

Design Resource

## Coir Craft

The Art of Weaving Coir

by

Prof. Bibhudutta Baral and Mr. Antony William

NID, Bengaluru

Source:

<http://www.dsource.in/resource/coir-craft>



1. Introduction
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3. Coconut Husk Peeling
4. Fibre Extracting
5. Traditional Twine Making
6. Automated Twine Making
7. Tools and Machinery
8. Final Products
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## Introduction

Hiriyur is located 40 km away from the Chitradurga district in Karnataka state. Hiriyur is one of the major producer of coconuts due to good climatic conditions and abundant availability of Vedavati river water. Coir is the natural fiber which is extracted from coconut. The fiber which is extracted from coconut husk is processed in automated machines to remove the fiber. Then the processed fiber is manually entwined into coir ropes.



The artisan in his coconut farm.



The ripened coconuts ready for harvesting.

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The craftsman peeling the husk.



Peeled husk is being transported for fiber extraction.



The artisan explaining about the process.



Coconut fiber bundles are piled up for transportation.

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Women involved in work.



The automated machine used to spin the coir.



Machine used to refine the husk.

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The twisted rope is ready for marketing.



The artisan's family at their work place.

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## Coconut Harvesting

The ripened coconuts are harvested and allowed to dry under sun for 14 to 15 days. The artisan can harvest 25 to 30 trees per day manually. The professional creeper may harvest 250 coconut trees per day. The ripened/dry coconuts are husked and unripen/raw coconuts are left for seasoning.



Coconut farm in Hiriyyur.



The harvested coconuts.



The coconuts are allowed to dry.



The semi dried coconuts are ready to peel the husk.

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## Coconut Husk Peeling

The dried coconuts have to go through the husk peeling process. The husk is peeled off using two different types of tools such as sharp-edged and point-edged iron rods. The artisan cautiously removes the husk very quickly. White coir is extracted from immature husk which is softer than the brown coir. Wherein the brown coir is extracted from fully ripened husk. The processing of brown coir is done separately as it is stronger than the white coir and used for floor mats and brushes. And the white coir is used to make the ropes due to its strong plasticity.



The dried coconuts are gathered for husk-peeling.



The coconut is pierced on a point-edged iron rod.



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The husk is being peeled off using a sharp edged iron rod.



The white husk is dried again.



The peeled brown husk is directly sent to extract the fiber from it.



The artisan is engaged in husk peeling process.

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The husk and coconut are separated through the peeling process.



The peeled husk is kept for dying.

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The work environment in Hiriyyur.



The work environment in Hiriyyur.



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## Fibre Extracting

The dried husk is taken to the defibering process. The husk is directly sent into the defibering machine. The machine separates the fiber from the husk. This extracted husk is again refined to remove the impurities and the hard coconut skin. A different machine is used to refine the husk. The refined husk is gathered and piled which is again sent for the twine making process.

During the refining process the coir pith which is separated by the machine is utilized to prepare the bricks and house hold mats.



The dried coconut husk is gathered for fiber extracting.



The husk is sent inside the defibering machine (beater).



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The extracted fiber is coming out from the machine.



The fiber is refined again to remove the impurities from it.



The fiber is being transported to the refining machine.



The artisan sending fiber into the machine.

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The overview of refining machine.



The refined fiber.

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The women gathering the fiber.



The double refined fiber is piled.



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The waste husk powder is separated automatically inside the machine.



The husk powder is sent for filtering process.

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The circular grill that separates coir and pith.



The coir pith is recycled to prepare bricks.



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## Traditional Twine Making

The refined coir is twined into coir ropes. The traditional twine making is done manually using spinning wheel. Initially, the small quantity of coir is attached to the hook in spinning wheel which is in motion. Then the formed rope is held in the hands and the loop is continued by adding coir to it. The artisan maintains the uniform thickness by walking backwards.

The prepared coir rope is again twisted to obtain the thickness by adding two single twines. Thus, the two-ply coir rope ready for marketing.



The fiber is kept ready for twine making.



Adding the coir to already formed coir rope.



Group of people making coir ropes.



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Safety measures taken while twisting.



Artisan walks backward to loop the coir rope.



Equal thickness is maintained.



A hook used to hold the rope while twisting.

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The two ply rope is twisted into single rope as to make it strength.



The twisting is done using triangular shaped wooden piece.

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The artisan with prepared coir rope.



The artisan and his family.



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## Automated Twine Making

The coir is refined and spinned using modern automated machines. In this process, the cleaned coir is dried and it is taken to the spinning machine. The coir are continuously fed into the fiber tray, the coir automatically twisted and rolled in a container which is placed at the other end of the machine. This roughly spinned coir is again fed into the ply-yarn spinning machine. The final twisting of coir is done by the two spools which are attached to the machine. These automated machines are run by single operator.



The double refined coir bought for twisting.

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Coir is initially dried in drying machine.



The dried coir is initially twisted roughly in an automated yarn spinning machine.



The finely processed coir is being twisted.



The twisted coir is gathered in a container.

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The closer view of coir being roped.



Roughly twisted rope.



The rope is again finely twisted using another rope twisting machine.



The over-view of final twisting.



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The view of twines being twisted.



Keen observation is required to continue the twisting.

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The twisted rope is finally reeled to big spools.



The lesser quality coir is twisted in different yarn spinning machine.



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Attaching the discontinued coir rope.



The coir is directly twisted into rope without processing.



2 ply yarns are twisted into single rope.



Yarn is being reeled automatically.

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The prepared coir yarn is packed according to the market needs.



The coir rope is ready for marketing.

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## Tools and Machinery

The Tools and machinery ranges from manual to automated technology. In Hiriyyur, different type tools and machines are used for the production of coir ropes. Point-edged and sharp-edged iron rods used to peel the coconut husk. The dried husk is carried using wrought iron basket. The automated de-husking machine used to remove the fiber from the husk. This fiber is again cleaned with the help of coconut husk refining machine to separate the fiber and coir pith. The cleaned husk is roughly twisted in yarn spinning machine. Different types of ply yarn spinning machines are used to twist the coir finally. The twisted coir is reeled to the big spools with the help of coir reeling machine.



The point-edged iron rod is used for peeling husk manually.

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Iron basket is used to carry the coconut husk.



The De-husking machine.



The closer view of de-husking machine.



The husk is again cleaned using coir refining machine.

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A grill that separates coir and coir pith.



The raw material after refining.

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A drier used to dry the coir.



The yarn spinning machine that spins coir roughly.



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The roughly spinned coir is again fed into 2-ply-yarn spinning machine.



The over view of ply-yarn spinning machine.



The two spools in machine reels the coir rope.



A machine to clear the impurities in coir.

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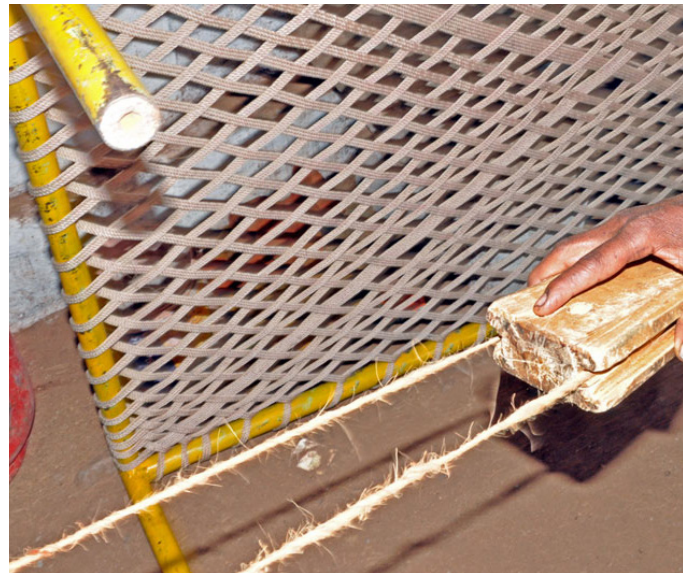


Rough coir is separately spinned in 2-ply-yarn spinning machine.



A different type of 2-ply-yarn spinning machine.

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A triangular shaped wooden piece used to twist the coir twines.



A mechanized hook that holds and rotates the coir twine.



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Manual process of twisting is done using coir spinning wheel.



The bundle of coir is reeled using reeling machine.

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## Final Products

The natural eco-friendly coir rope is the end product which is highly produced in Hiriyur. The coir rope is majorly exported to different parts of India for the further production of household products such as floor mats, brushes, rugs, wall hangings, ceiling and floor furnishings, beds, cushions and show pieces. Coir products are low value, bio-degradable, durable and resistant to salt water as well as weather. The coir pith which is extracted from coconut husk is processed to produce various by-products such as mulch, bricks and as soil treatment. It is also used for horticultural and agricultural applications. Coir pith also acts as best fertilizer.



The natural coir rope.



Coir bundles ready for marketing.



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## Contact Details

This documentation was done by **Professor Bibhudutta Baral**, Mr. Antony William and Mr. C. Susanth at **NID, Bengaluru**.

You can get in touch with Professor Bibhudutta Baral at [bibhudutta\[at\]nid.edu](mailto:bibhudutta[at]nid.edu).

You could write to the following address regarding suggestions and clarifications:

### Helpdesk Details:

Co-ordinator

Project e-kalpa

R & D Campus

National Institute of Design

#12 HMT Link Road, Off Tumkur Road

Bengaluru 560 022

India.

Phone: +91 80 2357 9054

Fax: +91 80 23373086

Email: [dsource.in\[at\]gmail.com](mailto:dsource.in[at]gmail.com)

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