



# INDIAN COIR

*Nature's Gift*





# Development of Coir Based Building Products

## Initiative of Govt. of India

**Er. M. Kumara Raja**

Secretary

Coir Board

Cochin -16



# COIR-AN ECOFRIENDLY FLOOR FURNISHING MATERIAL

- Provides warmth in winter and coolness in summer
- Has natural pleasant odour
- Generates minimum dust, that is heavier than air
- Rugged and stubborn having perfect brush
- Manufactured by cottage industry
- Reasonably priced



*Live-in-style*

*Hygiene*

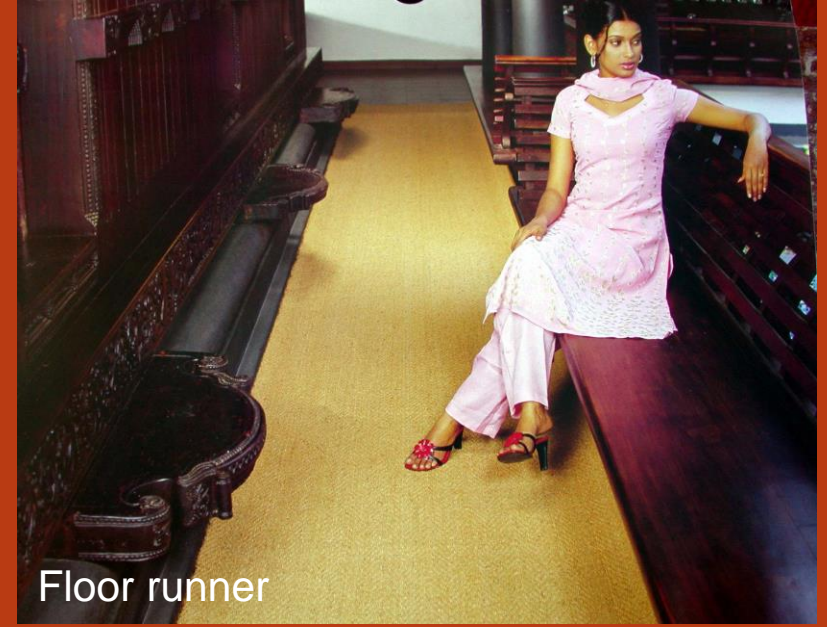
*Products*



Mourzouks



Area rugs



Floor runner



Matting



Rugs



Carpets



# COIR MATS AND MATTING

*Natural..Elegant..Eco-friendly...*



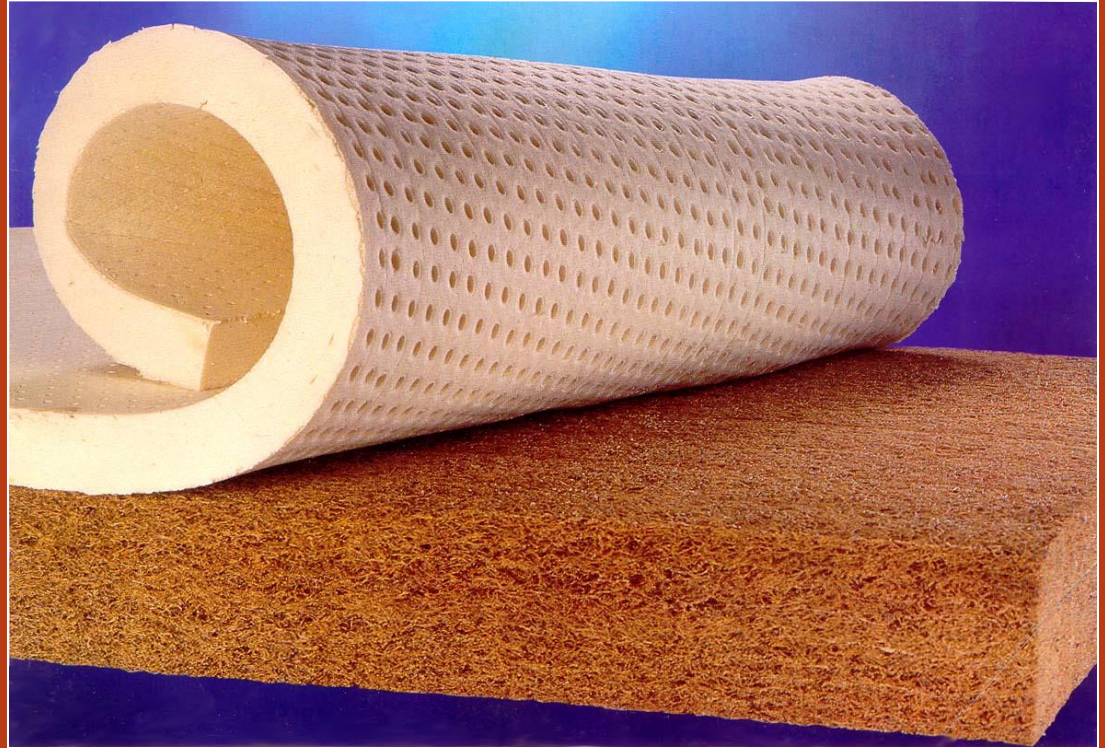
# Wide range of products





# Rubberised Coir Mattress







**COCOLAWN™ an Instant Lawn**  
*using*  
**Coir Bhoovastra**  
**&**  
**Coir pith organic manure**

**COCOLAWN**  
comprises of  
coir netting as a support  
material. A single or plurality  
of layers of a non-woven coir  
fabric (coir needled felt)  
is provided on the said  
netting.



## PREPARATION OF COCOLAWN™\*

The following materials are used for making COCOLAWN™ a readymade lawn of natural grass comprising:

- i) a layer of Coir Geotextiles Netting,
- ii) a single or plurality of non-woven (Coir Needled Felt) layers,
- iii) a coir pith layer on non-woven layer
- iv) a layer of fertilizer namely, Coir Pith Organic Manure (C-POM) and natural grass on the coir pith layer.





# COIR GREEN HOUSE



November 2005

COIR BOARD



Pepper



Anthurium



Vanilla



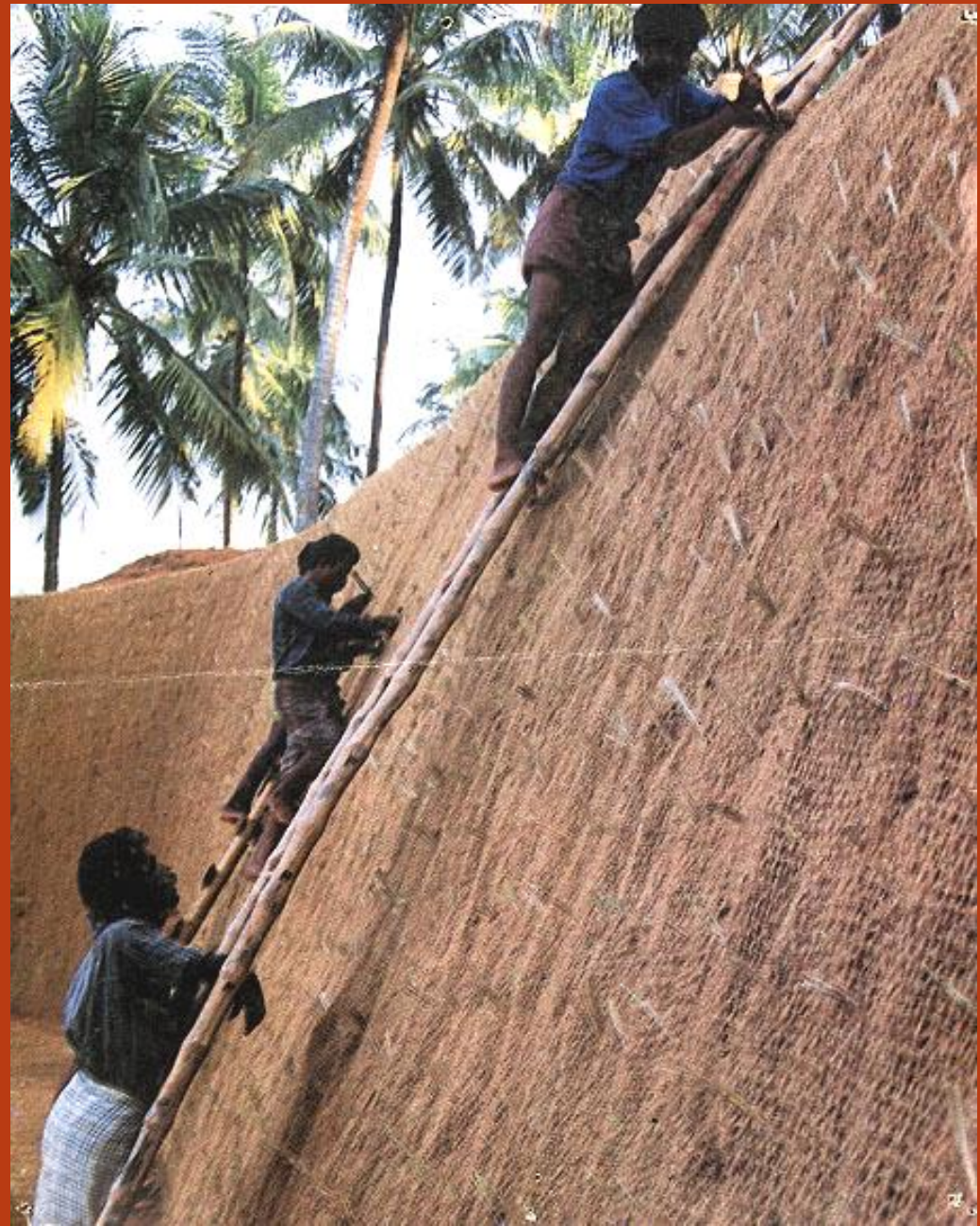
# *COIR GEOTEXTILES*



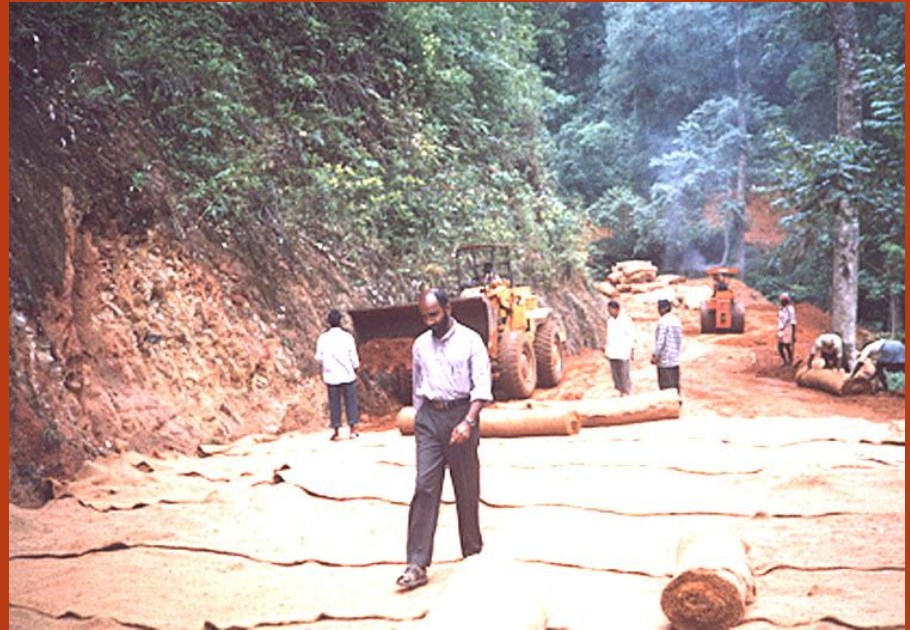
# ROAD EMBANKMENT PROTECTION



# SLOPE STABILISATION



# ROAD REINFORCEMENT



# SOIL STABILISATION



November 2005



COIR BOARD

# REVEGETATION OF ROCKY PATCHES





One door  
One mat

No door without a mat



# ENTRANCE MAT



November 2005



COIR BOARD

# BEDROOM MAT



November 2005



COIR BOARD





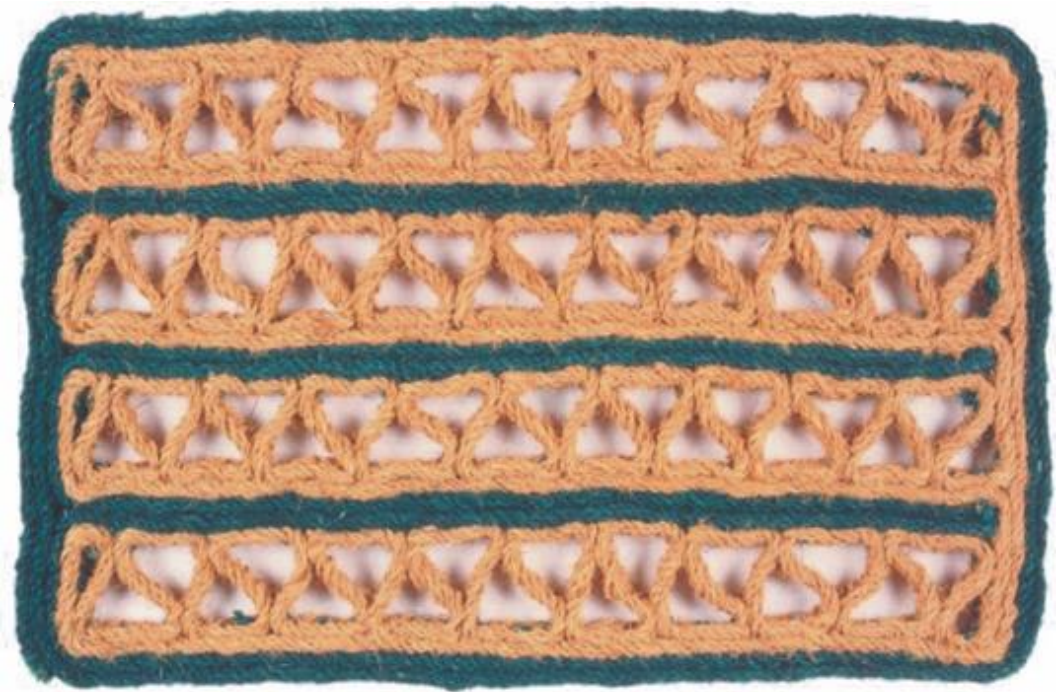
# BATHROOM MAT



# GARDEN MAT



November 2005



COIR BOARD



# VALUE OF A TREE



A tree that lives for 50 years generates Rs.5.3 lakh worth of oxygen, recycles Rs.6.4 lakh worth of soil fertility, facilitates Rs.6.4 lakh worth of soil erosion control, creates Rs. 10.5 lakh worth of air pollution control and provides Rs. 5.3 lakh worth of shelter for birds and animals.

Besides, it provides flowers and fruits.

So, when one tree falls or is felled, the city's net loss is worth more than 33 lakhs.

**Think before you cut a tree....!**



# COIR COMPOSITES

*a substitute for wood*



# SAVE A TREE



- Average recovery of timber-  
15m,heightx0.5m  
width=2.25cu.m after wastage
- 1sheet(8'X4'X17mm)=  
0.0518cum
- 1000sheet capacity unit saves  
23 trees

# ***PROCESS OF MAKING COIR COMPOSITES***



November 2005

COIR BOARD



# NATURAL FIBRE COMPOSITES

## *POTENTIAL APPLICATION*

- **Building products; Wall panel, Roof panel, Partition panel, Decorative / insulation wall cladding, door shutters and flooring. Pre-fabricated / modular shelters of different applications etc.**

---

- **Automotive: bus, truck, Rail coach interiors etc.**

---

- **Furniture & interior decoration.**

---

- **Numerous other application areas.**

# Earthquake proof houses made from 'Natura' (Coir Ply)







# Earthquake proof houses made from 'Natura' (Coir Ply)



November 2005

COIR BOARD

# RELIEF HOMES



November 2005



COIR BOARD



November 2005

COIR BOARD



## Coir Ply (*Natura*) *Wood substitute*





# Coir composite Door panels



November 2005

COIR BOARD



# COIR COMPOSITES FOR PANELING



November 2005

COIR BOARD

## Coir composite for interior decoration



# Coir composite for interior decoration



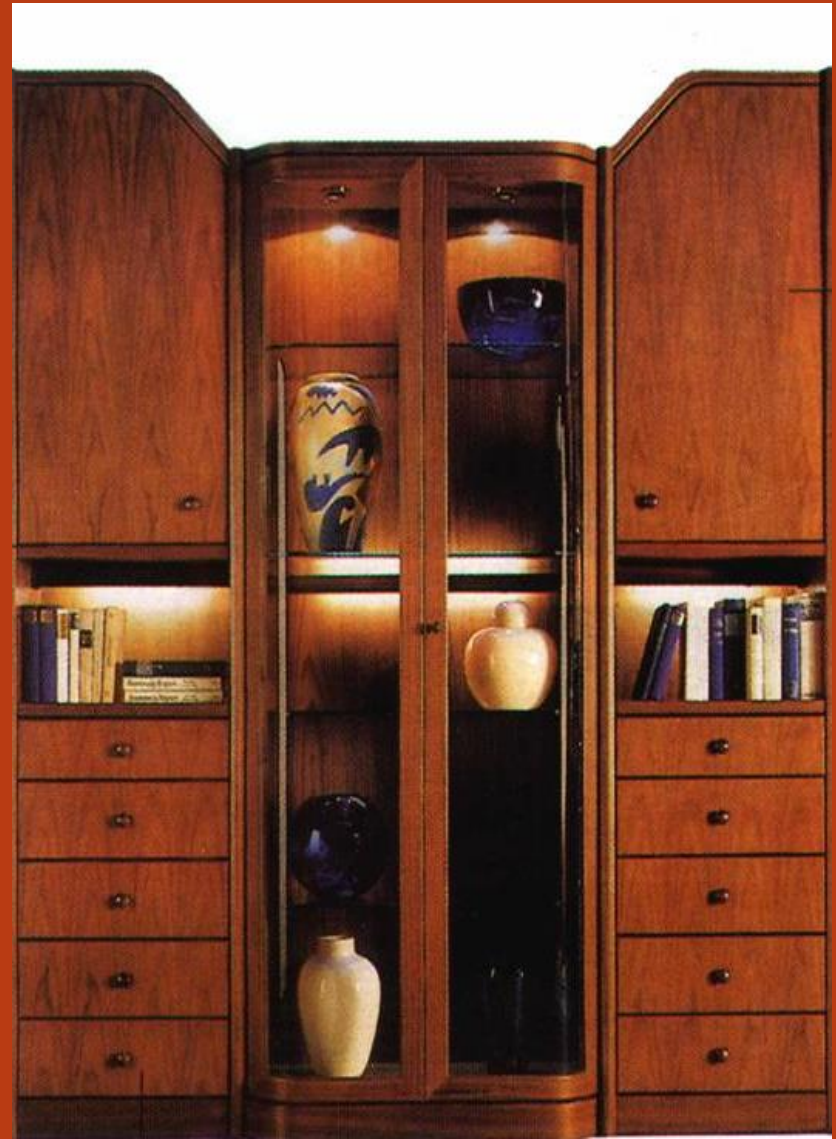




# Coir composite for interior decoration



November 2005



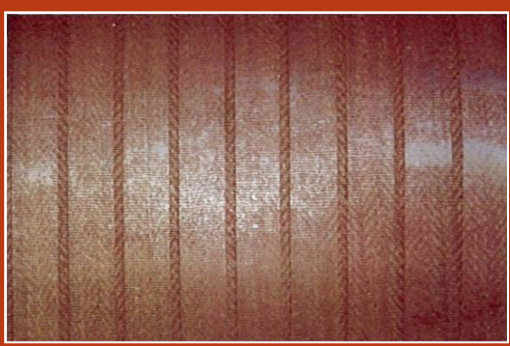
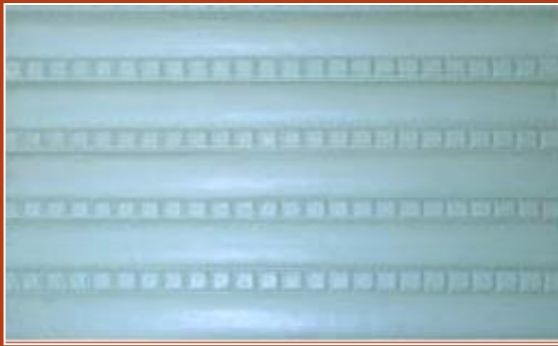
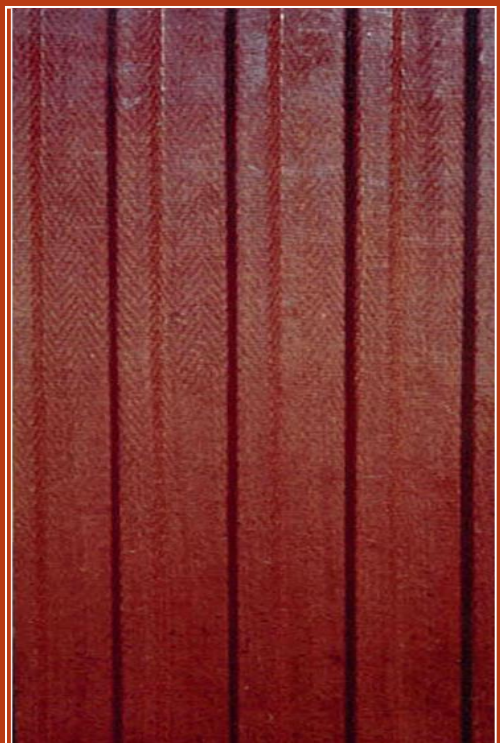
COIR BOARD

# Coir composite for interior decoration





# Coir composite Roofing panels



November 2005

COIR BOARD

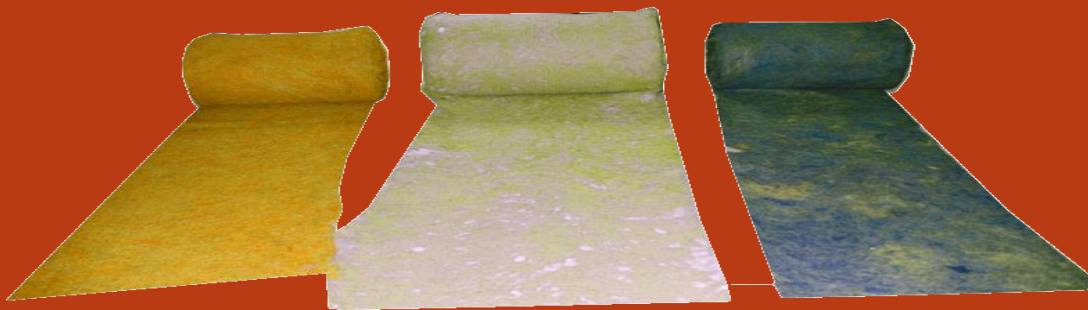


## AVANTAGES OF COIR COMPOSITE BOARDS

- Environment Friendly wood substitute
- Strong
- Naturally Termite and Insect Resistant
- Waterproof
- Flame Retardant
- Thermal resistance
- Carpenter Friendly
- Excellent Nail and Screw Holding Properties



Hybrid Fibre Felt Making Machine



Coir + Jute

Coir + PP

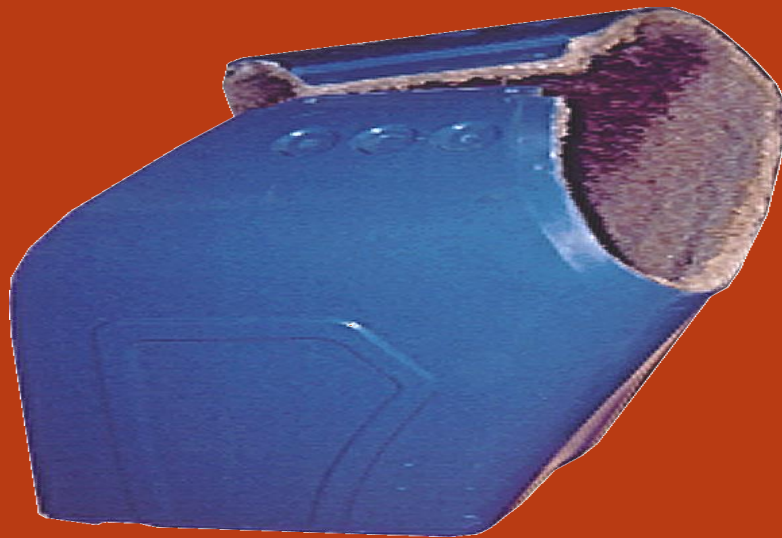
Coir + Glass fibre

**Coir composite felt**



Different types of  
coir composite felts

# AUTOMOTIVE AND TRUCK COMPONENTS



# FURNITURE



November 2005



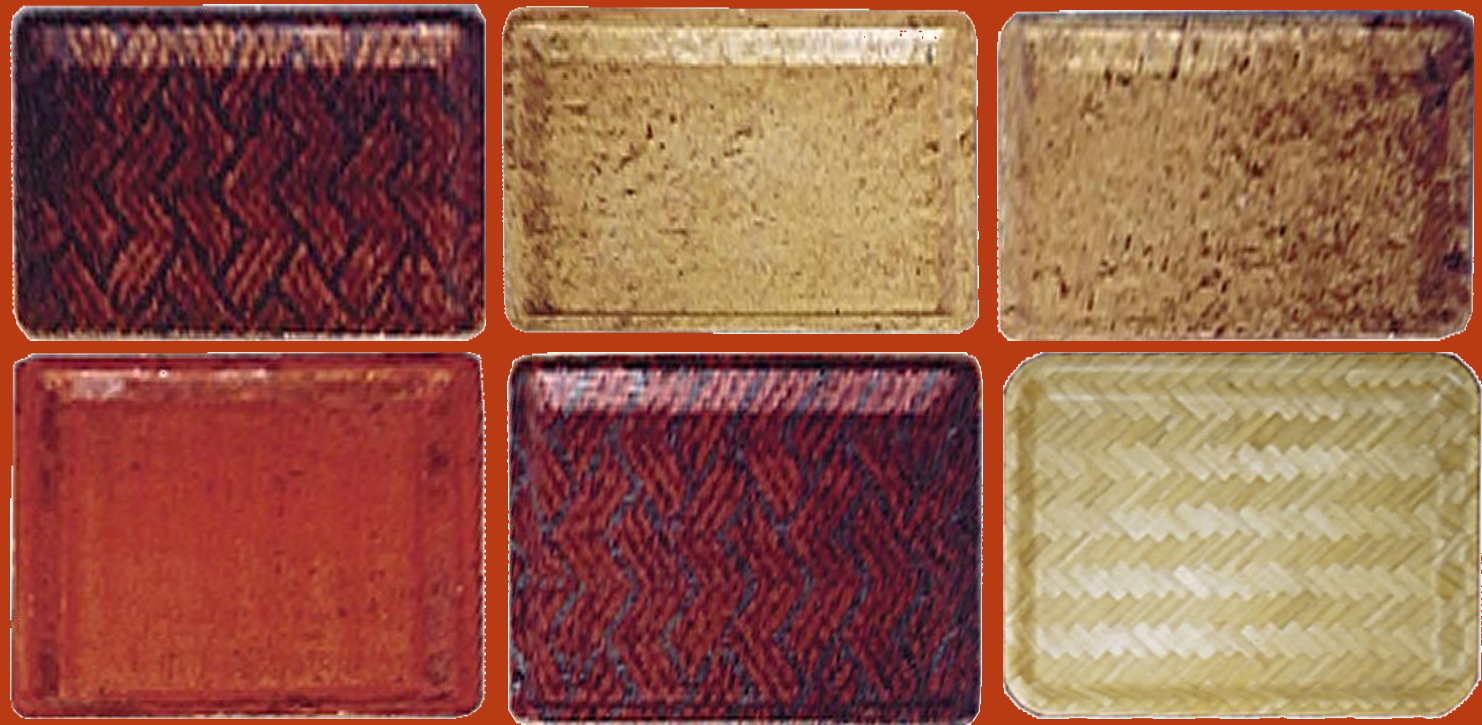
COIR BOARD

# FURNITURE





## MOULDED PRODUCTS



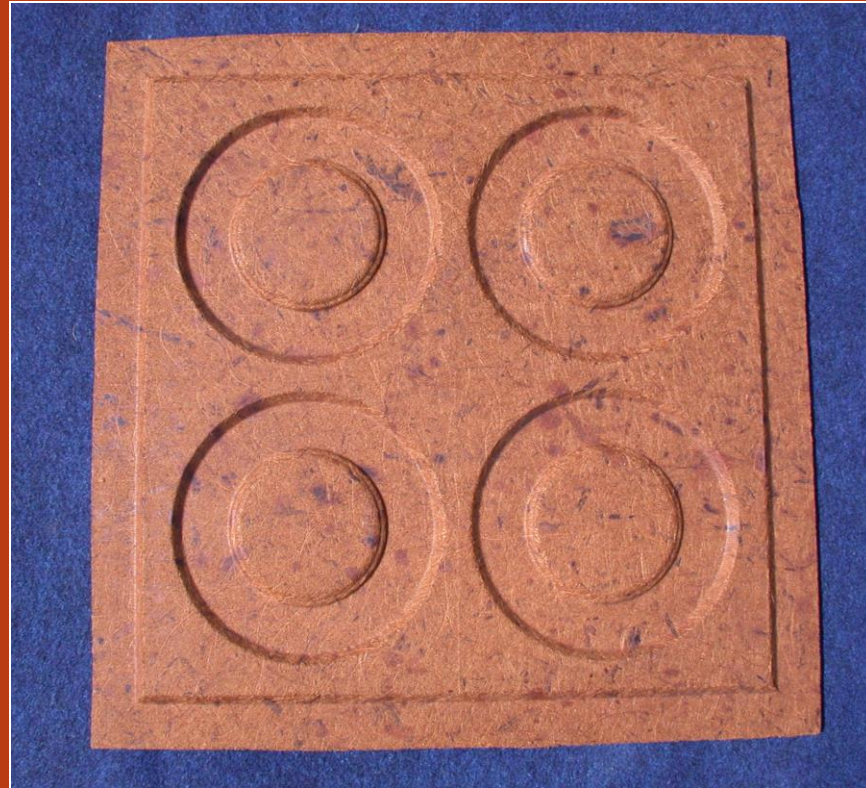
TRAYS

## MOULDED PRODUCTS



ROOFING SHEETS

## MOULDED PRODUCTS



## HIGH DENSITY BOARDS

## MOULDED PRODUCTS

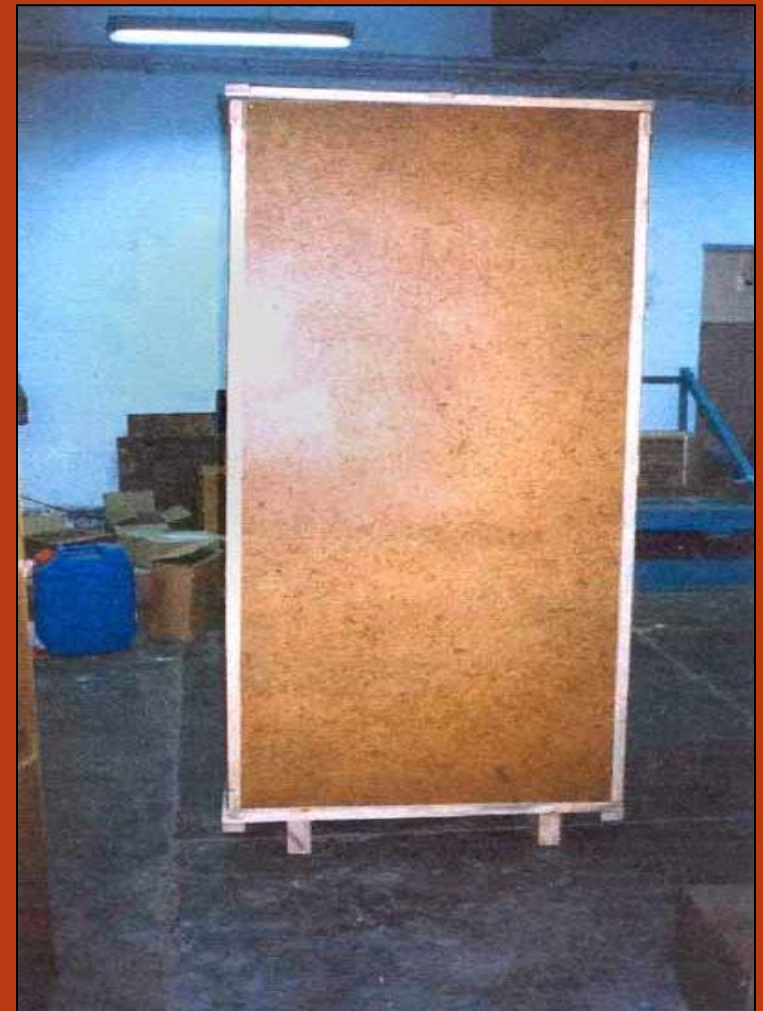




# Coir Composite Board for Packaging.



Circuit breaker secured inside  
Coir Composite Board sheathed Crate.



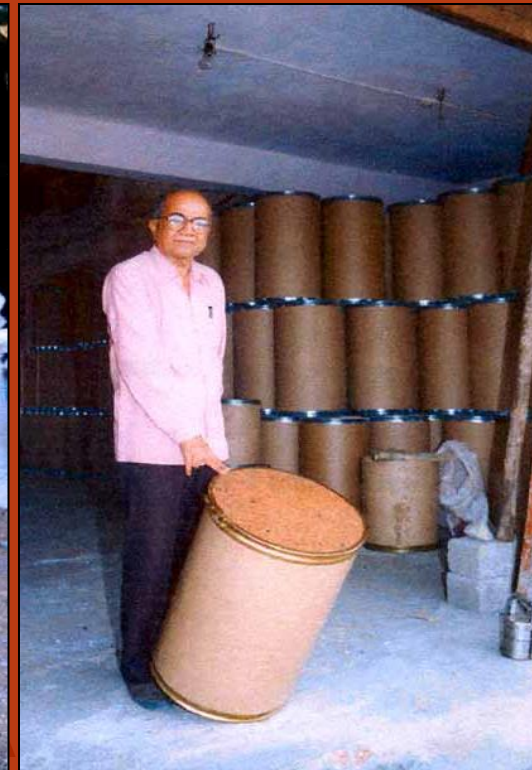
Totally closed Coir Composite Board  
sheathed Crate for the Circuit breaker

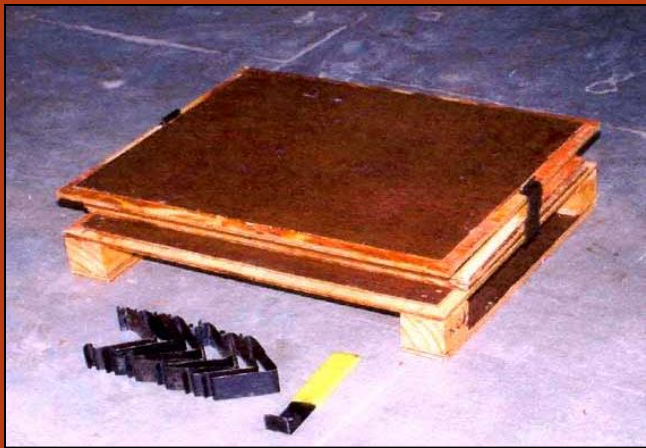


Circular cutting  
of lids for fibre drums

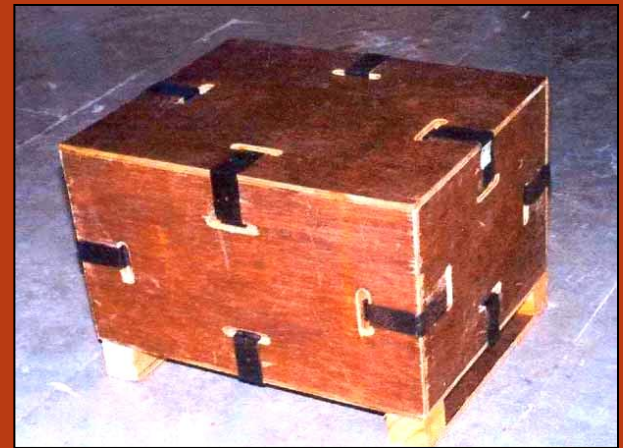
Fibre drums with  
CCB lids ( 8mm. thick)

**Coir Composite Board lids  
for Fibre drums**  
*(replacement of plywood)*

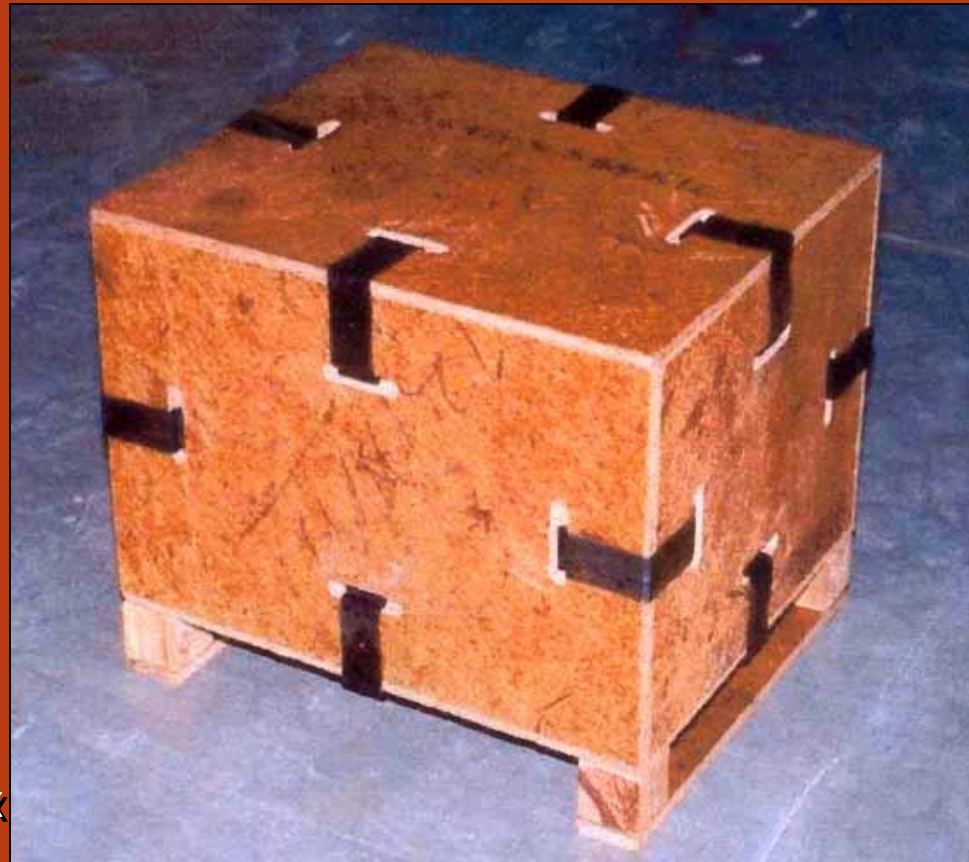




Existing  
plywood  
Collapsible  
box



**Coir Composite Board**  
**For making**  
**Collapsible boxes**  
*(replacement of plywood)*



CCB  
Collapsible box



## COIRPLY TEST RESULTS (BIS-14842 2000)

	Coir-ply+	Plywood	M.D.F	Particle Board
<b>Tested as per IS No.</b>	<b>IS-1734</b>	<b>IS-1743</b>	<b>IS-2380</b>	<b>IS-2380</b>
<b>Density (Kg / M<sup>3</sup>)</b>	<b>748</b>	<b>400-700</b>	<b>750-850</b>	<b>700-800</b>
<b>Moisture(%)</b>	<b>6.50%</b>	<b>5-15%</b>	<b>5-15%</b>	<b>5-15%</b>
<b>Glue sheer strength (N/Sq.mm)</b>	<b>1720</b>	<b>1200-1750</b>	<b>N.A</b>	<b>N.A</b>
<b>Water resistance (8hrs.boiling)</b>	<b>No Delamination</b>	<b>No Delamination</b>	<b>N.A</b>	<b>N.A</b>
<b>Tensile Strength (N/Sq.mm)</b>	<b>23.6</b>	<b>35.55*</b>	<b>7.0-8.0</b>	<b>4.0-4.5</b>
<b>Compressive Strength (N/Sq.mm)</b>	<b>51.02</b>	<b>29.34*</b>	<b>N.A</b>	<b>N.A</b>
<b>Modulus Elasticity (N/Sq.mm)</b>	<b>6440</b>	<b>3500-7400*</b>	<b>N.A</b>	<b>N.A</b>
<b>Modulus of Rapture (N/Sq.mm)</b>	<b>47.5</b>	<b>29.49</b>	<b>25.28</b>	<b>12.5-15.0</b>
<b>Nail Holding Power (in kgs.)</b>	<b>50</b>	<b>125</b>	<b>N.A</b>	<b>N.A</b>
<b>Screw Holding power (in kgs)</b>	<b>245</b>	<b>300</b>	<b>125-150</b>	<b>85-125</b>
<b>Surface Strength (kg/sq.cm)+A15</b>	<b>30</b>	<b>N.A</b>	<b>30</b>	<b>30</b>

\*Figures as per Shuttering-plywood



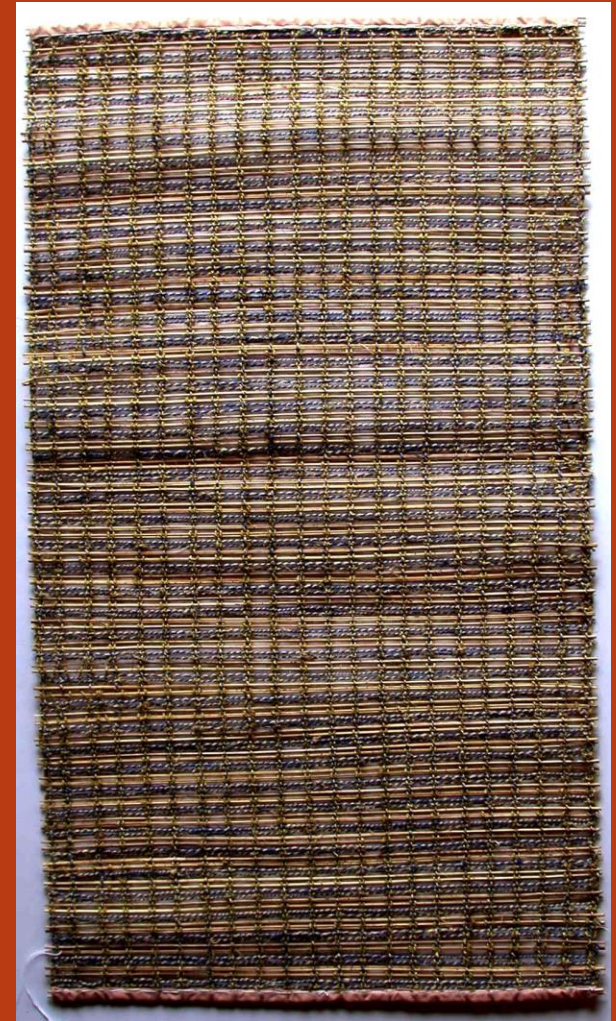
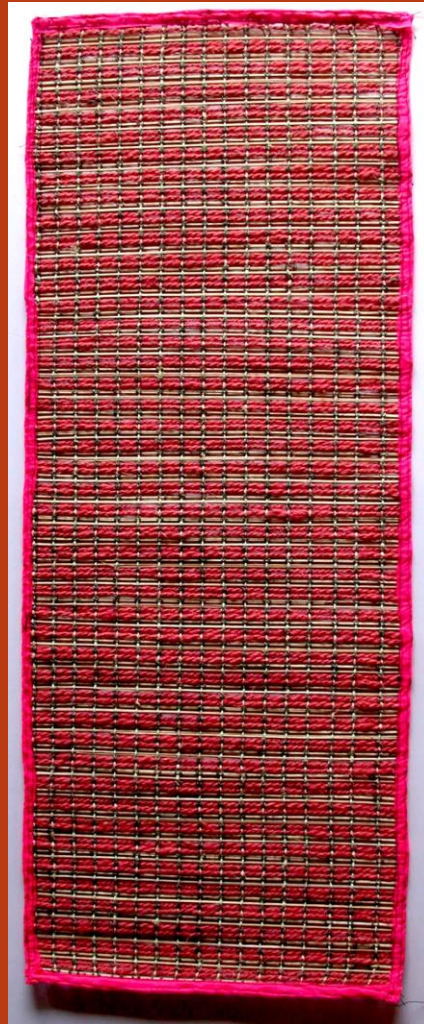


# COIR-PLY Pricelist

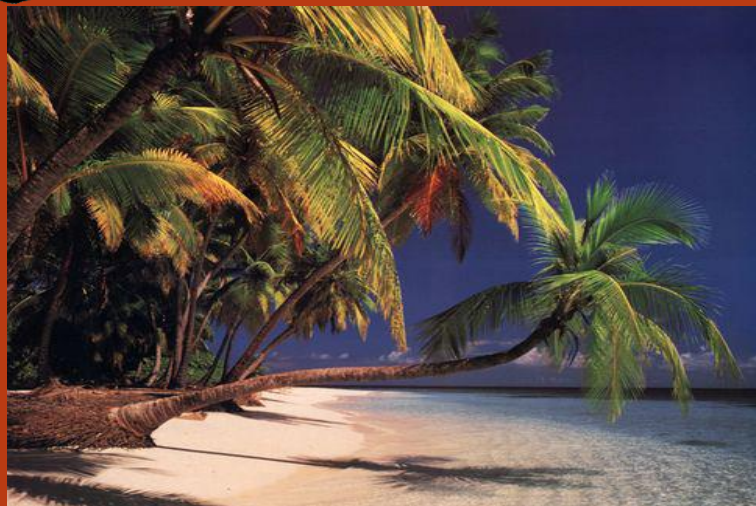
Price in Indian Rs.

<b>Thickness</b>	<b>Price/Sq.Mtr.</b>	<b>Price/Sq/Ft</b>
<b>3 mm(CFP)</b>	<b>101.70</b>	<b>9.45</b>
<b>4 mm</b>	<b>204.50</b>	<b>19.00</b>
<b>6 mm</b>	<b>261.00</b>	<b>24.25</b>
<b>8 mm</b>	<b>339.50</b>	<b>31.55</b>
<b>12 mm</b>	<b>455.30</b>	<b>42.30</b>
<b>16 mm</b>	<b>565.46</b>	<b>52.55</b>
<b>18 mm</b>	<b>662.28</b>	<b>61.55</b>

# Blending of coir with other natural products



# NATURAL FIBRE COMPOSITES



Reaping the Benefits of Golden Fibre



Re-engineering the Magical Grass

## ***ADVANTAGES***

- Abundant Availability of Coir
- Eco-Friendly
- Cost-Effective & Maintenance Free
- High Specific Strength & Stiffness
- Water, Chemical and Atmospheric Corrosion Resistance
- Termite Resistance
- Long Life and Durability
- Aesthetic Design





## ***Coir - Bamboo Composite Boards***

Residence, factory sheds,  
temporary shelters Security cabins

Community toilet units, hospitals

Telephone cabins, Bus shutter,

Milk booth, etc.,

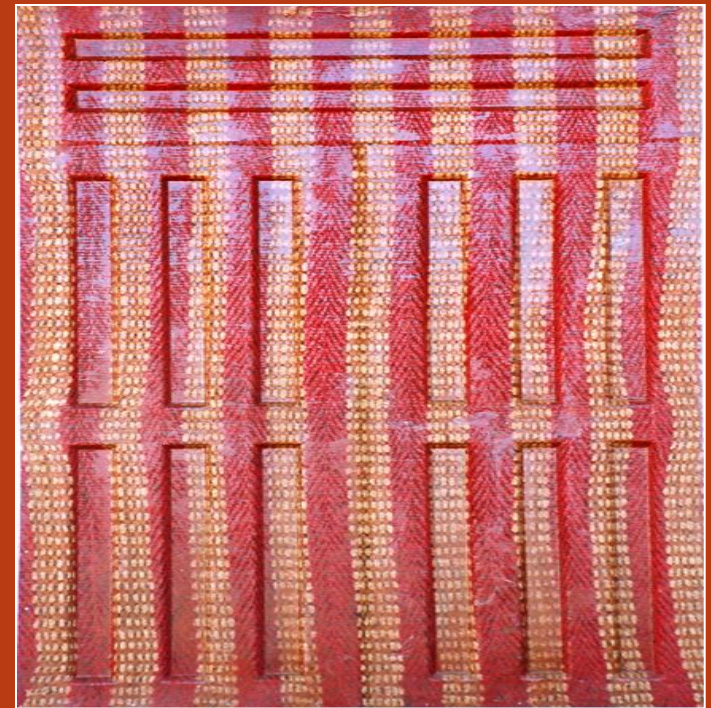


## MOULDED CHAIRS



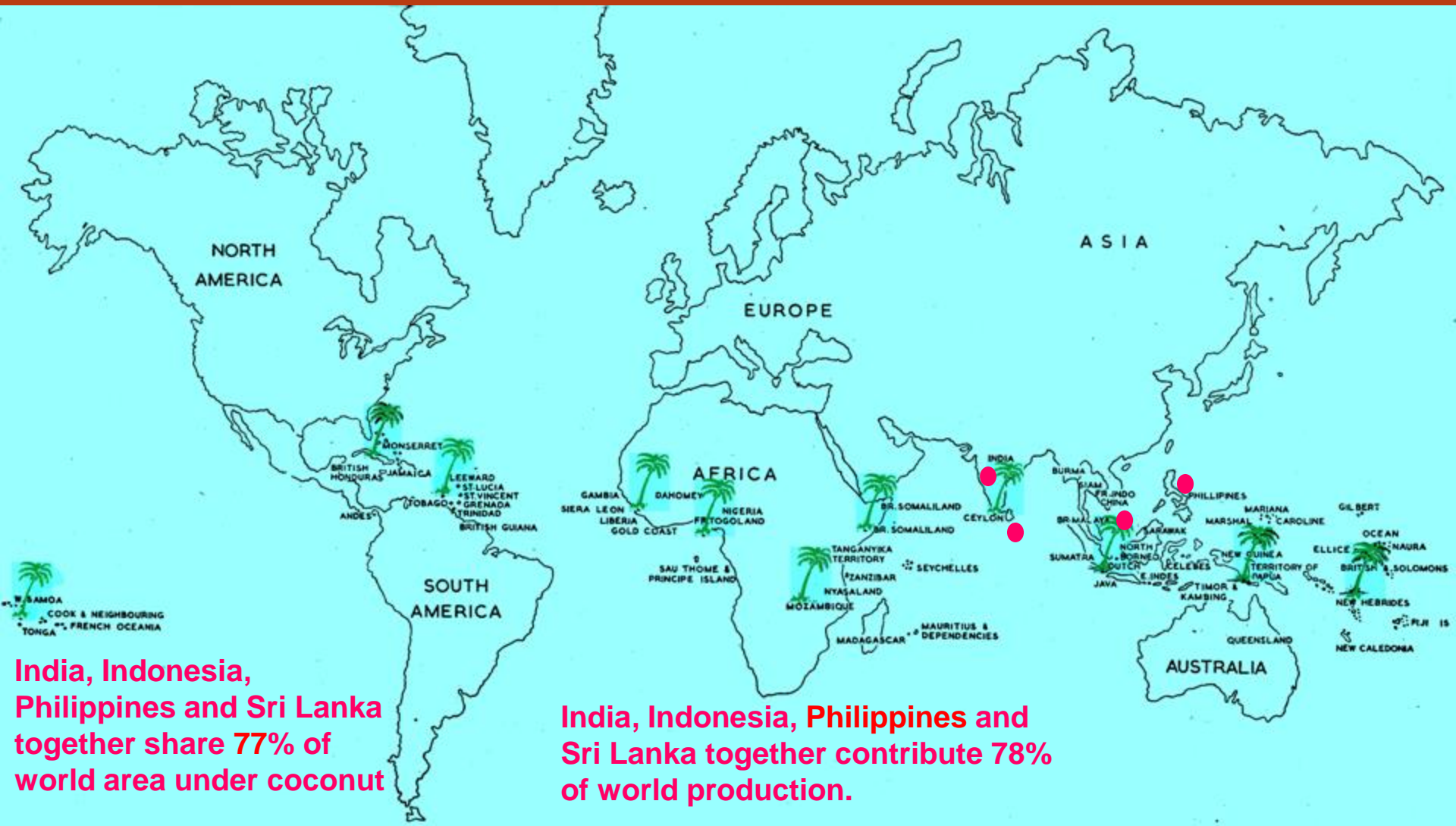


## Coir - Bamboo Composite Boards





# Coconut is grown in 93 countries in the World



India, Indonesia, Philippines and Sri Lanka together share 77% of world area under coconut

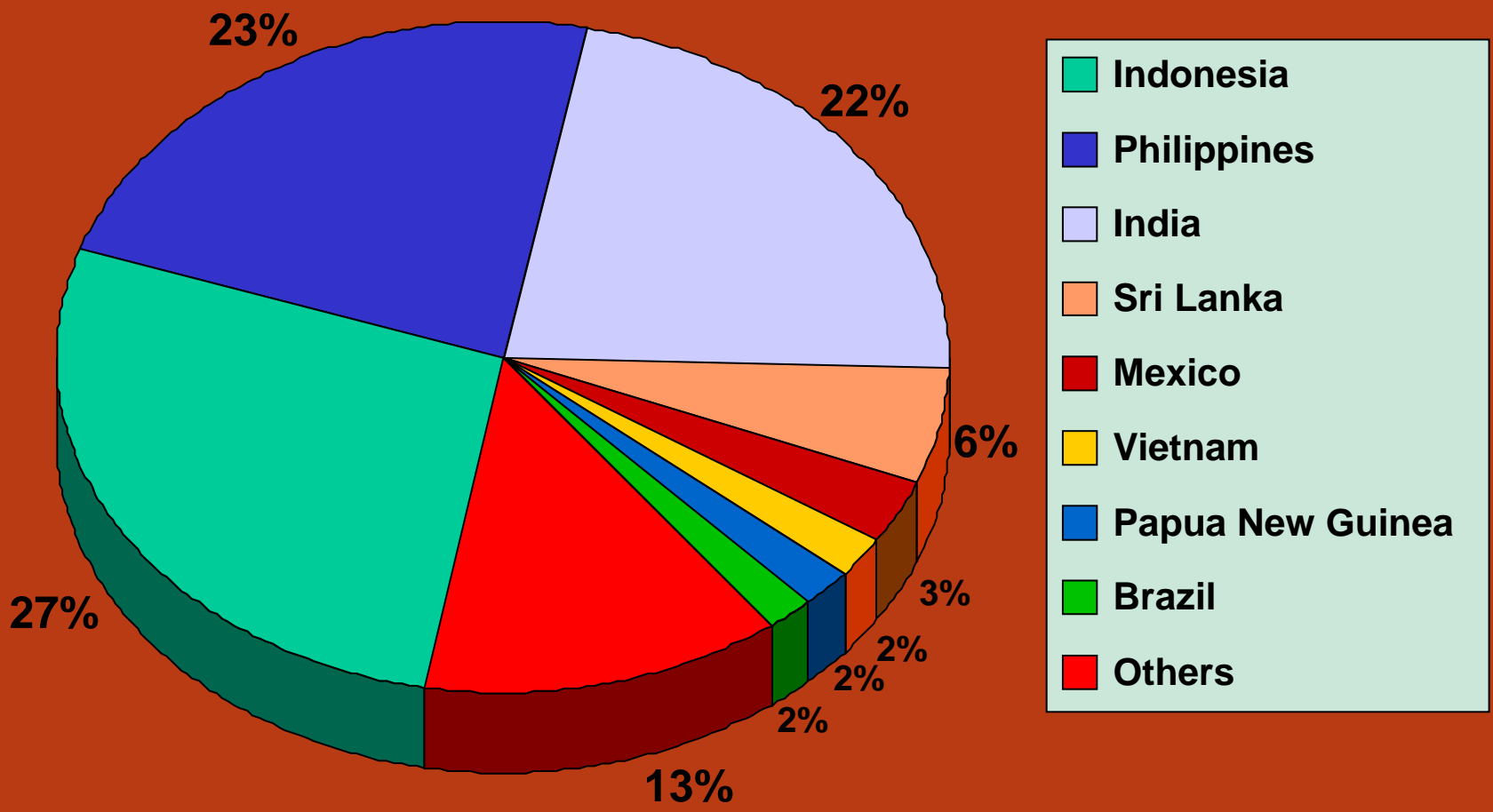
India, Indonesia, Philippines and Sri Lanka together contribute 78% of world production.





# World Coconut production

Total production : 58,462 million nuts

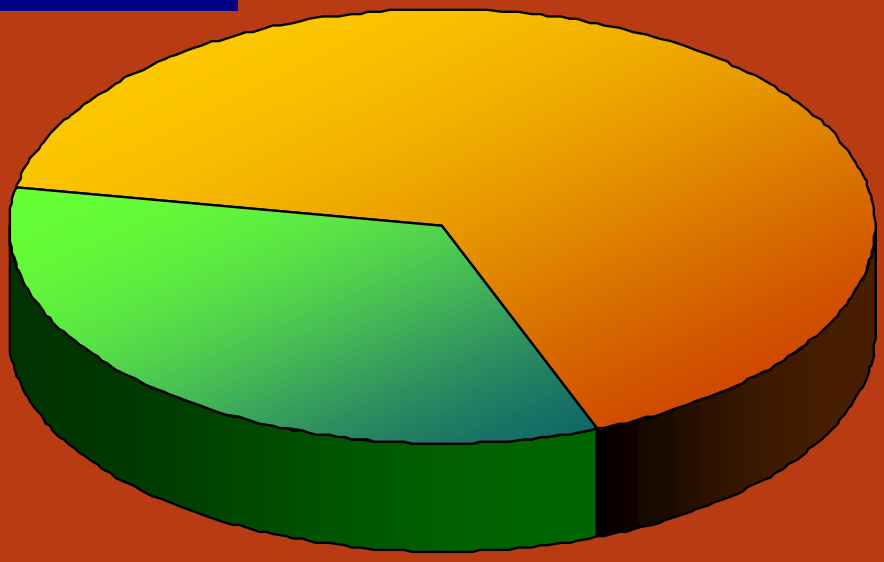


\*APCC Statistics



# Production of Coir Fibre in India

## 2004-2005



**Brown Fibre**  
2,73,000 MT.

**Retted Fibre**  
1,12,000 MT.

## Details of Husk utilization, Fibre production & Employment in Coir Industry in India 2004 – 05

SL.NO	State	Coconut Production (Million Nuts)	Fibre Production (Tonnes)	Quantity of husk utilized for fibre production (Million)	% of Utilization of husk	Employment (Estimates)
1.	Kerala	5338	1,80,000	2250	42	444500
2.	Tamil Nadu	2860	1,12,200	1380	48	75900
3.	Karnataka	1525	40,900	490	32	20400
4.	Andhra Pradesh	1158	32,900	400	34	42100
5.	Orissa	205	1,700	21	10	7480
6.	Others	1073	17,300	217	20	15620
	<b>Total</b>	<b>12159</b>	<b>3,85,000</b>	<b>4758</b>	<b>39</b>	<b>606000</b>



- Still Scope to reach 39 to 60% utilisation
- Advantage - Industries established as natural Clusters in all coconut producing centers of the country
- Renewable resource of raw material in every 45 days
- Bi-products like coir pith, cut fibres are cashable for dollars even



**Waste is wealth**  
When you rethink its proper  
applications.

let us join today  
to build the construction industry  
with  
environment goods like

**Coir**



# COIR

**...is Green Business**

**Environmentally responsible  
& Sustainable...**



# Contact / Enquiries

## SECRETARY

### COIR BOARD OF INDIA

Ministry of Agro & Rural Industries

Government of India

'Coir House', M G Road, Ernakulam

PB No. 1752, Kochi- 682016

Tel:91-484-2351807, 2351788, 2351954, Fax: 91-484-2370034

Email: [coir@md2.vsnl.net.in](mailto:coir@md2.vsnl.net.in), [secretary@coirindia.org](mailto:secretary@coirindia.org)

[coirindia.org](http://coirindia.org)      [coir-india.com](http://coir-india.com)

## DIRECTOR R.D.T.E

Central Coir Research Institute

Kalavoor PO

Alleppey 688522.

Tel: 0477 2258094, 2258480

Email: [coir@bgl.vsnl.net.in](mailto:coir@bgl.vsnl.net.in)

## JOINT DIRECTOR

Central Institute of Coir Technology

Peenya Industrial Area

Bangalore, 569058.

Tel:080 8394875

Email: [coir@bgl.vsnl.net.in](mailto:coir@bgl.vsnl.net.in)

thank you

