# The Complete Book on Jute & Coir Products (with Cultivation & Processing) - 2nd Revised Edition

Author: P. K. Chattopadhyay

**Format**: Paperback **ISBN**: 9788194737988

Code: NI287 Pages: 464

**Price: Rs.** 1,575.00 **US\$** 42.56

**Publisher: NIIR PROJECT CONSULTANCY SERVICES** 

Usually ships within 5 days

The Complete Book on Jute & Coir Products (with Cultivation & Processing) - 2nd Revised Edition

Jute is a natural fiber popularly known as the golden fiber. It has gained its name as olden fibre due to its shiny brown colour. The fibre is affordable to all the consumers and is completely biodegradable. It is one of the cheapest and the strongest of all natural fibers and considered as fiber of the future. Jute is second only to cotton in world's production of textile fibers. Jute fibers are composed primarily of the plant materials cellulose and lignin. Jute is the name of the plant or fiber used to make burlap, hessian or gunny cloth. Coir is a versatile natural fibre extracted from mesocarp tissue, or husk of the coconut fruit Generally fibre is of golden color when cleaned after removing from coconut husk; and hence the name "The Golden Fibre".

Both coir and jute are natural fibers and come from sustainable products. Coir comes from the husks of coconuts that were typically discarded. It is harvested by hand and soaked in water to soften the fibers, which are then woven together. Jute fiber comes from the stem of the jute plant and is the second most important vegetable fiber, after cotton, when it comes to production and use.

Global jute market on the basis of type, covering jute sack bags and jute shopping bags. Currently, jute sack bags dominate the market, accounting for the majority of the sales volume. Growing environmental awareness among the masses has also created an inclination toward natural and biodegradable products, like jute bags, over plastic bags. This, along with many government initiatives, is bolstering the jute industry. For instance, the Government of India has mandated the packaging of food grain and sugar in jute bags. Some of the key players operative in the market include Aarbur, Ashoka Exports, Hitaishi-KK, Howrah Mills Co. Ltd., Shree Jee International India Ltd. and Gloster Limited.

The growing demand for eco-friendly products in the market is where coir should fast step in. It is a lightweight, soilless growing medium made from the fibers which completely renewable and considered an excellent choice for environmental sustainability. The efforts support the market expansion for coir and the Asia Pacific hopes to further increase production by streamlining the fiber collection process to meet demand.

The Major contents of the Book are BIS Specifications, Jute: an eco-friendly opportunity for a sustainable Future, Green Marketing Of Jute and Jute Products, The Jute And Jute Textiles Industry, Jute Cultivation, Potentiality of coir for salient application, Coconut Cultivation, Scheme for the Development of Coir Production Line, Step-by Step approach to start a Coir Industry, Coir Geotextiles, Eco-friendly and natural

image of coir, Jute Yarn, Sutli& Hessian Cloth, Jute Twine (Jute Rope), Gunny Bags, Jute Garments, Jute Shopping Bags, Gunny Bags (Jute Bags) Manufacturing, Handmade Paper from Jute, Environment Pollution and Effluent Treatment of Jute, Coir Fibre, Coir Pith, Biomass Charcoal Briquetting from Jute and Coir Waste, Rubberized Coir Mattresses, Coir Pith for Absorption and Recovery of Oil from Contaminated Sites, Application of Coir in Agricultural Textiles, Manufacture of Coir Corrugated Roofing Sheet, Coir Machinery Manufacturers, Plant Layout & Process Flow Sheet and Machinery, Equipment and Product Photograph. A total guide to manufacturing and entrepreneurial success in one of today's Jute & Coir Products industry. This book is one-stop guide to one of the fastest growing sectors of the Jute & Coir Products industry, where opportunities abound for manufacturers, retailers, and entrepreneurs. This is the only complete handbook on the commercial production of Jute & Coir Products. It serves up a feast of how-to information, from concept to purchasing equipment.

# **Contents**

### **CONTENTS**

1. INTRODUCTION

Jute

Classification of Jute Products

- 1. Conventional Products
- 2. Speciality Products
- 3. Non-Traditional Products
- 4. Diversified Products Scheme for Modernization of Organised Jute Mills
- 1. Training of Workers & Supervisors
- 2. Machinery Development
- 3. Productivity Improvement & TQM Facilitation
- 4. Acquisition of Machinery and Plant

(Subsidy Component) Coir

- A. Modernisation of Production Processes
- B. Development of Machinery and

Equipments

- C. Product Development and Diversification
- D. Development of Environment Friendly

Technologies

# 2. BIS SPECIFICATIONS

Jute

Coir

3. JUTE: AN ECO-FRIENDLY OPPORTUNITY FOR A SUSTAINABLE FUTURE Long-term Strategy

#### 4. GREEN MARKETING OF JUTE AND JUTE PRODUCTS

Green Products
Jute – A Green Product
Jute Production in India
Objective
Research Methodology
Nature of Data
Source of Data

Sampling Technique

Analysis and Findings

Manufacturing of Jute & Co-Operative

Jute Mill

Jute Products Produced Co-Operative Jute

Jute Market Development and Promotion

Challenges of Jute Marketing

Scheme for Promotion of Jute

Diversification

1. Design & Development of Jute

**Diversified Products** 

2. Scheme for helping NGOs and Women

Self-Help-Groups (WSHGs)

3. Scheme for Promotion of Jute

Diversification

4. Scheme for Commercialization of

**Technology** 

5. Scheme for Setting up of Jute Parks for

the Diversified Sector

# 5. THE JUTE AND JUTE TEXTILES INDUSTRY

Development and Regulatory Organizations in Jute Sector

(a) Organizations under Ministry of Textiles

Jute Manufactures Development Council (JMDC)

(b) Other Organizations supported by Ministry of Textiles in Jute Sector

International Jute Study Group (IJSG) Incentives to Jute Sector

- (a) Extension of Duty Entitlement Pass Book (DEPB) Benefits to Jute Products
- (b) Technology Up gradation Fund Scheme (TUFS)
- (c) Jute Technology Mission Objectives of JTM are
- (d) Non Plan Schemes of JMDC

#### 6. JUTE CULTIVATION

Raw Jute Scenario

**Botanical Description of Jute** 

Jute Growing Zones

Manures and Fertilizer Application

Varieties

Seed Rate and Sowing

Weed Management

Top Dressing of Fertilizer

Water Management

Harvest

Yield

Sowing Process of Jute

Harvesting Process of Jute Retting Practices

- a. Retting Practices in India and Bangladesh
- b. Retting Practices in China
- c. Double Immersion/Single-Wash-Retting in China
- d. Retting Practices in Indonesia
- e . Retting Practices in Nepal
- f. Retting Practices in Thailand

**Extraction Practices** 

Single Stem Stripping
Stripping and Washing or Wash-JerkMethod
Indian Jute Industry at a Glance
Major Producers of Jute
Jute and Mesta in the National Economy
From Jute to Diversified Products

# 7. POTENTIALITY OF COIR FOR SALIENT APPLICATION

Introduction

Raw Material Availability & Traditional

Application

Swot Analysis of Coir Products

Value Addition Present Status Through

Collaborative Project Amongst IICT & CCRI

Value Addition Prospects

Scope of the Study

Potentials of Coir as Technical Textile

Fiber

Introduction

Coir as Technical Textile

Use of Coir as Agrotech

Use of Coir as Buildtech

Use of Coir as Clothtech

Use of Coir as Geotech

Use of Coir as Hometech

Use of Coir as Indutech

Use of Coir as Meditech

Use of Coir as Mobiltech

Use of Coir as Oekotech (Ecotech)

# 8. COCONUT CULTIVATION

Origin

Climate and Soil

Varieties of Coconut

**Tall Varieties** 

**Dwarf Varieties - Suitable for Tender** 

Coconut

**Hybrid Varieties** 

Planting Material

Site Selection

Time of Planting

Spacing and Systems of Planting

**Planting** 

# 9. SCHEME FOR THE DEVELOPMENT OF COIR PRODUCTION LINE

Coir Udyami Yojana

Scheme for the Development of Production

Infrastructure Under Coir Vikas Yojana

Skill Up gradation & Mahila Coir Yojana

Under Coir Vikas Yojana

# 10. STEP-BY STEP APPROACH TO START A COIR INDUSTRY

- 1. Identifying the Opportunity
- 2. Making a Product Choice
- 3. Process Selection

Machinery and Equipment

- 4. Arranging Finance
- 5. Filing of Udyog Aadhaar Registration
- 6. Construction of Building
- 7. Getting the Utility Connections
- 8. Getting 3M's Right

Men

Machinery

Materials

#### 11. COIR GEOTEXTILES

Coir Geotextiles for Strengthening Soft Soil

Subgrade

Application of Geotextile Separation

Filtration

Reinforcement

Use of Coirgeotextiles in Unpaved Roads

Subgrade Separation and Stabilization

**Typical Solutions** 

Geotextile Benefits

Base Reinforcement

Coir as a Suitable Geotextile Material aor

Roads

Reinforcement

As Filter/Drainage Layer

Strength of Subgrade

Field Installation of Geotextile

Long Term Performance of Coir Geotextile

Methodology

Visual Evaluation

Coir Geotextile for Erosion Control

Universal Soil Loss Equation

Coir Geotextiles

Fuzzy Logic Results

Selection of Coir Geotextile

Coir Fibre and Its Application as Erosion

**Control Mats** 

Mechanism of Erosion Control

Coir Geotextile for Construction of Roads

in Rural Areas

Benefits

The Coir Geotextiles - Natural Solution to

Natures Problem

Historic, Economic and Political

Background

Coir Geo Textiles for Environmental

# Application

Types of Coir Bhoovastra

- 1. Open Weave Coir Bhoovastra
- 2. Geo Rolls and Vegetation Fascines
- 3. Non-woven Felts

Coir Needled Felt

- 4. Cocologs
- 5. Coir Fiber Beds (Cocobeds)
- 6. Coir Loop Fabric
- 7. Coir Cell Geo Textiles

Application of Coir Geo Textiles

a) For Soil Erosion Control

Site Preparation

Fixation

Laying

Vegetation & Seeding

Monitoring

b) Sub-base layer in Village/Rural Roads/

Reinforcement of Paved Roads

c) Application in the Waste Dumping Yards

of Mines

Coir Pith Based Cyanobacterial

**Biofertilizers** 

Cyanobacteria

Coir Pith Degradation

Cyanopith and Cyanospray

Treatment of Textile Effluent

Treatment of Tannery Effluent

Field Trials

Benefits of Coir Pith for Cyanopith and

Cyanospray

As Production

As Biofertilizers

Organic Farming with Self-Aerated Large-

Scale Composted Coir Pith

Market of Organically Grown Food

Sustainability Factors of Organic Farming

Coir Pith

Coir Pith Composting Methods

New Method for Coir Pith Composting

Overall Biochemical Reaction of

Composting and Rate of Product Formation

Composted Coir Pith Use for Organic

Farming

Potential of Bio Composting of Coir Pith

Structure of Coir Pith

Materials and Methods

Culture Inoculum

Coir Pith and Biological Supplements

a. Azolla

**Culture Conditions** 

Diversified Uses of Coir Pith and Coir Pith

Organic Manure (C-POM)

- (a) Growing Media
- (b) As Amendment
- (c) As a Substitute to Peat Moss
- (d) As an Organic Fertilizer
- (e) As a Base for Home/Vertical/Roof

Garden

(f) As a Base for the Preparation of

Cocolawn

Binderless Coir Wood

Introduction

Materials and Methods

Materials

Methods

Drying of the Materials

Sieving

Hot Pressing

Effect of Moisture

Effect of Temperature

Effect of Pressure and Cooling Under

Pressure

# 12. ECO-FRIENDLY AND NATURAL IMAGE OF COIR

Price and Performance of Improved

**Products** 

Marketing Strategy

Supply

**Promotional Programmes** 

# 13. JUTE YARN, JUTE SUTLI & HESSIAN CLOTH

Weaving Integrated Unit

Introduction

**Uses & Applications** 

**Properties** 

Manufacturing Process

Twin Cord Making

Twin Cord Softening Section

Manufacturing Process of Hessian Cloth

Process Flow Diagram

**Detailed Manufacturing Process of Jute** 

Yarns & Other Jute Processing

Batching

Drawing

Roving

**Spinning** 

**Twisting** 

Reeling

Winding

Dressing and Beaming

Weaving

Looms

Finishing

Machinery Details and Specifications

# 1. Spinning Machine and Spreader

**Details** 

**Specifications** 

2. High Speed Automatic Electronic

Weaving Rapier Loom

Details

Specifications

3. Bale Opener

Details

**Specifications** 

# 14. JUTE TWINE (JUTE ROPE), GUNNY BAGS

Properties of Jute

Manufacturing Process Jute Twine Cum

**Gunny Bag** 

Basic Raw Materials Required

Basic Plant and Machineries Required

**Process** 

Small Qualities of Jute Goods

Spinning

**Twisting** 

Weaving

Manufacturing Process Flow Diagram

Machinery Details and Specifications

1. Spinning Machine

**Details** 

**Specifications** 

2. Twister Roller

**Details** 

Specifications

# 15. JUTE GARMENTS

Introduction

Properties of Jute Garments

Uses of Jute Garments

Manufacturing Process of Jute Garments

Here Jute Garments Means

Basic Raw Materials Required

Basic Plant and Machinery Required

Manufacturing Process Flow Diagram

Machinery Details and Specifications

1. Weaving Machine

**Details** 

**Specifications** 

2. Drying Equipment

Details

**Specifications** 

1. Sewing Machine

**Quick Details** 

**Specifications** 

# 16. JUTE SHOPPING BAGS

A. Modernisation of Production Processes

Introduction

Properties of Jute Shopping Bags

Uses & Applications

Manufacturing Process

Raw Material Required

Plant and Machinery Required

**Process** 

Process Flow Diagram

Machinery Details and Specification

1. Sewing Machine

**Quick Details** 

**Specifications** 

# 17. GUNNY BAGS (JUTE BAGS) MANUFACTURING

Introduction

- 1. Hessian
- 2. Sacking
- 3. Canvas

**Product Description** 

**Uses and Applications** 

**Application of Gunny Bags** 

- 1. Food Grains
- 2. Sugar
- 3. Cement
- 4. Fertilizers
- 5. Chemicals

Manufacturing Process

Inspection of Hessian Cloth

Set Making

Marking

Cutting

Stitching

Inspection of the Bags

Packaging

Process Flow-Sheet for the Manufacture of

Gunny Bags

Machinery details and specifications

1. Sewing Machine

**Quick Details** 

**Specifications** 

#### 18. HANDMADE PAPER FROM JUTE

Introduction

Steps of Manufacturing Process

Machinery Details and Specifications

1. Jute Chopper and Cutter

Company details

2. Hydraulic Press Machine

Company details

3. Calendaring Machine

Company details
4. Cutting Machine

Company details

# 19. ENVIRONMENT POLLUTION AND EFFLUENT TREATMENT OF JUTE Effluent Treatment Plant Equipment

# 20. COIR FIBRE

Coir

Coconut

Structure

Coir Fibre

Processing

Brown Fibre

White Fibre

Major Producers

Kerala Fibre

Bio-Softening and Bio-Bleaching/

Brightening of Coir Fibre

Short-Term Objective of the Softening

**Process** 

Long-Term Objective of the Softening

**Process** 

Biotechnological Process of Softening and

Bleaching/Brightening

**Enzymes Used** 

Preparation of Media

Molasses Broth Medium

Potato Dextrose Broth Medium

Crude Enzyme Preparation

Treatment of Dry Husk

Results

Improvement in Softness of Dry Husk

# 21. COIR PITH

Introduction

Application of Coir Pith

Special Features of Coir-Pith

Uses of Coir Pith Blocks

Role of Our Coir Pith Blocks

Manufacturing Process of Coir Pith

Raw Materials

Harvesting and Husking

Retting

Defibering

Finishing

**Process Flow Diagram** 

Machinery Details and Specifications

1. Coir Pith Baling Machine

Details

**Specifications** 

**Block Specifications** 

Machine Specifications

Hydraulic Power Unit

2. Coir Pith Machine

Details

Technical Specifications

**Features** 

**Contact Details** 

3. Crusher

**Company Details** 

4. Industrial Screener

Details

Machine Specifications

Company Details

# 22. BIOMASS CHARCOAL BRIQUETTING FROM JUTE AND COIR WASTE

Introduction

What is Charcoal?

What can be Briquetted?

What is Biomass Charcoal Briquetting?

Biomass Charcoal Briquette Production

Raw Materials Required

Process in Manufacturing

- 1. Biomass collection
- 2. Carbonization Process
- I. Briquettes Drying Stage
- II. Initial Carbonization Stage

III. Comprehensive Carbonizing Stage

(temperature 300~6500C)

3. Briquetting

Steps for Manufacturing

Process Flow diagram

Machinery Details and Specifications

Company Details

#### 23. RUBBERIZED COIR MATTRESSES

Introduction

Types & Structure of Coir Fibre

**Uses and Applications** 

Properties of Coir

Physical Properties of Coir Fibre

Chemical Properties (Composition)

Advantages of Rubberized Coir Mattresses

Manufacturing Process

**Embedding of Coir Fibres** 

Combing

Leveling

- 1. Dispersion
- 2. Solution Preparation

Process Flow Diagram

Production Details of the Product

Machinery Details and Specifications

1. Coir Mattresses Machine

Key Features of Machine

Types of Different Width of Production of by

Machine

Space Required

Power Required

**Contact Details** 

# 24. COIR PITH FOR ABSORPTION AND RECOVERY OF OIL FROM CONTAMINATED SITES

Introduction

**Process** 

Methodology

Performance Result of the Screw Press

# 25. APPLICATION OF COIR IN AGRICULTURAL TEXTILES

Introduction

**Properties** 

Uses of Coir in Agricultural Textiles

**Erosion Control Blankets for Controlling** 

Slope Erosion

Mulch Blankets

**Basket Liners** 

**Bio-Rolls** 

**Roof Greening Mats** 

**Grow Sticks** 

Coco Logs

**Grow Media** 

# 26. MANUFACTURE OF COIR CORRUGATED ROOFING SHEET

Introduction

(1) Physical Properties of Coir Fibre

(2) Chemical Properties (Components of

Coir Fibre)

Materials and Methods for the

Manufacture of Coir Corrugated Sheets

- 1. Coconut Coir Non-Woven Felt
- 2. Woven Bamboo Mat
- 3. Resin

Raw Materials for Resin Manufacture

**Novolacs** 

**Applications** 

Test Methods to Assess the Quality of

Cardanol

- 4. BOPP Film as Releasing Agent
- 5. Preservative Chemicals

Batch Resin Reactor or Resin Kettle

1. Preparation of Phenol Formaldehyde

Resin

Flow Chart for Preparation of PF Resin

2. Preparation of Phenol Cardanol

Formaldehyde Resin

Flow Chart for Preparation of PCF Resin

Phenol-Methanol Polymerization of Resin Consolidation of Non-Woven Coir Felt

Construction of coir and bamboo mat for

**Corrugated Sheet** 

Machinery/Equipment

Significant Aspect in Manufacture of Coir

Felt Corrugated Sheet

Moisture Content of Coir Felt and Mats

PCF Resin Adhesive Formulation [for

bonding]

Requirement of PCF Resin

Impact of Resin Quality

Glue Application on the Coir Felt and

Bamboo Mat

Balance and Drying of Resin Coated Mats

Assembly of Coir Felts/Mats

Hot Pressing

Dimensioning and Finishing of Coir

**Corrugated Sheets** 

Test Performed on Coir Felt Corrugated

Sheets

List of Machinery and Equipment

List of Raw Materials

Suppliers and Manufacturers of Plant

Machinery

1. Automatic Corrugated Roofing Sheet

Machine

**Quick Details** 

**Specifications** 

Company Details

2. FRP Roofing Sheets Making Machine

Quick Details

**Specifications** 

**Technology Parameter** 

**Company Details** 

- 27. COIR MACHINERY MANUFACTURERS
- 28. PLANT LAYOUT AND PROCESS FLOW SHEETS
- 29. MACHINERY, EQUIPMENT AND PRODUCT PHOTOGRAPHS

# **About NIIR**

**NIIR PROJECT CONSULTANCY SERVICES (NPCS)** is a reliable name in the industrial world for offering integrated technical consultancy services. NPCS is manned by engineers, planners, specialists, financial experts, economic analysts and design specialists with extensive experience in the related industries.

Our various services are: Detailed Project Report, Business Plan for Manufacturing Plant, Start-up Ideas, Business Ideas for Entrepreneurs, Start up Business Opportunities, entrepreneurship projects, Successful Business Plan, Industry Trends, Market Research, Manufacturing Process, Machinery, Raw Materials, project report, Cost and Revenue, Pre-feasibility study for Profitable Manufacturing Business, Project Identification, Project Feasibility and Market Study, Identification of Profitable Industrial Project Opportunities, Business Opportunities, Investment Opportunities for Most Profitable Business in India, Manufacturing Business Ideas, Preparation of Project Profile, Pre-Investment and Pre-Feasibility Study, Market Research Study, Preparation of Techno-Economic Feasibility Report, Identification and Section of Plant, Process, Equipment, General Guidance, Startup Help, Technical and Commercial Counseling for setting up new industrial project and Most Profitable Small Scale Business.

NPCS also publishes varies process technology, technical, reference, self employment and startup books, directory, business and industry database, bankable detailed project report, market research report on various industries, small scale industry and profit making business. Besides being used by manufacturers, industrialists and entrepreneurs, our publications are also used by professionals including project engineers, information services bureau, consultants and project consultancy firms as one of the input in their research.

Our Detailed Project report aims at providing all the critical data required by any entrepreneur vying to venture into Project. While expanding a current business or while venturing into new business, entrepreneurs are often faced with the dilemma of zeroing in on a suitable product/line.

NIIR PROJECT CONSULTANCY SERVICES , 106-E, Kamla Nagar, New Delhi-110007, India. Email: npcs.india@gmail.com Website: NIIR.org

Fri, 26 Apr 2024 22:22:10 +0530