

Processing, Manufacturing of Coconut based Products

**(Coconut Oil, Coconut Cream, Coconut Milk And Milk Products,
Coconut Spray Dried Milk Powder, Coconut Byproducts, Coconut Shell
Charcoal, Activated Carbon, Shell Flour, Coir And Coir Products,
Handicrafts From Coconut)**

**With Recycling of Organic Wastes from Coconut
Palm, Vermicomposting, Coir Pith Composting**

Introduction

Coconut seems to have a special place in Primal hearts. Judging from the forums, people are pretty taken with the fatty pseudo-nut and they're always interested in new ways to consume the stuff. For some who abstain from dairy completely, coconut products make a great replacement for creams and butters.

Coconut and coconut based products sector plays a pivotal role in the foreign exchange earnings by offering a wide array of products to the international market. The coconut is a very useful plant with a wide range of products being sourced from it. Coconut products are used to make everything from clothing to animal feed to beauty creams.

Its kernel is harvested for its edible flesh and delicious water, while its husk is used for its strong fibers. Most important, however, are its oils, which are extracted, processed, and marketed for culinary, medicinal, and cosmetic uses alike. Typically, the flesh is first dried down to 6% moisture to make copra. This product is then hauled to factories across the world where it is manufactured into oil.

Demand for coconuts has grown upwards of 500% in the last decade. This is because coconut-based derivatives, such as soaps, virgin coconut oil, health products and coconut water, have all seen large spikes in demand, so much so that producers may not be able to keep up.

The Philippines is requesting international help to streamline their production protocols, and the international community has responded by taking steps to reduce demand for coconuts.

The leading coconut producer nations are (in order) the Philippines, Indonesia, India, Sri Lanka, Thailand and Malaysia. While production from nations such as Fiji, Papua New Guinea, Solomon Islands, Samoa, Tonga and Vanuatu is relatively small, the coconut trade is a major source of export revenue for these countries. In some years, copra comprises more than 50% of Vanuatu's export income.

The export of coconut and coconut products from India increased by 10.50 per cent to `1450.24 crore in 2015-2016. The increase in quantity exported of desiccated coconut, coconut oil and activated carbon when compared to previous year was 63, 23 and 13 per cent respectively.

There are greater prospects for exports of coconut oil, virgin coconut oil and desiccated coconut from India in 2016-17 as the prevailing domestic price is less when compared to the international market.

The coconut industry is the highest net foreign exchange earner of agricultural exports in the Philippines, accounting for about 1.5% of GNP. It employs, directly or indirectly, some 20 million people (about one-third of the population) and earns more than US\$510m annually.

Coconut is one of the oldest crops grown in India and presently covers 1.5 million hectares in this country. Found across much of the tropic and subtropical area, the coconut is known for its great versatility as seen in the many domestic, commercial, and industrial uses of its different parts. Coconuts are part of the daily diet of many people. Its endosperm is initially in its nuclear phase suspended within the coconut water. As development continues, cellular layers of endosperm deposit along the walls of the coconut, becoming the edible coconut flesh. When dried, the coconut flesh is called copra.

The oil and milk derived from it are commonly used in cooking and frying; coconut oil is also widely used in soaps and cosmetics. The clear liquid coconut water within is a refreshing drink and can be processed to create alcohol. The husks and leaves can be used as material to make a variety of products for furnishing and decorating. It also has cultural and religious significance in many societies that use it. India stands third in the production of coconut in the world. There are only two distinguishable varieties of coconut; the tall and the dwarf. As a result of cross pollination in the tails, a wide range of variations occur within the same variety.

Coconut based cropping/farming systems promote on farm diversity and strengthens ecological base of coconut farming. Coconut husk is the raw material for the coir industry. It is also used as a domestic fuel and as a fuel in copra kilns. Coconut oil comes under edible/industrial group, is used as cooking oil, hair oil, massage oil and industrial oil. It is dominated by saturated fats and high percentage of lauric acid. India accounts for the 18% of total coconut production in the world and it is the third largest coconut producing country in the world. Coconut processing adds value, and a number of products like coconut oil, desiccated coconut, coir fibre, pith, mattresses,

desiccated coconut (DC), coconut cream, coconut milk, spray dried coconut milk powder, coconut shell products, shell charcoal, shell powder, virgin coconut oil are obtained. The demand for coconut oil increases 15 to 20 % during the festival season. Coconut oil for edible purposes is now being claimed to be the second best edible oil in the world, after Olive oil. Coconut shell charcoal is most widely used as domestic and industrial fuel.

Some of the fundamentals of the book are product diversification in coconut, future of coconut oil, scope for product diversification, varieties of coconut, farming systems in coconut, organic farming of coconut, spices and herbs, establishment and maintenance of organic coconut plantations, production of organic spices, medicinal and aromatic plants along with coconut, crop improvement, green manuring in coconut garden organic recycling in coconut, soil moisture conservation in coconut garden, harvest and post harvest technology, integrated farming in coconut holdings for productivity improvement, machinery and processing of desiccated coconut, coconut processing sector in India, etc.

Coconut plays an important role in the economic, social and cultural activities of millions of people in our country. India is a major producer of coconut in the world. Coconut provides food, edible oil, industrial oil and health drink to humanity. All parts of coconut tree is useful in one way or other and the crop profoundly influences the socio economic security of millions of farm families. The present book contains the methods of cultivation and processing of coconut. This book is very beneficial for agriculturist, researchers, professionals, entrepreneurs, agriculture universities etc.

Table of Contents

1. PRODUCT DIVERSIFICATION IN COCONUT

FUTURE OF COCONUT OIL

SCOPE FOR PRODUCT DIVERSIFICATION

Philippines

Sri Lanka

India

Other Uses

CONCLUSION

2. VARIETIES OF COCONUT

TALL VARIETY

West Coast Tall

East Coast Tall

Lakshadweep Ordinary

Lakshadweep Micro

Andaman Ordinary

Andaman Giant

Kappadam

Laguna

San Ramon

Macapuno

Spicata

Performance of exotic cultivars under Indian conditions

DWARF VARIETY

Ghowghat Green Dwarf

Chowghat Orange Dwarf

Malyan Dwarf

Gangabondam

Ayiramkachi

Thembili (King Coconut)

Coonino

Mangipod

Niuleka

3. FARMING SYSTEMS IN COCONUT

ROOTING PATTERN

CROWN STRUCTURE AND LIGHT TRANSMISSION

WATER USE EFFICIENCY

NUTRIENTS

CHOICE OF INTER / MIXED CROPS

**CRITERIA FOR SELECTION OF INTER/
MIXED CROPS**

4. ORGANIC FARMING OF COCONUT, SPICES AND HERBS

ORGANIC COCONUT SCENARIO

**SCOPE FOR ORGANIC PRODUCTION OF
COCONUT IN INDIA**

**CHARACTERISTICS OF A TYPICAL ORGANIC
COCONUT FARM**

ESTABLISHMENT AND MAINTENANCE OF

ORGANIC COCONUT PLANTATIONS

Conversion Period

Buffer Zone

Choice of Varieties

Raising Nursery

Land Preparation

Preparations for Planting

Aftercare of the Young Plantation

Nutrient Management

Green Manuring and Cover Cropping

Utilization of Waste from Coconut Palm

Improving Soil Conditions

Plant Protection

Biopesticides

Contamination Control

Soil and Water Conservation

Bee Keeping

Animal Husbandry

CONVERSION OF ESTABLISHED PLANTATIONS

Conversion Period

Choice of Cultivars/Varieties

Composting of On-farm Crop Residues/
Farm Wastes

Nutrition Management

Weed Management

PROCESSING OF ORGANIC COCONUT

**PRODUCTION OF ORGANIC SPICES, MEDICINAL AND AROMATIC PLANTS
ALONG WITH
COCONUT**

CERTIFICATION OF ORGANIC PRODUCTS

5. PLANTING MATERIAL

COLLECTION OF SEEDNUTS

RAISING NURSERY

NURSERY CARE

SEEDLING SELECTION

POLYBAG NURSERY

6. GARDEN ESTABLISHMENT

SITE SELECTION

TIME OF PLANTING

PLANTING SYSTEM

LAND PREPARATION AND PREPARATION OF PITS FOR PLANTING

REPLACEMENT OF UNPRODUCTIVE PALMS

REPLANTING

UNDER PLANTING

AFTER CARE

7. CROP IMPROVEMENT

VARIETIES

TALL GROUP

West Coast Tall

East Coast Tall

Lakshadweep Ordinary

Lakshadweep Micro

Andaman Ordinary

Kappadam

VPM-3

ALR (CN) 1

DWARF GROUP

Dwarf Green

Dwarf Orange

Malayan Dwarf

Gangabondan

Choughat Orange Dwarf

TALL AND DWARF HYBRIDS

VHC 1

VHC 2

VHC 3

8. CROP PROTECTION

INSECT PESTS

Rhinoceros Beetle, *Oryctes rhinoceros* L.

MANAGEMENT

Red Palm Weevil, *Rhynchophorus ferrugineus* Oliv. (Curculionidae: Coleoptera)

MANAGEMENT

Black Headed Caterpillar, *Opisina arenosella* Meyr.
(Cryptophasidae: Lepidoptera)

MANAGEMENT

Termite, *Odontotermes obesus* Ramb. (Termitidae: Isoptera)

MANAGEMENT

Lacewing Bug, *Stephanitis typicus* Dist. (Tingidae: Hemiptera)
Scale Insect, *Aspidiotus destructor* Sign. (Diaspididae: Hemiptera)

MANAGEMENT

Mealybug, *Pseudococcus longispinus* (T.),
P. citriculus G., *Palmicultor palmarum* (Eh.) (Pseudococcidae :
Hemiptera)

MANAGEMENT

Slug Caterpillar, *Latoia lepida* Cram (Cochlidiidae: Lepidoptera)
Slug Caterpillar, *Contheyla rotunda* H.,
(Cochlidiidae: Lepidoptera)
Slug Caterpillar, *Macroplectra nararia* M.
(Cochlidiidae: Lepidoptera)

MANAGEMENT

White Leaf Roller, *Gangara thyrsis* M.

(Hesperiidae: Lepidoptera)

Green Leaf Roller, *Suastus gremius* F.

(Hesperiidae: Lepidoptera)

Long Green Caterpillar, *Turnaca acuta* W.

(Notodontidae: Lepidoptera)

Bag Worm, *Manatha albipes* M.

(Psychidae: Lepidoptera)

MANAGEMENT

Nut Borer, *Cyclodes omma* V.H.

(Noctuidae: Lepidoptera)

Lesser Coconut Spike Moth, *Batrachedra*

arenosella Wlk. (Cosmopterygidae: Lepidoptera)

Flower Caterpillar, *Syntomis passalis* Fab. (Cosmopterygidae: Lepidoptera)

Ash Weevil, *Myloccerus curvicornis* Fab.

(Curculionidae: Coleoptera)

Stem and Bark Weevil, *Diocalandra*

stigmaticollis G. (Curculionidae: Coleoptera)

MANAGEMENT

Shot Hole Borer, *Xyleborus perforans* W.
(Scolytidae: Coleoptera)

MANAGEMENT

Coreid Bug, *Paradasynus rostratus* Dist.
(Coreidae: Heteroptera)

MANAGEMENT

Root Grub, *Leucopholis coneophora* Burm. (Melolonthidae: Coleoptera)

MANAGEMENT

Ant, *Dorylus orientalis* W.
(Formicidae: Hymenoptera)
Red Ant, *Oecophylla smaragdina* F.
(Formicidae: Hymenoptera)

NON INSECT PESTS

Mites

MANAGEMENT

PACKAGE OF RECOMMENDATIONS

MANAGEMENT

Nematodes

THE BURROWING NEMATODE,
RADOPHOLUS SIMILIS
MANAGEMENT
THE COCONUT NEMATODE,
RHADINAPHELENCHUS COCOPHILUS

Rodent Pests

MANAGEMENT
MANAGEMENT
SQUIRREL, FUNAMBULUS PALMARUM
MONKEYS

Storage Pests

MANAGEMENT
DISEASES

Bud Rot, Phytophthora palmivora Butler

MANAGEMENT

Thanjavur Wilt, Ganoderma lucidum (Leyss)

Karst and G. applanatum

MANAGEMENT

Stem Bleeding. Thielaviopsis paradoxa

MANAGEMENT

Leaf Blight, *Pestalotia palmarum*

MANAGEMENT

Pencil Point (Tapering Wilt)

MANAGEMENT

Tatipaka Disease

MANAGEMENT

Crown Choke Disease

MANAGEMENT

Button Shedding

MANAGEMENT

Root Wilt

MANAGEMENT

Leaf Rot, *Colletotrichum gloeosporioides*,
Exserohilum rostratum, *Fusarium solani*

MANAGEMENT

Mahali (Fruit Rot and Nut Fall),
Phytophthora palmivora

MANAGEMENT
PREPARATION OF 1% BORDEAUX MIXTURE
BORDEAUX PASTE

9. INTEGRATED DISEASE MANAGEMENT

BUD ROT CAUSAL ORGANISM

SYMPTOM

CONTROL

PREPARATION OF 1% BORDEAUX MIXTURE

BORDEAUX PASTE

ROOT DISEASE

SYMPTOMS

MANAGEMENT

LEAF ROT

CAUSAL ORGANISMS

SYMPTOM

CONTROL

STEM BLEEDING DISEASE

CAUSAL ORGANISM

SYMPTOM

CONTROL
THANJAVUR WILT/GANODERMA DISEASE
CAUSAL ORGANISM
SYMPTOM
MANAGEMENT
MAHALI (FRUIT ROT AND NUT FALL)
Causal organism
SYMPTOM
CONTROL
LEAF BLIGHT OR GREY LEAF SPOT
SYMPTOM
CONTROL
TATIPAKA DISEASE
SYMPTOM
MANAGEMENT
CROWN CHOKE DISEASE
SYMPTOM
CONTROL

10. GARDEN MANAGEMENT

INTERCULTIVATION

FERTILIZER RECOMMENDATIONS FOR

COCONUT - A SUMMARY

DEFICIENCY OF NUTRIENTS

NITROGEN

POTASSIUM

MAGNESIUM

BORON

SULPHUR

CHLORINE

GREEN MANURING IN COCONUT GARDEN

ORGANIC RECYCLING IN COCONUT

**Organic Recycling in Coconut Based
Farming System**

**Leguminous Green Manure Plants for Sustaining Coconut Yields
Basin Management with Legume Cover Crops**

**Growing of Gliricidia as green leaf manure crop in coconut
garden under littoral sandy soil**

Recycling of organic wastes from coconut palm
Direct utilization of coconut wastes as mulch
Vermicomposting
Coir pith composting

WATER MANAGEMENT

AUTOMATIC IRRIGATION SYSTEM

DRAINAGE

WEED CONTROL

SOIL MOISTURE CONSERVATION IN COCONUT GARDEN

COCONUT BASED CROPPING SYSTEMS

ROOTING PATTERN

CANOPY STRUCTURE AND LIGHT UTILIZATION

CRITERIA FOR SELECTION OF SUBSIDIARY CROPS

INTERCROPPING SYSTEMS

TUBER CROPS

RHIZOME SPICE CROPS

CEREALS

VEGETABLES

PULSES

OIL SEEDS
FRUIT CROPS
FLORICULTURE
MEDICINAL AND AROMATIC PLANTS
MIXED CROPPING
COCOA
PEPPER
CLOVE
NUTMEG
CINNAMON
HIGH DENSITY MULTISPECIES CROPPING
SYSTEM
COCONUT BASED MIXED FARMING SYSTEM
COCONUT BASED SERICULTURE SYSTEM
ECONOMIC ASPECTS OF COCONUT
CULTIVATION

11. HARVEST AND POST HARVEST TECHNOLOGY

HARVESTING
STORAGE AND SEASONING

POST HARVEST PROCESSING

HUSKING

COPRA PROCESSING

SUN DRYING

SOLAR DRYER

INDIRECT DRYING

Small holder copra dryer

SMOKE FREE COPRA DRYER FOR

MEDIUM HOLDINGS

LARGE HOLDERâ€™S COPRA DRYER

ELECTRICAL COPRA DRYER

BALL COPRA

COPRA GRADING

COPRA MOISTURE METER

COCONUT PRODUCTS AND BYPRODUCTS

DESICCATED COCONUT

TENDER COCONUT WATER

SNOW BALL TENDER NUT (SBTN)

MATURED COCONUT WATER
NATA-DE-COCO
COCONUT MILK AND MILK PRODUCTS
COCONUT CREAM
COCONUT SPRAY DRIED MILK POWDER
TODDY
COCONUT BYPRODUCTS
BYPRODUCTS FROM HUSK
COCONUT SHELL CHARCOAL
ACTIVATED CARBON
SHELL FLOUR
COIR AND COIR PRODUCTS
HANDICRAFTS FROM COCONUT
COCONUT WOOD PROCESSING
MUSHROOM CULTIVATION USING COCONUT BYPRODUCTS

12. INTEGRATED FARMING IN COCONUT HOLDINGS FOR PRODUCTIVITY IMPROVEMENT

13. FINANCIAL ASSISTANCE TO PROCESSING INDUSTRIES

14. COCONUT HUSK

COIR

COIR GEOTEXTILE

COIR PITH

15. COCONUT OIL

PROPERTIES OF COCONUT OIL

EXTRACTION OF COCONUT OIL

Coconut Oil Based Oleochemicals

Coconut oil based Oleochemicals:

COCONUT OIL CAKE

16. MACHINERY AND PROCESSING OF DESICCATED COCONUT

ABSTRACT

INTRODUCTION

DESICCATED COCONUT
PROCEESING OF DESICCATED COCONUT
PLANT & MACHINERY FOR DESICCATED
COCONUT
DRYING OF DESICCATED COCONUT
THE PILOT PLANT
RESULTS AND OBSERVATIONS
SCALE-UP
QUALITY OF DESICCATED COCONUT
CONCLUSIONS

17. QUALITY STATUS OF DESICCATED COCONUT

ABSTRACT

INTRODUCTION

MATERIALS AND METHODS

RESULTS AND DISCUSSION

18. COCONUT PROCESSING SECTOR IN INDIA

TREND IN AREA, PRODUCTION AND
PRODUCTIVITY

COCONUT INDUSTRY VS INDIAN ECONOMY
PRESENT STATUS OF THE COCONUT
PROCESSING SECTOR
TRADITIONAL COCONUT PRODUCTS
AND TECHNOLOGICAL INNOVATIONS

Copra

Sun drying

Kiln drying

Indirect hot air drier

Solar drying

Improvement in drying

Coconut Oil

Desiccated Coconut

Coir and Coir Products

EMERGING TECHNOLOGIES IN THE
PROCESSING SECTOR

Wet Processing of Coconut

Coconut Cream

Coconut Milk Based Consumer Products
Coconut Shell Based Products
Coconut Shell Charcoal
Activated Carbon
Methods of Processing
Destructive Distillation of Shells
Coconut Shell Powder
Miscellaneous Uses of Shells
Coconut Water
Coir Pith and Miscellaneous Products

PROBLEMS AND CONSTRAINTS
FUTURE STRATEGY

**19. VINEGAR FERMENTATION WITH SPECIAL EMPHASIS ON
POSSIBILITIES OF UTILIZATION OF MATURED COCONUT WATER**
PRODUCTION AND VOLUME
RAW MATERIALS
PRODUCTION OF VINEGAR

ACETIFICATION METHODS

The Orleans Process or Slow Process or
French Process

Quick Process or German Process

Submerged Method

Other Modern Processes

COCONUT WATER AS POSSIBLE SUBSTRATE FOR VINEGAR FERMENTATION

Preparation of Coconut Water Medium

PFA SPECIFICATIONS FOR VINEGAR

Standards

PROBLEMS IN VINEGAR MANUFACTURE

AGEING OF VINEGAR

20. ACTIVATED CARBON FROM COCONUT SHELLS: SIGNIFICANCE AND PROSPECTS

PROTECTION AGAINST TOXIC GASES

AIR PURIFICATION AND RECOVERY

PURIFICATION OF VARIOUS GASES
FILTERS FOR WAR GASES/ NUCLEAR
FALL-OUTS
PURIFYING WORKING ENVIRONMENTS
AND ELIMINATION OF ODOURS
RECOVERY OF SOLVENTS AND
OTHER VAPOURS

Typical Plants where Such Solvents are Recovered

SEPARATION OF HYDROCARBON MIXTURES
PURIFICATION OF FERMENTATION
CARBON DIOXIDE
RECOVERY OF GOLD
CARBON BATTERIES
MISCELLANEOUS APPLICATIONS
ACTIVATED CARBON AS CATALYST
AND CATALYST CARRIERS
IMPREGNATED CARBONS
ACTIVATED CARBON IN POLLUTION
CONTROL
CONCLUSION

21. COMMERCIAL EXPLOITATION OF COCONUT PITH

INTRODUCTION

COCONUT PITH

UTILISATION OF PITH : PROBLEMS

UTILISATION OF PITH : PROSPECTS

Pith Fuel Briquettes Briquetting with Binders

**PITH AS AN INGREDIENT IN AGRICULTURAL/
HORTICULTURAL FARMS**

PITH AS A HEAT INSULATING MATERIAL

CONCLUSION

22. MODERN SEMI AUTOMATIC COPRA MANUFACTURING UNIT USING WASTE HEAT RECOVERY SYSTEM

INTRODUCTION

PRESENT USES OF COCONUT SHELL IN INDIA

CHARCOAL MANUFACTURE AND WASTE

HEAT RECOVERY UNIT

CHEMICAL ANALYSIS AND CALORIFIC VALUE

WHU AND PYROLYSIS PROCESS
MODERN SEMI-AUTOMATIC COPRA
DRYING UNIT
ECONOMIC OF A MODERN COPRA
DRYING UNIT
INFERENCE

23. COCONUT KERNEL PRODUCTS

VIRGIN COCONUT OIL
DESICCATED COCONUT
COCONUT MILK
SPRAY DRIED COCONUT MILK POWDER

24. FOOD PRODUCTS

THE WET MEAT OR KERNEL
Coconut Milk and Related Products
COCONUT SKIM MILK AND RELATED
PRODUCTS
COCONUT PROTEIN AND EDIBLE OIL

Krauss-Maffei/C.F.T.R.I. Process

Texas A & M University Process

The TPI Process

The Modified Solvol Process

DESICCATED COCONUT

Removal of the Kernels and Paring

Washing

Sterilising

Disintegrating and Desiccating

EDIBLE COPRA

COCONUT WATER

Foods uses of Coconut Water

Other Miscellaneous Uses

TODDY AND TODDY PRODUCTS

Tapping

The yield of Toddy

Suitability of Dwarf Palms

Tapping and Subsequent Yield of Nuts

Composition and Uses of Fresh Toddy

Jaggery
Refined Sugar
Treacle
Fermented Toddy
Arrack
Coconut Vinegar

MISCELLANEOUS PRODUCTS OF FOOD VALUE

25. COMMERCIAL PRODUCTS

MILLING COPRA

Preparation of Coconuts before Drying
Copra Drying Process and Methods
Sun Drying
Smoke Drying or Drying by Direct Heat in Kilns
Drying by Indirect Heat
The Quality of Copra
Oil Content of Copra
Storage of Copra
Deterioration of Copra

Grading of Copra

Moisture Determination

COCONUT OIL

Oil Milling

YIELD OF OIL FROM COPRA

PHYSICAL PROPERTIES

Chemical Properties

Rancidity

Ensuring the Quality of Oil

Quality Standards for Coconut Oil

Uses of Coconut Oil

CONSUMPTION OF COCONUT OIL AND HEART AILMENTS

COCONUT CAKE

USE OF COCONUT CAKE

COIR OR COCONUT FIBRE

Natural Retting

Mechanical and Chemical Methods of Retting

Extraction of White Fibre

Extraction of Brown Fibre

YIELD OF FIBRE FROM HUSK
VARIETIES OF FIBRE AND GRADES
CHEMICAL COMPOSITION

Spinning of Coir Yarn

Utilisation of Coir Fibre and Yarn

Rubberised Coir

COIR PITH OR COIR DUST

26. COCONUT SHELL AND MISCELLANEOUS PRODUCTS

COCONUT SHELL CHARCOAL

Covered Pit Method

Modified Pit Method

The Drum Method

Uses

Properties

DISTILLATION OF COCONUT SHELLS

ACTIVATED CARBON

COCONUT SHELL FLOUR

OTHER USES

MISCELLANEOUS PRODUCTS

27. BY-PRODUCTS UTILISATION

COMMERCIAL EXPLOITATION OF COCONUT PITH

Pith as a Heat Insulating Material

COCONUT OIL

COCONUT PRODUCT DIVERSIFICATION

Copra Making

White Copra Production

Ball Copra

Vinegar Making

Bio-Confectionaries from Coconut Water

Benefits from Bio-Sweets

Desiccated Coconut

Canning of Coconut Haustorium

Coconut Cream

Coconut Shell Powder

Coconut Milk

Coconut Oil Derivatives

Coconut Oil as an Edible Oil

PRODUCTION OF COCOPEAT
GRANULATED CHARCOAL
BIODIESEL PLANT-OLEOCHEMICAL
RUBBERISED COIR FIBRE CUSHIONS
COIR INDUSTRY
COCONUT SHELL BASED PRODUCTS

Shell Charcoal

Coconut Shell and Wood Handicrafts

Activated Carbon from Coconut Shells

Protection against Toxic Gases

Purification of Various Gases

Recovery of Solvents and Other Vapours

**TYPICAL PLANTS WHERE SUCH SOLVENTS
ARE RECOVERED**

Separation of Hydrocarbon Mixtures

Purification of Fermentation Carbondioxide

Recovery of Gold

Carbon Batteries

As Catalyst and Catalyst Carriers

Impregnated Carbons

GLOBAL COMPETITIVENESS OF COCONUT INDUSTRY

EXPORTS

Competition from Other Oilseed Crops

Low Profitability

Fluctuating Prices

Inconsistent Supplies of Product

STRATEGIES FOR FUTURE

28. MATURE COCONUT

**OPTIMUM STAGE FOR HARVESTING
COCONUTS**

DEHUSKING

HOME PRESERVATION OF SPLIT COCONUTS

MATURE COCONUT WATER PRODUCTS

COCONUT WATER BEVERAGES

COCONUT VINEGAR

NATA-DE-COCO

OTHER PRODUCTS

Niir Project Consultancy Services (NPCS)
can provide Process Technology Book on
Coconut & Coconut Products
(Cultivation and Processing)

See more

<http://goo.gl/UdsFng>

<http://goo.gl/gRhM4U>

<http://goo.gl/yglppl>



VISIT US AT

www.entrepreneurindia.co



***Take a look at
NIIR PROJECT CONSULTANCY SERVICES
on #Streetview***

<https://goo.gl/VstWkd>

Locate us on Google Maps

<https://goo.gl/maps/BKkUtq9gevT2>

Contact us

Niir Project Consultancy Services

106-E, Kamla Nagar, New Delhi-110007, India.

Email: npcs.ei@gmail.com , info@entrepreneurindia.co

Tel: +91-11-23843955, 23845654, 23845886

Mobile: +91-9811043595

Fax: +91-11-23841561

Website :

www.niir.org

www.entrepreneurindia.co

Take a look at NIIR PROJECT CONSULTANCY SERVICES on

#StreetView

<https://goo.gl/VstWkd>

www.niir.org

www.entrepreneurindia.co



Niir PROJECT CONSULTANCY SERVICES

AN ISO 9001:2008 COMPANY

Who are we?

- *One of the leading reliable names in industrial world for providing the most comprehensive technical consulting services*
- *We adopt a systematic approach to provide the strong fundamental support needed for the effective delivery of services to our Clients' in India & abroad*



What do we offer?

- *Project Identification*
- *Detailed Project Reports/Pre-feasibility Reports*
- *Business Plan*
- *Industry Trends*
- *Market Research Reports*
- *Technology Books and Directory*
- *Databases on CD-ROM*
- *Laboratory Testing Services*
- *Turnkey Project Consultancy/Solutions*
- *Entrepreneur India (An Industrial Monthly Journal)*



How are we different ?

- *We have two decades long experience in project consultancy and market research field*
- *We empower our customers with the prerequisite know-how to take sound business decisions*
- *We help catalyze business growth by providing distinctive and profound market analysis*
- *We serve a wide array of customers , from individual entrepreneurs to Corporations and Foreign Investors*
- *We use authentic & reliable sources to ensure business precision*



Our Approach

Requirement collection

Thorough analysis of the project

Economic feasibility study of the Project

Market potential survey/research

Report Compilation



Who do we serve?

- *Public-sector Companies*
- *Corporates*
- *Government Undertakings*
- *Individual Entrepreneurs*
- *NRI's*
- *Foreign Investors*
- *Non-profit Organizations, NBFC's*
- *Educational Institutions*
- *Embassies & Consulates*
- *Consultancies*
- *Industry / trade associations*

Sectors We Cover

- *Ayurvedic And Herbal Medicines, Herbal Cosmetics*
- *Alcoholic And Non Alcoholic Beverages, Drinks*
- *Adhesives, Industrial Adhesive, Sealants, Glues, Gum & Resin*
- *Activated Carbon & Activated Charcoal*
- *Aluminium And Aluminium Extrusion Profiles & Sections,*
- *Bio-fertilizers And Biotechnology*
- *Breakfast Snacks And Cereal Food*
- *Bicycle Tyres & Tubes, Bicycle Parts, Bicycle Assembling*



- *Bamboo And Cane Based Projects*
- *Building Materials And Construction Projects*
- *Biodegradable & Bioplastic Based Projects*
- *Chemicals (Organic And Inorganic)*
- *Confectionery, Bakery/Baking And Other Food*
- *Cereal Processing*
- *Coconut And Coconut Based Products*
- *Cold Storage For Fruits & Vegetables*
- *Coal & Coal Byproduct*

- *Copper & Copper Based Projects*
- *Dairy/Milk Processing*
- *Disinfectants, Pesticides, Insecticides, Mosquito Repellents,*
- *Electrical, Electronic And Computer based Projects*
- *Essential Oils, Oils & Fats And Allied*
- *Engineering Goods*
- *Fibre Glass & Float Glass*
- *Fast Moving Consumer Goods*
- *Food, Bakery, Agro Processing*

- *Fruits & Vegetables Processing*
- *Ferro Alloys Based Projects*
- *Fertilizers & Biofertilizers*
- *Ginger & Ginger Based Projects*
- *Herbs And Medicinal Cultivation And Jatropha (Biofuel)*
- *Hotel & Hospitality Projects*
- *Hospital Based Projects*
- *Herbal Based Projects*
- *Inks, Stationery And Export Industries*

- *Infrastructure Projects*
- *Jute & Jute Based Products*
- *Leather And Leather Based Projects*
- *Leisure & Entertainment Based Projects*
- *Livestock Farming Of Birds & Animals*
- *Minerals And Minerals*
- *Maize Processing(Wet Milling) & Maize Based Projects*
- *Medical Plastics, Disposables Plastic Syringe, Blood Bags*
- *Organic Farming, Neem Products Etc.*

- *Paints, Pigments, Varnish & Lacquer*
- *Paper And Paper Board, Paper Recycling Projects*
- *Printing Inks*
- *Packaging Based Projects*
- *Perfumes, Cosmetics And Flavours*
- *Power Generation Based Projects & Renewable Energy Based Projects*
- *Pharmaceuticals And Drugs*
- *Plantations, Farming And Cultivations*
- *Plastic Film, Plastic Waste And Plastic Compounds*
- *Plastic, PVC, PET, HDPE, LDPE Etc.*

- *Potato And Potato Based Projects*
- *Printing And Packaging*
- *Real Estate, Leisure And Hospitality*
- *Rubber And Rubber Products*
- *Soaps And Detergents*
- *Stationary Products*
- *Spices And Snacks Food*
- *Steel & Steel Products*
- *Textile Auxiliary And Chemicals*

- *Township & Residential Complex*
- *Textiles And Readymade Garments*
- *Waste Management & Recycling*
- *Wood & Wood Products*
- *Water Industry(Packaged Drinking Water & Mineral Water)*
- *Wire & Cable*

Contact us

Niir Project Consultancy Services

106-E, Kamla Nagar, New Delhi-110007, India.

Email: npcs.ei@gmail.com , info@entrepreneurindia.co

Tel: +91-11-23843955, 23845654, 23845886

Mobile: +91-9811043595

Fax: +91-11-23841561

Website : www.niir.org , www.entrepreneurindia.co

Take a look at NIIR PROJECT CONSULTANCY SERVICES on #StreetView

<https://goo.gl/VstWkd>

Follow Us



➤ <https://www.linkedin.com/company/niir-project-consultancy-services>



➤ <https://www.facebook.com/NIIR.ORG>



➤ <https://www.youtube.com/user/NIIRproject>



➤ <https://plus.google.com/+EntrepreneurIndiaNewDelhi>



➤ https://twitter.com/npcs_in



➤ <https://www.pinterest.com/npcsindia/>



THANK YOU!!!

**For more information,
visit us at:**

www.entrepreneurindia.co