

Photographer: Em Riem

© WWF 2011





LAUNDRY BASKETS

Size:

Round set: Medium 60 x 43 cm & Small 53 x 36 cm

Oval set: Large 60 x 35 x 50 , Medium 50 x 32 x 40 & Small 45 x 28 x 35 cm

Material Rattan & Cotton

Species: Lpeak (*Calamus salicifolius*)

This set of laundry baskets was made for a French client. The baskets are produced by small communities around the Siem Reap province. The baskets are made of Lpeak, a local rattan species that can be used unpeeled. The skin provides a natural protection and prevents the need for any additional surface treatment. By avoiding peeling, there is also less waste generated in the process. For the laundry bags we developed a very simple attachment system that is integrated into weave of the basket. The attachment system is made with a traditional technique and makes it easy to fit and remove the laundry bag and at the same time strong enough to support the weight of the wet laundry.

Each basket set can be nested inside each other to facilitate transportation.

Designer: Per Brolund and Em Riem
Cambodia

Producer: Communities in Siem Reap
Province

Photographer: Per Brolund

© WWF 2011





WATER BOTTLE STAND

Size: 45 x 80 x 45 cm

Material: Rattan cane, Rattan plugs, Rattan weave

Species: *Korthalsia laciniosa* & *Calamus tetradactylus*

This water bottle stand is a redesign of a local market product. Even if the rattan factories are trying to reach international markets, it is important not to forget the local customers. By using the same dowel joint technique as for the furniture, the water bottle stand is made out of 100% rattan. A simplified design allows producers to reduce the amount of material compared to the traditional stands as well as giving it a more contemporary expression.

Designer: Per Brolund and Em Riem
Cambodia

Producer: Veng Hout Rattan Handicraft

Photographer: Per Brolund

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RATTAN MANNEQUIN

Size: 45 x 70 x 25 cm

Material: Rattan cane, Rattan plugs

Species: *Myrialepis paradoxa* & *Calamus viminalis*

This design aims for both national and international boutique customers.

The mannequin is made with a dowel joint technique which makes it very strong and yet very light weight. 100% rattan, which makes it a good alternative for brands and stores with a strong focus on organic and sustainable clothing.

Designer: Per Brolund and Em Riem
Cambodia

Producer: Cambodia Modern Rattan Handicraft &
Kong Chamnan Rattan Handicraft

Photographer: Per Brolund

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WASTE DOORMAT COLLECTION

Products: Rose carpet, Square carpet, Arrow carpet, Wave carpet

Size: rose carpet 80x80 cm

other carpets 60x80 cm

Material: Rattan inner skin (waste)

Species: *Daemonoroph Polanei*

The production of rattan skin baskets generates 30% waste from the layer in between the skin and the core. The waste has been twisted, braided, pleated and woven to become a unique material, which with its rough characteristics, functions well as doormats.

Designer: Clara Lindsten, Vietnam

Producer: Vinh Long

Photographer: Clara Lindsten

© WWF 2011





NGOC DONG LAMPS

Size: A 370x250; B 220x340

Material: Rattan cane

Species: *Daemonoroph polanei* and *Calamus tetradactylus* (for fastening)

The lamps take shape from one single rattan cane, utilised for its similar properties to constructional wire. Existing rattan design is often time-consuming to produce, which does not correspond to an increasingly low-price market and causes excessive material use. The lamps are an example of the opposite: a strictly minimalist form language for fast yet sustainable processing.

Designer: Clara Lindsten, Vietnam

Producer: Ngoc Dong

Photographer: Clara Lindsten

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HALINH WEAVING COLLECTION

Size: bin 30x 28 cm, bowl 15 x 33 cm, tray 35 x 35 cm

Material: Rattan core and skin

Species: *Daemonoroph Polanei* and *Calamus tetradactylus* (for fastening)

Halinh weaving is constructed by giving a simple twist to a traditional weaving pattern, and is frequently frequently used for basketry in Vietnam. The design generates a unique appearance while saving up to a third of the material consumption. The collection consists of bowls, bins, trays and lamp shades and is intended to function as an inspirational starting point; to be further developed through various new applications.

Designer: Clara Lindsten, Vietnam
Producer: Halinh Rattan and Bamboo
Photographer: Clara Lindsten
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AU CO WASTE MIRRORS

Size: mirror max 50x50 cm

Material: Cane cut-offs

Species: mixed

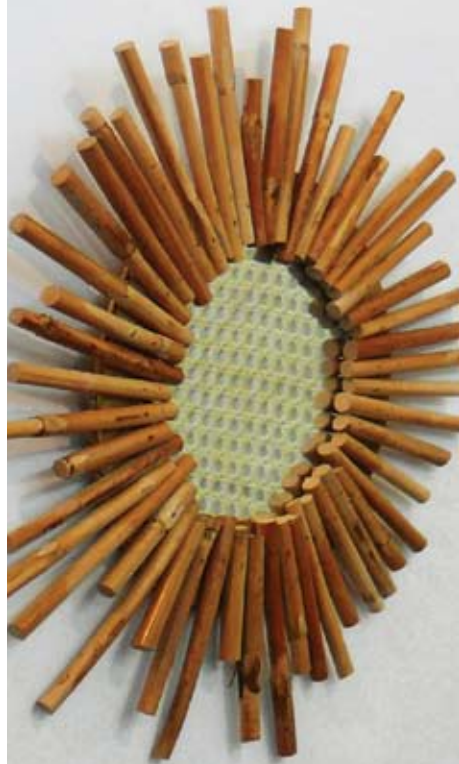
With deliberate irregularities inspired by the natural context of rattan, the mirrors have generous error margins which make them easy to produce. They are made out of rattan cut-offs which can be found on every rattan factory floor.

Designer: Clara Lindsten, Vietnam

Producer: Au Co

Photographer: Clara Lindsten

© WWF 2011







Why we are here.

To stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.

www.panda.org/rattan