Hearty Welcome

Coconut Development Board
Ministry of Agriculture, Govt. of India, Kochi.
www.coconutboard.gov.in
Coconut - A Versatile Crop

Used as -
- food crop, oilseed, fibre crop
- medicinal crop & beverage crop

Coconut leaves -
- for roof and fencing

Coconut shell -
- for industrial products, handicraft items

Coconut trunk -
- for building materials, flooring materials and handicrafts

Coconut (inflorescence) -
- yield coconut neera and coconut toddy

Coconut fruit -
- inevitable item in cultural and social use
Coconut – A crop of the future

• Widely acclaimed as *Kalpavriksha* or *Tree of Heaven*
• Provides food security and livelihood opportunities to 20 million people around globe and 10 million people in India
• World production of Coconut is 64,897 M nuts from an area of 12.15 M ha (APCC Statistical year book-2010)
• Indonesia, Philippines, India and Sri Lanka are the major coconut growing countries.
• Philipines leads in area with 3.8 million ha. and production with 16332.24 million nuts.
• India leads in production with 21892 million nuts and productivity with 10736 nuts per ha.
Area and production in major coconut growing countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Area ('000 Ha)</th>
<th>Share (%)</th>
<th>Production (Million nuts)</th>
<th>Share (%)</th>
<th>Productivity (nuts/ha)</th>
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<td>64327.58</td>
<td>100.00</td>
<td>5245</td>
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Source: APCC Statistical Year Book- 2010
Coconut in India

- Coconut is cultivated in 18 states and 3 union territories in the country.
- Southern India alone contributes 90% of area and 91% of production.
- India is the largest producer in the world.
- Coconut occupies 2.0 million ha.
- 98% coconut holdings are owned by small and marginal farmers in the country.
- Annual production of coconut is 21.89 billion nuts (2012-13).
- Coconut contributes more than Rs.10000 crores annually to GDP.
Coconut cultivation – Indian scenario

The crop is cultivated in 18 states and 3 Union Territories

<table>
<thead>
<tr>
<th>Categories</th>
<th>Major States/ UTs</th>
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<tr>
<td>Traditional coconut growing areas</td>
<td>Kerala, Karnataka, Tamilnadu, Andhra Pradesh, Goa, Puducherry, Lakshadweep and Andaman &amp; Nicobar Islands</td>
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<tr>
<td>Non traditional areas</td>
<td>West Bengal, Odisha, Bihar, Assam, Nagaland, Tripura, Meghalaya, Gujarat, Maharashtra, Chattisgarh and Arunachal Pradesh</td>
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</table>

90% of coconut production is from four southern states - Kerala, Tamil Nadu, Karnataka and Andhra Pradesh
India Coconut Map

Coconut growing areas in

INDIA

Traditional areas
Non traditional areas

India Coconut Map
Major coconut producing states - Characteristics

**Andhra Pradesh**
- Accounts for major share in area and production.
- The area, production and productivity of coconut in the state is increasing at compound growth rates of 0.62%, 2.47% and 1.83% per annum respectively.

**Karnataka**
- Ranks second in production of coconut and a major coconut market in the country.
- The compound growth rates recorded for area, production and productivity are 4.58%, 5.14% and 0.53% per annum.
- The present trend indicates that Tamilnadu may take the lead in production of coconut in the country shortly.

**Tamilnadu**
- Major producer of edible copra and desiccated coconut powder.
- The compound growth rates recorded for area and production are 3.26% and 3.25% respectively.
- Maddur in Karnataka is considered as the largest tender.

**Kerala**
- Holds fourth position in the coconut map in the country.
- The compound growth rates recorded for area, production and productivity are 3.3%, 6.46% and 3.06% respectively.
### State wise Area, Production & Productivity of coconut in India (2011-2012)

<table>
<thead>
<tr>
<th>S. No</th>
<th>STATES</th>
<th>Area &quot;000&quot; ha</th>
<th>Prod’n Million nuts</th>
<th>Yield (nuts/ha)</th>
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<td><strong>10736</strong></td>
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Source: DOAC, Hort. Division, GOI
Strengths of the Indian Coconut Sector in the Global scenario

- Second largest producer of coconut in the world – sufficient raw material surplus.

- Good reputation in global markets.

- Access to good technologies (Virgin Coconut Oil, Packed Tender Nut Water, minimally processed Tender Coconuts, Activated Carbon)

- Dominant ethnic population in the Gulf, UK and US

- Being a natural and eco friendly product, coconut has a future and potential for earning carbon credit
Weakness

- Lack of big players in the international market
- Lack of exposure to the international market and its specific requirements
- The weak financial status of the small and tiny exporters
- Low level of market penetration
- Competing South East Asian countries
- Highly disorganized and fragmented supply side
- Freight disadvantages
- Geographical distance from terminal markets
Opportunities

- Indian activated carbon industry is global leader.
- Export incentives under VKGUY, FPS, DDB.
- Participation in important fairs and exhibitions.
- Tender coconut - Undiluted, unpolluted, unpoisoned natural drink, emerging as a global beverage.
- VCO demand for medicinal and nutraceutical applications in developed countries.
- Monolaurin in coconut oil finds application in baby food preparations.
- Exclusive mission for promoting Indian coconut products (TMOC).
- Technology and capital subsidy on investment (25%).
- Kerala Govt. additional 25% subsidy for coconut based industries.
Threats

- Vagaries of whether
- Domestic price fluctuation of copra and Coconut Oil.
- Increasing cost of production and dwindling labour resource.
- Competition from South East Asian Countries in the world market
### Constraints in coconut sector

- **Small fragmented holdings**
  - Average 50 cents in Kerala
  - Disaggregated production
  - Coconut farming mostly under neglected condition
  - Acute dearth of labour particularly for harvesting

- **High incidence of pest and disease and Senile palms**
  - Eriophyid mite
  - Root (wilt) disease
  - Bud rot disease
Coconut Development Board is a statutory body established by an Act of Parliament (Coconut Development Board Act 1979) by the GOI.

Came in to existence in January 1981.

Functions under the administrative control of Ministry of Agriculture, Government of India.

Integrated development of coconut cultivation and industry in the country.
VISION

Integrated development of coconut cultivation and industry in the country so as to make the coconut economy sustainable and globally competitive.
MISSION

To achieve targeted production and productivity in coconut with the help of various State Govts., Departments and other agencies by successful implementation of various projects on Integrated development of coconut gardens, Rejuvenation and Replantation, Technology Mission on Coconut, Export Promotion activities etc.
# Organizational Setup

<table>
<thead>
<tr>
<th>Head Office</th>
<th>Kochi</th>
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</thead>
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<tr>
<td>Regional Offices</td>
<td>Bangalore, Guwahati and Chennai</td>
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<tr>
<td>State Centres</td>
<td>Hyderabad, Bhubaneswar, Patna, Port Blair, Kolkata, Thane</td>
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<td>Demonstration Farms</td>
<td>Mandya (Karnataka), Madhepura (Bihar), Abhayapuri (Assam), Kondagaon (Chattisgarh), Vegiwa (Andhra Pradesh), Neriamangalam (Kerala), Pitapally (Orissa) and Palghar (Maharashtra).</td>
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<tr>
<td>Market Development cum Information Centre</td>
<td>Delhi</td>
</tr>
<tr>
<td>Technology Development Centre &amp; Quality Testing Laboratory</td>
<td>Vazhakulam, Aluva</td>
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<tr>
<td>Field Office</td>
<td>Trivandrum</td>
</tr>
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</table>
Programmes of the Board

• Production and Distribution of Planting Material
• Expansion of area under coconut
• Integrated Farming for Productivity Improvement
• Technology Mission on coconut (TMOC)
• Market Promotion & Statistics
• Information and Information Technology
• Replanting & Rejuvenation (Pilot scheme in 3 districts of Kerala and A&N Islands)
• Welfare schemes
Coconut Development Board has been notified as Export Promotion Council on 1.4.2009.

So far 1014 exporters of coconut and coconut products have registered with the Board.

Extending all GOI benefits to exporters of coconut products.

Single Window facilitation

Export value grown from Rs.943.29 crores (2011-12) to Rs.1022.36 crores (2012-13).
Coconut Development Board – Thrust Areas

- Enhancing the Productivity and income from unit area of Coconut holdings
- Replanting & Rejuvenation of Coconut Gardens (Covering the entire state under the programme)
- Expansion of Area under Coconut for increasing production potential
- Production & Distribution of quality planting materials – emphasis on dwarf and hybrids
- Technology Mission on Coconut
- Processing, value addition
- Export Promotion
- Coconut producers societies/ federations / companies

Contd....
Coconut Development Board – Thrust Areas

- Quality management & improvement programme
- Popularizing GMP, ISO certification, branding, packaging and logo
- Information and information Technology - publications, publicity, training and visits, EDP.
- Marketing, Market Information system & Statistics
- Welfare Schemes like Coconut palm Insurance Scheme & Kera Suraksha Insurance Scheme for Coconut Tree Climbers.
## Area, Production and Productivity of coconut in Kerala - 2010-11

<table>
<thead>
<tr>
<th>S No</th>
<th>Districts</th>
<th>Area (Ha)</th>
<th>Production (Lakh nuts)</th>
<th>Productivity (Nuts per ha)</th>
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## District wise Area and Production of Coconut in Tamil Nadu - 2011-12

<table>
<thead>
<tr>
<th>S. No</th>
<th>Districts</th>
<th>Area (Ha)</th>
<th>% share in Area</th>
<th>Production in Lakh Nuts</th>
<th>% share in Prod'n</th>
<th>Productivity (Nuts/ha)</th>
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<td>S. No</td>
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<td>Area (Ha)</td>
<td>% share in Area</td>
<td>Production in Lakh Nuts</td>
<td>% share in Prod'n</td>
<td>Productivity (Nuts/ha)</td>
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Source: DES, Tamil Nadu
Coconut in Tamil Nadu

- Coconut is cultivated in all the 31 Districts in Tamil Nadu.
- Coconut occupies 4.19 lakh ha
- Coconut production in Tamil Nadu is 6200 million nuts
- The productivity per palm is 14,785 nuts per ha (as per state govt data)
- Tamil Nadu is the second largest producer and a growing coconut market in the country.
- 12 Districts occupies more than 10,000 ha and contributes about 80% towards the state's area and production.
## Coconut growth in Tamil Nadu

<table>
<thead>
<tr>
<th>Year</th>
<th>Area (Ha)</th>
<th>Production Million Nuts</th>
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<td>95,915</td>
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<td>% of Increase</td>
<td>30%</td>
<td>94%</td>
<td>49.82%</td>
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Coconut in Coimbatore Dist

- Coconut occupies 0.82 lakh ha
- Coimbatore districts top in coconut production in the country
- Proper scientific management practices are adopted in coconut gardens in Coimbatore District
- Maximum quality seedlings supplied by CDB Farm, Mandya to Coimbatore District.
- More tender coconut variety are cultivated in Coimbatore District.
- Coimbatore District is the hub of tender Coconut trade
- Concentration of coconut based industries in and around Coimbatore Dist
Value Added Products of Coconut
CONSUMPTION PATTERN OF COCONUT — Needs a Structural Change

Coconut

Raw Nut (50%)
Domestic (92%)
Industrial (8%)

Tender nut (15%)

CORA (35%)
Mill 81.4% Edible 18.6%

Edible (40%)
Toiletry (40%)
Industrial (20%)

a) Desiccated coconut
b) Milk / Cream
c) Milk powder
d) Ball Copra

a) Edible
b) Toiletry
C) Industrial (20%)

Coconut Oil
Traditional Coconut Products

- Milling Copra and Edible Copra
- Coconut Oil
- Coconut Jaggery
- Desiccated Coconut Powder
- Coconut Toddy
- Shell Charcoal &
- Coconut Shell based Handicrafts
- Coir and coir products
Value added Coconut Products

Tender Coconut Water

Packaged Tender Coconut Water

Minimal Processing of Tender coconut
International products from Neera
Mature coconut water
Coconut jelly
Coconut jam
Coconut Vinegar
Nata-de-coco
Products from coconut by-products

- Coconut shell powder
- Coconut Shell Charcoal
- Activated Carbon
Coconut Leaf

Leaf Midrib

Coirpith

Husk and coir

Coir geotextiles
Products from coconut by-products

Coconut Wood products

Coconut based handicrafts
Projects in a nut shell
PACKAGED TENDER COCONUT WATER

- Technology developed by CDB in association with Defence Food Research Laboratory
- Technology Transfer fee: 3.50 lakhs
- Nutritious and thirst quenching.
- Good rehydration medium for patients suffering from gastroenteritis and intestinal disturbances.
- Known to have been given even intravenously during famine and wars.
Nutritional attributes of tender coconut water

• Undiluted, unpolluted, unpoisoned natural drink.
• Zero fat, zero cholesterol and zero added sugar.
• Rich in the essential electrolytes like sodium, potassium, magnesium, calcium and phosphorus.
• Possess therapeutic properties with vitamins, minerals and protein.
PROCESS FLOW

COCONUT WATER

FILTERING

ADDITIVE MIXING

CONCENTRATION

PACKING

RETORTING

COOLING

FINISHED PRODUCT
Filtered Pasteurized Carbonated Tender Coconut Water
Global Brands

[Images of Vita Coco and ZICO coconut water products]
Global Brands

O.N.E. Organic Coconut Water

Real Coconut Water/Pulp

Real Coconut Water

Coco Fresco Light

Coconut juice with pulp
PRESERVATION AND PACKING OF TENDER COCONUT WATER

Project cost (10000 nuts per day)

- Land - 60 cents
- Building-3000 sq ft - Rs.20 lakhs
- Plant & machinery - Rs.40 lakhs
- Electrification works - Rs.10 lakhs
- Preliminary & pre-operative expenses - Rs. 5 lakhs
- Working capital (Margin money) - Rs.15 lakhs

Total - Rs.90 lakhs

Machinery

Feed Conveyors for washed nuts
Automatic boring and sucking system
TCW collection tank
TCW filtering unit
Treatment Chamber
Double Head Filling Machine
Pouch Sealing Machine
Can Seaming Machine
Machinery

Conveyor for filled pouches/cans
Steam boiler
Pasteurizer
Thermal validation system
UV Chamber
Air Compressor
Packaging machine for pouches

Product yield
• 10000 coconuts would yield about 2000 litres of tender coconut water

Internal Rate of Return - 20-22 %
ECONOMIC FEASIBILITY

- Capacity: 2500 litres / day
- Sales turnover: Rs.1.875 crores
- IRR: 18 percent
- Payable period: 3 - 4 years
- Employment potential: 30 persons
- Source of Technology: Coconut Dev. Board
- Know how fee: Rs.3.5 lakhs plus service tax
Minimal Processing of Tender coconut

Technologies for minimal processing of tender coconut have been developed by Kerala Agricultural University (KAU) for retaining the flavour and to prevent discoulouration.

- The process involves dipping (partially) dehusked tender coconut in a solution of 0.50% citric acid and 0.50% potassium metabisulphate for three minutes.

- The product can be stored up to 24 days in refrigerated condition at 5-7 degree centigrade. By using this process, tender coconut can be transported to distant place served chilled like any other soft drink.

- Optimized uniform size facilitates using of plastic crates and insulated chill boxes for transporting and storage.
Process Flow

1. Harvesting of Tender Coconut
2. Trimming the husk manually
3. Dipping in preservation solution
4. Shrink wrapping
5. Storing in cooler
6. Transporting to selling place
Project Cost (3000 nuts per day)

- Land Requirement: 50 cents
- Building - 3000 sq ft: Rs.27.0 lakhs
- Machinery: Rs.5.0 lakhs
- Quality Control-HACCP: Rs.5.0 lakhs
- Lab Eqpts: Rs.2.0 lakhs
- Preliminary & Preoperative: Rs.3.0 lakhs
- Working Capital Margin: Rs.6.0 lakhs
- Total: Rs.48 lakhs

Financial Projections

- Annual Sales Revenue: Rs.270 lakhs
- Breakeven point: 45%
- IRR: 21%
The dehydrated shredded flesh of coconut known as desiccated coconut is often used as a substitute to grated coconut in food preparations such as curries, cakes, sweets and chutneys. Confectionery and bakery units are the main consumers of desiccated coconut. Total production of DCP is about 50,000 MT mainly concentrated in Karnataka and Tamil Nadu. Exports amount to about 2000 Tones.
DESICCATED COCONUT

Project Cost (One Ton/Day capacity)

- **Land (cost variable)**: 50 cents
- **Building 2000 sq. ft. (Process Area)**: Rs.18 lakhs
- **Plant & Machinery**: Rs.25 lakhs
- **Preliminary and pre-operative expenses**: Rs. 5.00 lakhs
- **Electrification**: Rs.5.00 lakhs
- **Working capital (M Money)**: Rs.10.00 lakhs

**Total**: Rs.63.00 lakhs

Equipment / Machinery details
- Washing tank with spray arrangement
- Hot dip blancher tank
- Disintegrator provided with screens and aluminum trays
- Hot air tray drier with blower
- Sieving machine
- Storage bins
- Heat sealing machine

**Yield**
- **Raw material**: 10,000 coconuts
- **Desiccated coconut**: 1 tone

**Internal Rate of Return**: 18-20 %
Coconut Chips

Fully matured coconuts are used for the preparation of chips. The coconut kernel is cut in to the form of chips using chipper. The cut chips are soaked in sugar or salt solution for about 40 minutes. The chips are then backed in hot air oven till the products attains golden brown colour.
Coconut Chips in various flavor
Process Flow

Coconut

Removal of shell

Removal of Testa

Cutting in to pieces

Slicing of Kernel

Blanching

Osmotic Dehydration (1 hr/40 min)

Drying (4 hrs)

Packaging
Project Cost

- Land - 40-50 cents
- Building - 2000 sq ft @ Rs. 800 per sq ft - 16 lakhs
- Plant & Machinery - 18 lakhs
- Electrical Installations - 3 lakhs
- Preoperative Expenses - 1 lakhs
- Working Capital Margin - 4 lakhs

Total - 42 lakhs

Machinery

- Coconut Slicing machine
- Hot air Owen
- Mixing tank for sugar coating
- Steel utensils and vessels
- Nitrogen flush packing machine

Yield

Raw Material Per day: Fully ripened Coconut - 10000 per day
Yield per day: Coconut Chips - 1000 kg

Internal rate of Return -22%
Coconut Milk & Milk Cream

- Ready to use product for households recipes, beverages, ice creams, sweets, desserts etc.
- Fresh taste of coconut without the bother
- Very convenient for households, hotels, bakeries.
- Blends easily with food preparation.
- Keeps fresh for a period of 6 months with all nutrients in tact.
Coconut Milk / Cream

Project Cost (10,000 nuts/day)

Land: 1 acre (cost variable)
Building-4000 sq ft: Rs.30 lakhs
Plant & machinery: Rs.60 lakhs
Preliminary and pre-operative expenses: Rs.05 lakhs
Electrification: Rs.15 lakhs
Margin money for working capital: Rs.15 lakhs

Total: Rs.125.00 lakhs

Machinery / Equipment

- Hammer mill
- Elevator
- Screw press
- Coconut milk storage tanks
- Vibrating sieving machine
- Coconut residue mixer
- Additive mixing tank
- Emulsifier
- Homogenizer
- Pasteurizer
- Volumetric filling machine
Exhaust box
Can seaming machine
Horizontal rotary retort
Hot air drier
Agro waste vertical boiler
Sterilization tank
Coconut residue storage bins.

Yield of products/by-products

- Raw material: 10,000 ripe green coconuts
- Coconut cream (main product) 2,500 kg
- Coconut cream residue 500 kg

Internal Rate of Return 20-22 %
Spray Dried Coconut Milk Powder

- Highly convenient to use for households / hotels, bakeries and ice cream parlours.
- Reconstitute quickly with water for instant use.
- Occupies less storage space.
- Highly economical for bulk consumer.
- Keeps fresh for a period up to 1 year.
Process Flow

Matured Coconut Kernel
- Washing
- Blanching
- Disintegration
- Mixing with Hot Water
- Extraction of Milk
- Filtration / clarification
- Mixing of emulsifiers & stabilizers
- Thermal Processing
- Concentrating
- Spray Drying
- Packing
- Storage
SPRAY DRIED COCONUT MILK POWDER

Project Cost (Capacity 20,000 nuts/day.)

- Land: 1 acre
- Building: 8000 sq ft
- Plant & machinery: Rs. 60 lakhs
- Electrification: Rs. 30 lakhs
- Preliminary & pre-operative expenses: Rs. 25 lakhs
- Working capital (M money): Rs. 40 lakhs
- Total: Rs. 330 lakhs

MACHINERY

- Hammer mill
- Elevator
- Screw press
- Coconut milk storage tanks
- Vibrating sieving machine
- Coconut residue mixer
- Additive mixing tank
- Emulsifier
- Homogenizer
- Pasteurizer
- Volumetric filling machine
MACHINERY (Contd....)

Exhaust box
Can seaming machine
Horizontal rotary retort
Spray drier
Agro waste vertical boiler
Sterilization tank
Coconut residue storage bins

Product yield
20000 coconuts would yield about 1000 kgs of coconut milk powder

Internal Rate of Return  22-24 %
VIRGIN COCONUT OIL

- A Premium Grade Oil extracted directly from fresh coconut kernel through wet processing
- Clear transparent oil
- Extensive Medicinal uses
- Keeps fresh for a period up to 1 year.
- Virgin Coconut Oil Improves Brain Health in Alzheimer’s Patients
- Combination of virgin coconut oil with a low-carb diet is proved to be very successful in stopping autism.
- Antibacterial, antiviral, and antiprotozoal activities of virgin coconut oil are documented
Process Flow

Fresh Coconut meat

Coconut milk

Centrifugation

Fermentation

Separation of oil

Removal of residual moisture

Virgin Coconut Oil
VIRGIN COCONUT OIL

**Project cost (15000 coconuts per day)**

<table>
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<th>Item</th>
<th>Cost</th>
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<td>Land</td>
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<td>Building -3000 sq ft (Process Area)</td>
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<td>Plant &amp; machinery</td>
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<td>Preliminary &amp; pre-operative expenses</td>
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<td>Working capital (Margin money)</td>
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<td><strong>Total</strong></td>
<td><strong>Rs.97 lakhs</strong></td>
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</table>

**Machinery**
- Hammer Mill/Disintegrator
- Blanching Tank
- Screw conveyor
- Screw Press
- Vibratory Screen
- Collection Tank - Milk
- Milk feed Tank
- Tubular Centrifuge
- Oil Collection Tank
Machinery (Contd....)

Hot Air Dryer for Partially Defatted coconut powder/granules
Packing machine with Compressor & Packing line
Pumps and Accessories
Piping & accessories

Product yield
10000 coconuts would yield about 600 Kg of virgin coconut oil

Internal rate of Return -18-20%
COCONUT SHELL POWDER

Project Cost (One tonne/day capacity)

Land require 40 cents (cost variable)
Building (2000 sq. ft.) Rs.10.00 lakhs
Plant and Machinery Rs. 25.00 lakhs
Preliminary & pre-op expenses Rs.5.00 lakhs
Electrification works Rs. 10.00 lakhs
Working capital (Margin Money) Rs. 10.00 lakhs

Total Rs.60.00 lakhs

Machinery

Hammer mill
Storage bin
Impact pulveriser
Cyclone
Bag filler
Air blower
Sieving machine

Yield
Raw material 12,000 shell
Shell powder 1 tonne
IRR 18%
Coconut Shell Charcoal

- Superior in quality when compared to wood charcoal.
- Ideal raw material for high quality activated carbon.
- Better calorific value than other agro waste and hence ideal for use as fuel in smitheries, bakeries and foundries.
Coconut Shell Charcoal

Project Cost (one tonne/day)
- Land (cost variable): 35 cents
- Building 1000 sq. ft.: Rs.4.0 lakhs
- Plant machinery: Rs.18 lakhs
- Preliminary & pre-op expenses: Rs.2.0 lakhs
- Electrification: Rs.1.0 lakh
- Margin for working capital: Rs.5.0 lakhs
- **Total**: Rs.30.00 lakhs

Machinery
- Drum kiln with chimney

Yield
- Raw material: 30,000 coconut shells
- Coconut shell charcoal: 1 tonne

**Internal Rate of Return**: 16-18 %
Activated Carbon

- Activated carbon is widely used in the refining and bleaching of vegetable oils and chemical solutions.
- At present five units are functioning.
- Total production estimated at 5000 MT.
- Anticipated growth is 20%
Activated Carbon

Project cost (9 tons/day)

Land
Building 12000 sq.ft
Plant & Machinery
Preliminary & pre-op expenses
Electrification
Working capital (Margin Money)
Total

Machinery
Jaw crusher
Hammer mill
Vibrating feeder
Elevator
Carbonisation kiln
Soaking tanks
Cyclones
Pneumatic filling machine

One acre. (cost variable)
Rs. 60 lakhs
Rs. 300 lakhs
Rs.30 lakhs
Rs.40 lakhs
Rs 70 lakhs
Rs.500 lakhs

Yield
Raw material 90,000 shells
Activated carbon 1 tonne

Internal Rate of Return 24%
TECHNOLOGY MISSION ON COCONUT
( TMOC)
The Govt. of India sanctioned the Central Sector Scheme “Technology Mission on Coconut” (TMOC) during the year 2001-02 (January 2002)

Scheme implemented on a project mode.

Issues addressed include product diversification and by product utilization and market promotion, productivity improvement through management of pest and diseases.
Launched in Jan 2002

Market Promotion

Productivity improvement through management of Pest & diseases

Technical Services & Disseminate technology

Implemented on Mission mode

Product diversification and by product utilization
Objectives of Technology Mission

• Horizontal and vertical integration of ongoing Govt. programmes

• Ensure **concurrent attention** to all the links in the production, post harvest and consumption chain.

• **Maximize benefits** from the **investment and infrastructure** created for coconut development

• **Promote diversification and value addition** and **skilled employment**

• Disseminate technologies
Mission Structure

- Management of Insect Pest & Diseases
- Technical Support, Evaluation & Emergent Requirement
- Processing & product Diversification
- Market Research & Market Promotion

TMOC
ELIGIBLE INSTITUTIONS / ORGANISATIONS / INDIVIDUALS etc.

DEVELOPMENT OF TECHNOLOGIES

ICAR/CSIR Institutes → SAU’s → NGO’s → ANY RESEARCH ORGANIZATIONS HAVING CAPACITY

DEMONSTRATION OF TECHNOLOGIES

ICAR/CSIR Institutes → SAU’s → NGO’s → ANY RESEARCH ORGANIZATIONS HAVING CAPACITY

ADOPTION OF TECHNOLOGIES

FARMERS → REGISTERED COOPERATIVE SOCIETIES/GROUP OF FARMERS → ENTREPRENEURS
Technology Mission on Coconut

- Mission programme launched in support of entrepreneurs/industrialists/product manufacturers
- Provides technical and financial support
- Covers areas like pest and disease management, product diversification, market research and market promotion
- Extends 25% grant in aid for adoption of technologies in the filed of value addition

Products eligible for grant in aid under TMOC

<table>
<thead>
<tr>
<th>Water Based</th>
<th>Kernel Based</th>
<th>Shell Based</th>
</tr>
</thead>
<tbody>
<tr>
<td>Packed Tender Coconut Water, Coconut Vinegar, Nata de coco</td>
<td>Coconut cream, Spray Dried Milk Powder, Desiccated coconut powder, virgin Coconut oil, Ball copra</td>
<td>Shell Charcoal, Activated Carbon, Shell powder</td>
</tr>
</tbody>
</table>
(a) Development of technologies

- 100% of the project cost limited to Rs.75 lakhs for all the Govt. institutions and cooperative societies.
- 50% of the project cost limited to Rs.35 lakhs for NGO’s, Individual entrepreneurs and other research organizations

(b) Demonstration of technologies

- 100% of the cost limited to Rs.75 lakhs all the Govt. institutions and cooperative societies.
- 50% of the cost limited to Rs.35 lakhs for the NGO’s, Individual entrepreneurs and other organizations.

(c) Adoption of technologies

- Back-ended credit capital subsidy limited to 25% of the cost not exceeding Rs.50 lakhs for NGO’s, Individual entrepreneurs and other organizations.
Market research and promotion

(a) Market research
- 100% of the cost limited to Rs.25 lakhs for Govt. agencies and cooperative societies.
- 50% of the cost limited to Rs.12.50 lakhs for Individuals, NGO’s and other organizations.

(b) Market Promotion
- 100% of the cost limited to Rs.25 lakhs for Govt. agencies and cooperative societies
- 50% of the cost limited to Rs.10 lakhs for NGO’s and private institutes.
• NABL accredited laboratory
• Facilities for analysis of chemical and microbiological parameters for all products.
## Projects in a nutshell (Capacity 1 MT of finished products)

<table>
<thead>
<tr>
<th>No</th>
<th>Product</th>
<th>Raw material</th>
<th>Investments (Excluding land)</th>
<th>Returns (IRR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tender Coconut Water</td>
<td>5000 Tender Coconuts</td>
<td>45-50 lakhs</td>
<td>20%</td>
</tr>
<tr>
<td>2</td>
<td>Desiccated Coconut</td>
<td>10000 coconuts</td>
<td>50-55 lakhs</td>
<td>18%</td>
</tr>
<tr>
<td>3</td>
<td>Coconut milk</td>
<td>5000 coconuts</td>
<td>60-65 lakhs</td>
<td>18%</td>
</tr>
<tr>
<td>4</td>
<td>Spray Dried Coconut Milk Powder</td>
<td>20000 coconuts</td>
<td>330-350 lakhs</td>
<td>22%</td>
</tr>
<tr>
<td>5</td>
<td>Virgin Coconut Oil</td>
<td>16666 coconuts</td>
<td>75-80 lakhs</td>
<td>22%</td>
</tr>
<tr>
<td>6</td>
<td>Copra</td>
<td>7000 coconuts</td>
<td>10-12 lakhs</td>
<td>15%</td>
</tr>
<tr>
<td>7</td>
<td>Shell Powder</td>
<td>12000 shells</td>
<td>55-60 lakhs</td>
<td>16%</td>
</tr>
<tr>
<td>8</td>
<td>Shell Charcoal</td>
<td>30000 shells</td>
<td>25-30 lakhs</td>
<td>16%</td>
</tr>
<tr>
<td>9</td>
<td>Activated Carbon</td>
<td>3 T of shell charcoal</td>
<td>470-500 lakhs (9 T capacity)</td>
<td>24%</td>
</tr>
<tr>
<td>10</td>
<td>Coconut Chips</td>
<td>10000 coconuts</td>
<td>40-45 lakhs</td>
<td>22%</td>
</tr>
</tbody>
</table>
M/s. VSA Foods & Beverages Pvt. Ltd, Dindigul, Tamil Nadu

- Project cost: Rs.153.96 lakhs
- Financial assistance: Rs.34.225 lakhs
- Capacity: 10000 nuts per day
- Products: Tender Coconut water
M/s. Anu Coco Food Products Pvt. Ltd.

Project cost: Rs.239.7 lakhs
Financial assistance: Rs.43.625 lakhs
Capacity: 25000 nuts per unit
Products: Tender Coconut Water
M/s. Anu Coco Food Products Pvt. Ltd.
Automation of tender coconut water processing system

DFRL, Mysore
Automation of tender coconut water processing system
DFRL, Mysore
Automation of tender coconut water processing system

DFRL, Mysore
M/s.Keratech coconut oil manufacturing Co., Engandiyoor, Trissur

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Project cost</td>
<td>Rs.58.79 lakhs</td>
</tr>
<tr>
<td>Financial assistance</td>
<td>Rs.13.56 lakhs</td>
</tr>
<tr>
<td>Capacity</td>
<td>10000 nuts per day</td>
</tr>
<tr>
<td>Products</td>
<td>Virgin coconut oil</td>
</tr>
</tbody>
</table>
M/s. Sritara Agrotech, Andhra Pradesh

Project cost : Rs.191.5 lakhs
Financial assistance : Rs.39.66 lakhs
Capacity : 20000 nuts per day
Products : Virgin Coconut Oil
M/s. Sritara Agrotech, Andhra Pradesh
M/s. Sritara Agrotech, Andhra Pradesh
M/s. Mosons Exractions, Thalassery

- Project cost: Rs. 74.75 lakhs
- Financial assistance: Rs. 11.25 lakhs
- Capacity: 5000 coconut per day.
- Products: Coconut oil
M/s. Mosons Extractions, Thalassery
M/s. AMS Group, Pattambi

Project cost: Rs.310.74 lakhs
Financial assistance: Rs.50 lakhs
Capacity: 50 MT copra crushing per day
Products: Coconut Oil
SKM Food – Oil Division, Erode

Project cost: Rs.3.21 Crores
Financial assistance: Rs. 50 lakhs
Capacity: 200 MT / day
Products: Coconut Oil
M/S. Sri Akshaya Agro Processing, Tiptur, Tumkur

Project cost : Rs.108.00 lakhs
Financial assistance : Rs.19.457 lakhs
Capacity : 30000 nuts per day
Products : Desiccated Coconut Powder
M/s. Swastika Coco Products Pvt. Ltd, Kundapura

Project cost: Rs.186.57 lakhs
Financial assistance: Rs.23.905 lakhs
Capacity: 4000 Kg DC per day
Products: Desiccated Coconut powder
M/s. Swastika Coco Products Pvt. Ltd, Kundapura
M/s. Vittal Agro Industries, Kanhangad

Project cost: Rs.242.99 lakhs
Financial assistance: Rs.50 lakhs
Capacity: 1440 tons p.a
Products: Desiccated Coconut powder
M/s. Vittal Agro Industries, Kanhangad
Ball copra unit
E. Godavari Dist.
Andhra Pradesh

Project cost : Rs.12.80 lakhs
Financial assistance : Rs.3.20 lakhs
Capacity : 15 lakhs ball copra per year
Products : Ball copra
M/s. Kalpaka Chemicals Pvt. Ltd, Tuticurion, TN

- **Project cost**: Rs. 162.27 lakhs
- **Financial assistance**: Rs. 33.05 lakhs
- **Capacity**: 126 MT shells / day
- **Products**: Activated Carbon
EBE Liza Enterprises, Tamilnadu

Project cost : Rs.103.10 lakhs
Financial assistance : Rs.20.58 lakhs
Capacity : 1.50 MT per day
Products : Activated carbon
M/s Global Eco carbon Pvt. Ltd., Tumkur, Karnataka

**Project cost**: Rs.605.00 lakhs

**Financial assistance**: Rs.50.00 lakhs

**Capacity**: 4 tons per day

**Products**: Activated carbon
M/s. Srinithi Agro Industries, Salem, TN

- Project cost: Rs. 92.35 lakhs
- Financial assistance: Rs. 20.15 lakhs
- Capacity: 15 MT shells / day
- Products: Shell powder
M/s. Kongunad Agro Products, Kangayam

Project cost: Rs.225 lakhs
Financial assistance: Rs. 50 lakhs
Capacity: 22.50 tones of shell powder per day
Products: Coconut Shell Powder
M/s. Kongunad Agro Products, Kangayam
Shell Charcoal unit, Kangayam
Shell Charcoal unit, Kangayam
Coconut Shell powder unit in Jammu & Kashmir
M/s. S.S Agro Mills, Samba

Project cost – Rs.136.07 lakhs
Financial assistance – Rs.15.92 lakh
Capacity – 6.4 tones per day
Product – Shell Powder
De-husking machine with a speed of 10 coconuts per minute developed under the study.
For further enquiries:

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Thankyou