Coconut By-Products

Final Report
January 2006

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ACRONYMS AND DEFINITIONS

Acronyms

APCC	Asian Pacific Coconut Community
CSAC	Coconut Shell Activated Carbon
ERS	Economic Research Service
EPA	Environmental Protection Agency
EU	European Union
FAO	Food and Agricultural Organization of the United Nations
FAS	Foreign Agricultural Service
FATUS	Foreign Agricultural Trade of the United States
FCEI	First Commodities Exchange of India
Harmonized System or HS	International Harmonized Commodity Coding and Classification System
Mt	Metric Ton
SOPAC	South Pacific Applied Geoscience Commission
UCAP	United Coconut Associations of the Philippines
US	United States
USDA	United States Department of Agriculture

Definitions

Coir
A coarse fiber extracted from husk, the fibrous outer shell of a coconut.

Geofiber
A product used as a soil reinforcement agent and as a filter medium. It is made of natural fibers manufactured in a woven or loose non-woven manner to form a blanket-like product.

FATUS Data
FATUS is a system of 211 trade codes created by Economic Research Service (ERS) for the purpose of summarizing U.S. agricultural trade in a form useable by the public. The FATUS codes aggregate the several thousand (>4,000 import and >2,000 export) 10-digit agricultural trade codes in the Schedule B & Harmonized Tariff Schedule of the U.S. (HTS) under which all U.S. trade data are originally collected by the Census Bureau of the U.S. Department of Commerce. This schedule classifies all goods according to the International Harmonized Commodity Coding and Classification System (Harmonized System or HS) which has been established by the World Customs Organization.

REPORT OVERVIEW

GOAL OF REPORT

The goal of both the Coconut Oil Report and the Coconut By-Product Report was to analyze the global market for a set of predetermined coconut products giving particular focus to high-end market opportunities in the US and EU. It is worth noting that during the course of research it became evident that the Southeast Asia market may be more viable given preferable ocean freight rates.

REPORT ORGANIZATION

The by-product is organized in order of market viability. In order, East Timor has the best opportunity to pursue the following: biofuel, coconut shell activated carbon, coconut coir (namely geotextiles), food grade coconut products, and copra. Two criteria were used to rank the markets: ease of market entrance (internal considerations) and market interest in East Timor produce by buyers in the US and EU (external considerations).

It is the consultant's opinion that copra, the most basic of the by-products, should be manufactured into a value added product that enhances the income generation potential of East Timor's farmers. Therefore it is listed last, even though it has the lowest barrier to market entry and ample market interest in the Southeast Asian market.

CONSULTANT CREDENTIALS

Mrs. Susan Hahn-Grelling has over fifteen years experience in global markets. Working as a grain trader, corporate buyer, supply chain executive and a director of an international development organization, she has successfully linked supply and demand markets to one another on all seven continents. She has applied her Fortune 100 skills to business development projects across the globe. Mrs. Hahn-Grelling has worked for several companies including as General Mills, Kelloggs, Pillsbury and Mercy Corps, and has consulted to Quaker Oats, PepsiCo and ARD, ACDI/VOCA, among others.

MINIMUM MARKET PARTICIPATION REQUIREMENTS FOR EAST TIMOR

The coconut tree is aptly dubbed the tree of life. Every single aspect of the coconut tree and its nut can be used to create a host of useful and unique products, from coconut shell buttons to biodiesel. Given the broad range of potential products, each with their own unique markets, it is imperative to remember the following.

Evaluate By-Products In Conjunction With The Primary Product
It is recommended that the primary product, organic coconut oil, be evaluated in conjunction with secondary by-products listed in this report in such a way that the total return from the coconut is maximized.

For the purpose of this report the following are considered coconut by-products: biofuel, coconut shell activated charcoal, coir, desiccated coconut, coconut milk and copra. A by-product market is sustainable when the raw material in question (coir, shell, etc.) is deemed as having no intrinsic value and otherwise discarded. Finding a market in which the discarded by-product is utilized increases the overall return of the coconut. However, it is rare to have by-product market become profitable enough to justify stand-alone production.

East Timor Must Be Price Competitive
The highest return of any combination of primary and by-product manufacturing is constrained by the currently available production facilities, human resource skills, investment capital, distribution and infrastructure. The first constraint to evaluate is distribution and infrastructure, in this case, ocean freight.

Remote geographic location and associated expensive ocean freight is East Timor's greatest hurdle to becoming price competitive. Importers are interested in East Timor products if, and only if, they are price competitive. While every aspect of the coconut tree and nut can be utilized, each of these aspects face mature competition from other raw materials, most of which are located in greater volumes in more central locations. Therefore East Timor's coconut product manufacturers must be prepared to compete on a delivered price basis.

It is inevitable that the best ex-factory price will come from first identifying the most competitive ocean freight routes and exploring the markets of specific interest to that geographic location(s).

Customer Satisfaction Is Imperative
After East Timor overcomes the issues associated with its remote geographic location, it must be prepared to satisfy importer's stringent requirements. The requirements are described in detail in the Virgin Coconut Oil report. These requirements must be met on a continuous basis. Prematurely entering the market without the ability to meet buyer's requirements in their entirety jeopardizes long-term market participation.

1. Immediate accessibility to company management
2. Proof of recognized, third-party certification
3. Competitive Transportation
4. Certified Transportation
5. Consistent adherence to product specification
6. Predictable supply, both in quantity (magnitude) and availability
7. Market competitive pricing
8. Ability to samples upon demand

Sporadic Supply Is Unacceptable to Buyers

Potential buyers are not interested in a single, one-time shipment. To ensure a profit margin in the coconut industry, potential buyers are interested in a consistent ongoing supply of product that meets mutually agreed upon specifications. Sporadic supply undermines any supplier's ability to create long-term relations with companies that are willing to develop partnerships with coconut producing manufacturers. As a developing country, East Timor has significant risk of sporadic supply.

Utilize Contacts

It is highly recommended that readers of this report utilize the contacts found in the appendix of both the Virgin Coconut Oil Report and the Coconut By-Product report. These contacts provided valuable market insight, expressed true interest in East Timor and its markets, and most importantly, have prior experience working with emerging markets. When initiating communication be prepared to concisely represent the product for sale, share a draft specification and divulge initial price parameters. This allows the contacts to better understand your product, offer advice, and in the long run, mutually agree to a contract.

There is a market for coconut oil and most coconut by-products. The people in the reference section make their livelihood by participating in coconut by-product markets. They are willing to discuss it and develop it with you.

Biofuel

SUMMARY

Biofuel is a viable option for coconut oil if East Timor imports comparatively expensive diesel fuel. By the same argument, biofuel is not a viable option for East Timor if the historical cost of imported diesel fuel is less expensive than coconut oil.

East Timor can benefit from the introduction of modified engines that use pure coconut oil or dual fuel systems. The advantage of these engines is that they favor the consumption of coconut oil during periods of high supply and low world prices, providing a cushion for coconut oil producers.

East Timor should avoid entrance into the bio*diesel* market. Biodiesel is a heavily regulated industry often subsidized by government funding. The demand forecast for biodiesel grows every year, but large scale production is the key to success to making biodiesel cheaply enough to be competitive.

The pros and cons of different coconut oil uses in compression engines are summarized below.

Coconut Oil in Compression Engines			
	Size	Niche	Challenge
Pure Coconut Oil	Small Scale	Small Island with absolute abundance of coconut oil and local milling facility.	Keep the copra supply going, Keep components standard and available.
Dual Fuel	Medium Scale	Small island with high transport cost (partly) displacing diesel fuel.	Earn back investment while prices of oil fluctuate.
Biodiesel	Large Scale	Larger islands and urban centers with access to industrial milling capacity.	Achieve sufficient economies of scale.

Coconut Oil as a Biofuel in Pacific Islands – Bioenergy Australia 2000 Jan Cloin

In the Pacific Islands, coconut oil is often used as a substitute for more expensive, imported (mineral) diesel fuels.

> In the Marshall Islands the Tobolar Copra Processing Plants has used coconut oil as a substitute for diesel fuel for three years. In October 2005 the copra plant sold coconut oil at about $2 a gallon, compared to $3.70 for a gallon of diesel. This has encouraged other firms, such as Pacific International, Inc., the country's largest construction firm, to reduce its raw material costs by substituting coconut oil for diesel fuel to run its heavy equipment and ocean-going vessels. *"Fill It Up With Coconut Oil?" Pacific Magazine November 2005.*

Using coconut oil in this manner:

- Reduces the trade deficit
- Reduces the export of capital
- Reduces economic exposure
- Creates a more viable market for weakening coconut markets
- Increases the incoming earning opportunities of local farmers.

METHODS FOR USING COCONUT OIL AS A BIOFUEL

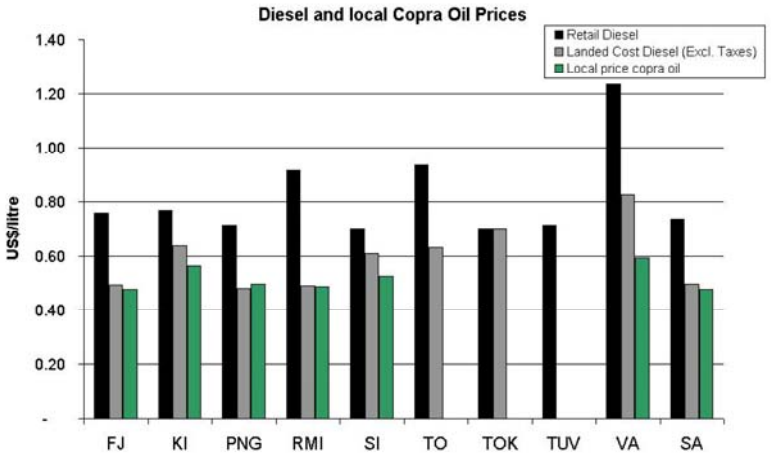
Modified Engines

Dual Fuel Modified Engine
A dual fuel system modified engine starts and stops on regular diesel fuel and switches to pure coconut (or vegetable) oil when it reaches its standard operating temperature. Since coconut oil absorbs and holds moisture, it can harden and clog engine components at temperatures below 78° F. The dual fuel system can incorporate an electrical heater into its fuel tank to ensure that the coconut oil remains liquid at lower temperatures.

Adapted Fuel System
These engines have specially adapted fuel injectors, pumps and extra filters. Adapted fuel systems can run on 100% pure coconut oil, without any fossil fuels, as long as the locally produces coconut oil has a consistently high quality. An electrical heater can be incorporated into the fuel tank to ensure that the coconut oil remains liquid at lower temperatures.

Benefits
The advantage of modified engines is that they favor the consumption of copra oil during periods of high supply and low world prices. This provides a cushion for copra oil producers. The world price for coconut oil, which is already down 10% from the same period last year, is expected to continue its downward trend, according to United Coconut Associations of the Philippines (UCAP) and First Commodities Exchange of India (FCEI).

The following diagram concludes that, “the difference between the local price of coconut oil and the local price of diesel without taxes indicates the benefits of using copra oil versus exporting it. The benefits differ from country to country and increase as transport costs to more remote islands increase.” Mr. Cloin



Source: SOPAC Regional Workshop on Biofuel, Vanuatu, August 2005. Countries in order listed: Fiji, Kiribati, Papua New Guinea, Marshall Islands, Solomon Islands, Tonga, Urban Center of Lautoka: Fiji Islands, Tuvalu, Vanuatu, Samoa.

Unmodified Engines

Unmodified engines can run on 100% copra oil, however, strict adherence to rigid technical requirements often render this alternative unsustainable.

According to Mr. Cloin, a producer must be able to meet the following requirements to make this a valid alternative:

- Stable and controlled copra drying/milling process
- Removal of water, Free Fatty Acids (FFA) and solids
- Filtration up to 1 micron
- Pre-heating of copra oil to 70 degrees C
- Blending with regular diesel or kerosene for better viscosity
- Application of engine in upper load curve (>70%)
- Use in Direct Injection system.

Biodiesel

Vegetable oil, including coconut oil, is added to diesel at a 5% minimum inclusion rate to form biodiesel. It is highly regulated in the US and EU. Both have standards of identity, ASTM-D 6751 in the US and EN14214 in the EU. A summary of biodiesel specifications for Austria, Czech, France, Germany, Italy, Sweden and the US is found in the Appendix.

ABC Radio Australia - Coconut oil emerges as new energy source in Vanuatu
12/28/05, www.abc.net.au

Coconut oil is being developed as a fuel for power generation in Vanuatu.
The power company, Unelco, started experimenting by mixing coconut oil with diesel fuel in June. It has been so successful that the general manager, Jean Chaniel, says it has moved beyond a test to industrializing the use of the coconut oil.

"Currently we're using a five per cent mix of coconut oil and diesel in our larger generators - four megawatts - which represents about 8,000 liters per week at present," he said. "Not a great deal, but potentially quite a bit."

Mr. Chaniel says the new fuel counters the increasing price of fuel and revitalizes Vanuatu's copra industry. "Five per cent is the initial mix that we're using and we'll increase as far as we can... the quantities could become quite significant within a year or so," he said.

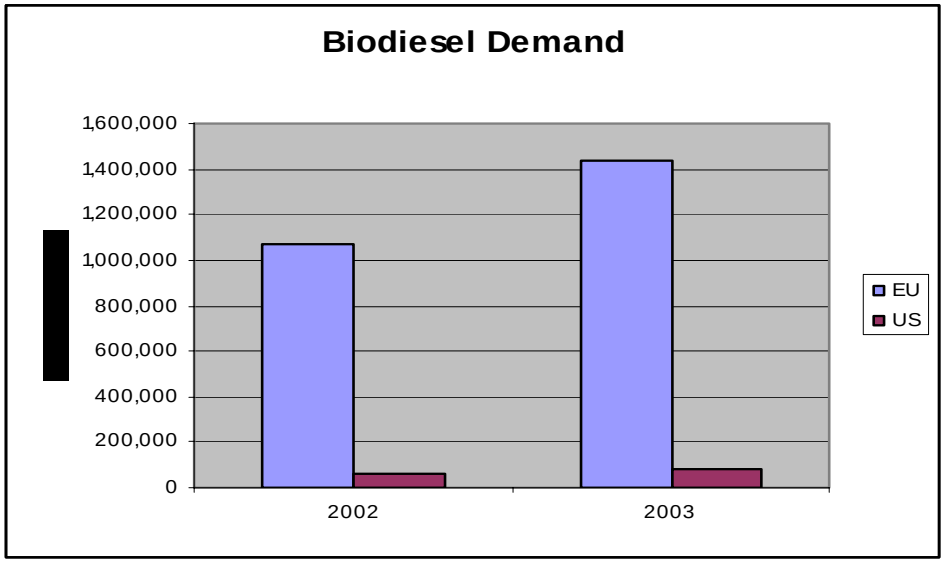
The cost of biodiesel production is often prohibitive. For coconut oil to be converted into biodiesel, it must be processed at a chemical facility. According to Mr. Randy Hahn, General Manager of Minnesota Energy's ethanol plant, a small, batch biodiesel plant can cost more than $20 million in the US and produce approximately three million gallons of biodiesel per year.

If East Timor considers reallocating its entire coconut crop to coconut oil production, which is estimated at 2,700mt/year of coconut oil per year, it could produce approximately 740,000 gallons of biodiesel. The same three million gallon facility mentioned above would run at only 25-26% capacity.

DEMAND

> "It's almost that renewable energy is being loved to death,"
> David Garman, Undersecretary of Energy

Biodiesel is the only well documented biofuel market. According to the European Biodiesel Board and the National Biodiesel Board in the US, demand for biodiesel increased by roughly 35% between 2002 and 2003.



Biodiesel awareness and usage in the US continues to increase as a result of public awareness campaigns and government programs, such as the Clean Air Act of 1990 and The Energy Policy Act of 1992. The demand for biofuel is expected to grow as biodiesel fuels available at the gas-pump continue to sell at a discount to fuel. As a result, US companies are planning plant expansions. For example, Cargill plans to double the size of its 85 million gallon-a-year ethanol plant in Nebraska to take advantage of the increased demand.

> BP plans to invest $8 billion over the next decade in a new division, BP Alternative Energy. "We're coming close to tripling our investment," said Lee Edwards, CEO of BP Solar. "Standalone, it's a huge investment, and it's growing."
>
> "State can lead in renewables"
> Joe Hanel, Herald Denver Bureau, 1/12/06

High fuel taxes in the EU, which equate to approximately 50% of the retail price of diesel fuel, has heightened public interest for some time. As a result many European countries are trying to encourage biodiesel usage. Britain, for example, wants 5% of all motor fuel to come from biofuel by 2010. According to the International Herald Tribune, the

Biofuels Company is spending £30 million, or $53 million, to build a plant to make 250,000 tons of fuel a year from palm and rapeseed oil.

PCA urges Leytenos to plant more coconuts
By Bong Pedalino

MAASIN CITY (13 January) -- In anticipation of a potentially high demand for copra products and by-products as raw materials in the production of coco bio-diesel, the Provincial Manager of the Philippine Coconut Authority here has appealed to the coco farmers for a massive replanting of the popular plant, considered the "tree of life" for its many uses.

"Let us continue planting coconut trees. Let us not cut down our fruit-bearing coconut trees. Our coconut production now is decreasing," he said during a recent Kapihan program live over DYDM.

He added: "In about five to ten years from now, there will be high demand for our copra due to mature technology from the PCA, DOST, and other agencies. We have a future in coconuts because of the discovery of coco bio-diesel, so let's keep planting them."

Sembrano said he was hopeful the current trend on the massive promotion of the coco bio-diesel would eventually drive the price of copra up, benefiting the poor coconut farmers, as more investors are looking into the feasibility of opening refueling stations.

The commercialization of coco bio-diesel is also ongoing in Mindoro and Manila, among others, but it can also be produced at home by extracting oil from a coconut and adding the glycerol, the catalyst, whose chemical influence was a key element in the production process, Sembrano stressed.

The catalyst was invented in 1995 by Rico Cruz, a Maasinhon, and was first used in an experiment in Zamboanga City using the Mitsubishi Service vehicle as a test model.

In August, 2004, Cruz conducted a symposium on coco bio-diesel at the College of Maasin here and demonstrated the whole process from start to finish, with the output being used as fuel for the Mitsubishi pick-up on their return trip to Zamboanga, Sembrano recalled.

On the latest development on coco bio-diesel, it was learned that at least three foreign firms have signified interest to get involved in the country's alternative fuel program.

According to Energy Utilization Management Bureau Director Mario Marasigan the government plans to install ten refueling stations in two years' time, from 2006 to 2007. A transport group cooperative in Baguio City also plans to put up their own coco bio-diesel refueling station within this year, it was also learned. (PIA-Southern Leyte)

PIA Press Release
01/13/2006

Coconut Shell Activated Carbon (CSAC)

SUMMARY

CSAC is part of the larger global activated carbon industry that includes coal, wood and CSAC products. In 2004, global demand for activated carbon from all sources reached 650,000 tons. During the same time period world wide consumption of CSAC reached 90,000 tons.

The global outlook for CSAC is positive. Demand is steady and growing at 2-4% per year. Increased demand has been met with a scarcity of supply. The current CSAC market is tight due to a scarcity of raw material (coconut char) and higher energy and oil prices. End-user pricing has increased for the first time in many years to account for higher energy, raw material and ocean transportation costs.

East Timor can compete in the activated carbon market through two different channels. They can contract to supply coconut char to larger CSAC producers in Sri Lanka, the Philippians or Indonesia and earn more than simply supplying the raw husks. Or, East Timor can develop direct business relationships with import brokers that supply activated charcoal to buyers scattered throughout the US, Japan and the EU.

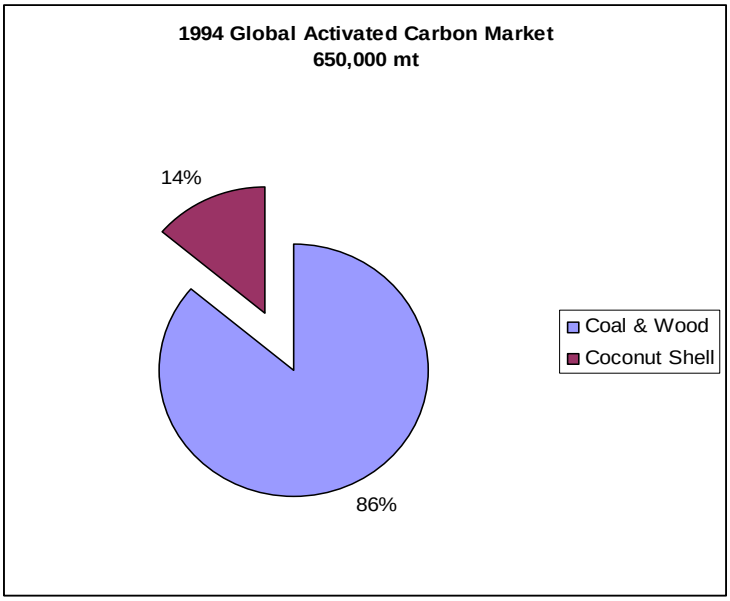
> "You won't get rich, but there is always a market for activated carbon."
>
> *Mr. Bob Holden, Director of Cameroon Great Lakes, an importer of activated carbon. Mr. Holden has 30 years of industry experience with activated carbon.*

The market, while stable, is expensive to enter as a supplier. To compete in the activated carbon market, East Timor must:

- Adopt rotary kiln processing and provide a constant supply of charcoal that meets specification.
- Utilize expert assistance in the design, construction and operations of an activated charcoal facility.
- Obtain National Sanitation Foundation (NSF) certification.

ACTIVATED CARBON

CSAC is 14% of the larger global activated carbon industry that includes coal, wood and CSAC products. In 2004, global demand for activated carbon reached 650,000 tons, while world wide consumption of CSAC reached 90,000 tons.



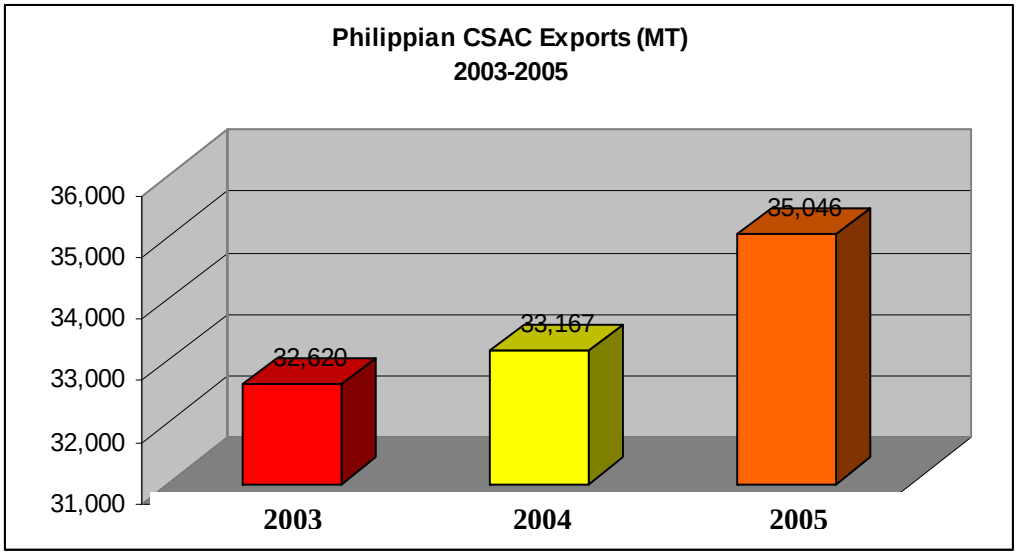
The biggest demand for CSAC is in industries and applications that require good abrasion resistance and high activity such as respirators, gold mining, point of use water filters, cigarettes and water process treatment. Generally CSAC is priced higher than either coal or wood-based carbon products as CSAC performs better in many applications.

End use application determines the most appropriate form of CSAC: granular, chip, powder and pellet. For example, granular activated carbon is used in motor vehicles requiring emission canisters. Powdered activated carbon is used in the removal of mercury from gas streams in industrial applications.

The three most important areas of origin for CSAC are Sri Lanka, the Philippines and Indonesia. Many of their Southeast Asian neighbors have smaller capacity production potential such as India, Thailand, Malaysia, Vietnam and China. China, a relatively new player in the industry, imports char and manufactures CSAC for export.

Sir Lankan production has been negatively effected as a result of recent events such as the 2004 tsunami and subsequent droughts. While Sri Lankan export data is not publicly available, it is regarded as the world's largest exporter of CSAC, satisfying more than 35% of the world wide demand.

According to the UCAP, the Philippians supply the world with approximately 30% of its demand. The Philippians have increased export volume of CSAC by over 7% since 2003.



Production capacity is expected to remain concentrated in Sri Lanka, the Philippines and other Southeast Asian countries, where production costs (such as labor) are comparatively lower.

The CSAC industry is characterized by numerous small companies and a few large manufacturers. Small manufacturers produce roughly 500-2500 tons of product per year. Large companies are concentrated in Sri Lanka, the Philippians and Indonesia. Haycarb, one of the largest companies, is located in Sri Lanka and Thailand, and has just bought interest in an Indonesia facility. In the Philippians PACCO and PJAC dominate the industry.

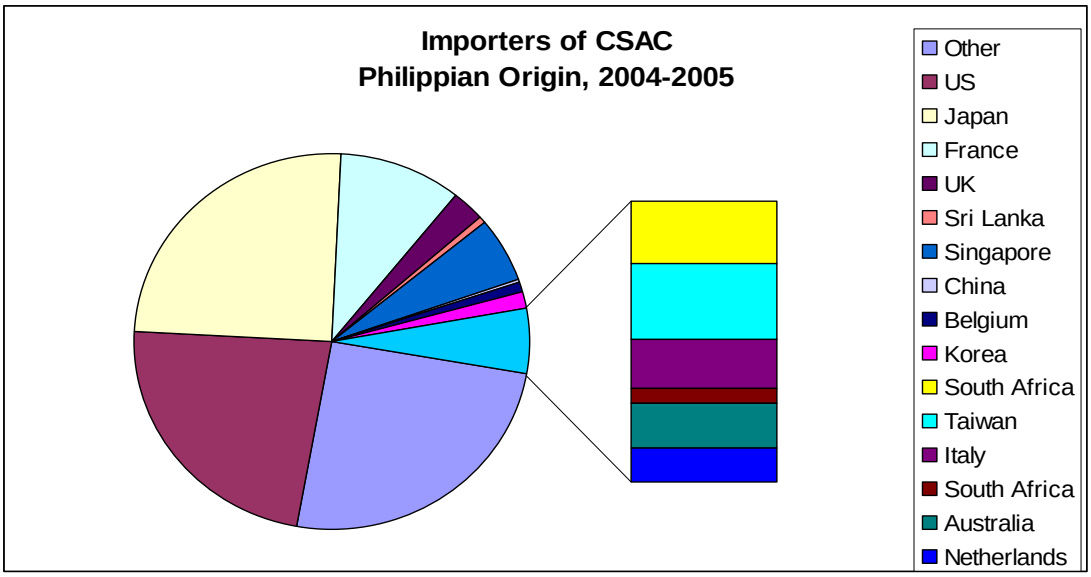
DEMAND

Activated carbon demand in the EU, US and other developed nations is greatly impacted by the implementation of environmental regulations, including the Clean Water and Clean Air Acts. In the US and EU, CSAC is used predominately in the water purification industry. Unlike other activated carbons, CSAC does not leach out harmful chemicals such as arsenic or aluminum, making it superior in water filtrations applications.

Demand data was not publicly available. However, by examining the data available for the Philippians, we can catch a glimpse of the market in general.

According to the UPCA, 67 % of the Philippians' CSAC is exported to five countries, namely the US, Japan, France, UK and Singapore. The remaining 33% is commonly distributed between 27 other buyers of varying size. Due to Sri Lanka's favorable ocean

freight to the EU, it can be assumed that the EU prefers to source its product out of Sri Lanka.



PRICE

The global outlook for CSAC is positive. The current CSAC market is tight due to a scarcity of raw material (coconut char) and higher energy and oil prices.

Coconut Char

A steady and adequate supply of coconut char is mandatory to justify a CSAC facility. Coconut char is needed at a 3:1 ratio to manufacture activated carbon. According to Mr. Ken Walsh, Owner, Carbon Resources, LLC, a small plant with one rotary kiln and 25-30 employees could manufacture 2 million lbs. per year of CSAC, which would require the availability of approx. 6 million lbs. of char (equivalent to 90 million coconut shells).

The price of coconut char has increased from less than US$100/MT to US$120/MT. At times, in select countries, coconut char was sold at over US$200/MT. The increase in CSAC reflects the recent rise in the cost of fuel, needed to run the rotary kiln.

CSAC

Generally, CSAC is priced higher than either coal or wood-base products because it performs better in many applications. The pricing of CSAC is tied to raw material, energy and ocean transport costs. Typical pricing for ex-factory CSAC is approximately US$0.50/lb for low grade product entering a water filter application (see specification in the Appendix) to $3.00/lb for high activity product. CSAC impregnated with silver or other chemicals are used in special applications and can obtain an even higher price.

Estimated Price at East Timor Port	US $0.45/lb
Estimated Ocean Freight	US $0.10/lb
Importer's Price at US Port	US $0.55/lb
Broker's Price	US $0.85/lb - US$1.17/lb*
End-User's Price	US $2.15/lb - US$5.00/lb*

Source: Ms. Sara St. John owns both Activated Charcoal Carbon and AAA Aircare Systems, and Mr. Bob Holden is a Director of Cameroon Great Lakes, an importer of activated carbon. Pricing reflects the US low grade CSAC market as of 1/13/06.

**The high end of the price range represents the price of value added products such as impregnated CSAC.*

Unrealistic Price Forecasts

According to numerous web sites, activated coconut charcoal destined for air and water filtration applications retails in the U.S. for US$35 per kilo (US$77.16/lb). These prices are misleading, and do not represent today's market.

The same web sites state that pharmaceutical grade activated charcoal retails for as much as US$193.00/kilo (US$425.50/lb). Not only is this price unobtainable in today's market, but also small charcoal producers are unlikely to manufacture pharmaceutical grade quality. The FDA tightly monitors pharmaceutical grade coconut charcoal due to the fact that product is often ingested to prevent poison from being absorbed from the stomach into the body and/or used in air and water filtrations systems for operating rooms in medical facilities. Ms. Sara St. John contemplated entering the pharmaceutical market, but decided against it after research determined that the process was unwieldy and extremely costly.

US AND EU DISTRIBUTION

Distribution of activated carbon is similar for air filtration, water purification and pharmaceutical markets. The distribution system is characterized by a set of specialized brokers. Activated carbon is shipped from the country of origin to a port in the EU or US. An import broker takes possession and either sells it in bulk to another wholesaler or repackages it to meet the needs of an activated carbon broker. The activated carbon can be used in filter system products manufactured by the broker and sold to large retailers such as Whirlpool, PUR, GE, Amana and Frigidaire; or the broker may sell the activated carbon to other filter manufacturers.

It is not uncommon for foreign firms to try to cut out the middlemen by establishing direct business relationships with industrial buyers. Mr. Holden has seen Chinese companies attempt it on several occasions. Attempts to date have failed because company suppliers underestimate the level of customer service necessary to compete in the industry.

> For example, Cameron Great Lakes receives requests for small lot size shipments on a daily basis. They continuously break down a 3,000 lb. shipment into 55 gallon drums in order to fill a small lot size order of 400 lbs.

Contacts listed in the Appendix contributed comments, insight and market expertise to this report, and are willing to contribute and collaborate in the future with East Timor.

TECHNOLOGY

Manufacturers of CSAC manufacturers often specialize in the standardized production of a few select products, such as:

Gold Mining Applications: 612 or 8x16 medium activity grade
Water Treatment: 12x30 grade
Odor Control Systems: 4x8 mesh

Specialized production requires that East Timor access expert advice prior to building and operating a CSAC plant. The excerpt below summarizes numerous conversations with experts in the field.

> No one transfers technology or shares experience for free. Some producers pinch away skilled workers from a successful counterpart with a great hope of quickly and cheaply transferring technology. This trick has not been proven workable so far. Everyone has to undergo trial and error to adopt the technology to the new environment. At best, experienced "know-how" covers the raw material, briquette and charring process. No one has ever developed a comprehensive written instruction for their plant, there are too many variants to consider and decide. Only those who have significant years of direct experience can interpret written instructions correctly.
>
> www.nakedwhiz.com/lumpdatabase

The Asian Pacific Coconut Community (APCC) published a booklet with general manufacturing information entitled, "Activated Carbon Processing" by Kenneth Sim, which outlines the details of how to build a manufacturing plant.

Mr. Walsh recommends contacting Mr. Richard Mumford at J.B. Carbon Activators in Sri Lanka at Carbon@JB.slt.com for more detailed info concerning the operation of a production plant.

CERTIFICATION

National Sanitation Foundation (NSF) certification is mandatory to participate in the activated carbon market. NSF standards specify the requirements for the products, and may include criteria relating to materials, design, construction and performance. The cost for initial certification is approximately $20,000. Recertification is required every five years.

DATA RESOURCES

Public domain data was used for this analysis. Prior to investment in the CSAC industry, it is recommended that East Timor purchase activated carbon data from reputable firms such as the Freedonia Group and Roskill. Reports include detailed information regarding global supply, demand and pricing. Prices range from $US 4,100-3,600, respectively. Freedonia offers sections of the report for a portion of the price, allowing the consumer to buy section(s) of interest. Hoover's offers one-page print-outs of the Freedonia report for $30/per page. (See Appendix for contact information.)

Charcoal Briquettes

DESCRIPTION

Coconut charcoal can be used for cooking, heating, and smoking meat and fish (when used as a base of heat as coconut charcoal gives off very little smoke). Small-scale entrepreneurs can easily produce both lump charcoal and briquettes. Simple coconut charcoal is odorless, smokeless and burns at a high BTU making it a perfect cooking and heating source. Lump charcoal, or charcoal in its most basic form, is a suitable market product for small-scale businesses, requiring very little capital investment to start. As production increases, capitol investments in equipment can lead to briquette production and even the ability to activate the charcoal for the highest returns.

Product Specifications: Kamado Coconut Briquettes for BBQ Applications

Moisture content: 6% max
Volatile Material: 11.8% max. Extremely low volatile
Ash content: Residual of ash less than 3-5% of the original weigh.
Burning time: 3+ hours
Cube size: 5 cm (length) x 4 cm (width) , hexagonal type
Heat value: 31,210 J/g
Fixed carbon: 76%
Toxic heavy metal material: not detected
Material: 100% coconut shell
Container load: 1 x 20' = 17 tons, 2,000 boxes

MARKET

The Coconut charcoal market for cooking purposes is highly fragmented. Common ways to sell and market the product are online:

- on auction sites such as ebay.com (or amazon.com)
- on company specific websites
- on Business-to-Business search engines (listed in the appendix)

It is also possible to develop business relationships with numerous, small, widely disbursed mom-and-pop nurseries and hardware stores.

MARKET PRICE

According to Komado, a company that sells bulk coconut charcoal directly to small retail stores, the price to the US retail market for coconut lump charcoal and extruded coconut charcoal is about US$0.50/lb and US $0.51/lb. respectively. See below. Using the same distribution cost model as activated carbon, price for coconut charcoal fob dock, East Timor would be approximately US$0.20/lb.

Kamado Corporation

Below are some sample shipping rates to certain cities in the USA using Con-way, our preferred trucking company. The sample rates are based upon a minimum of slightly over 225 pounds, where below 225 pounds the rates nearly double. The price per box represents a wholesale price reflecting the savings for the volume purchase.

SHIPPING RATES FOR KAMADO LUMP OR COCONUT LUMP CHARCOAL

			Number of Boxes	Pallet Wt. 230					
			23	shipping	Shipping	Charcoal	Charcoal	Total Box	Total Pallet
		Zip Code or	boxes in 230	Pallet Cost	Cost per	Cost Box	Cost per	Shipping &	Shipping &
From	Destination	Business	lb. Pallet	per pound	Box	Box	Pallet	Charcoal	Charcoal
			Shipping Cost						
Sacramento	Will Call		0	0	0	*4.99*	**114.77**	4.99	114.77
	So. CA (most)	90810	**49.1**	0.2134783	2.13	4.99	**114.77**	**7.12**	163.87
	Oakland	94545	**45.84**	0.1993043	1.99	4.99	**114.77**	**6.98**	160.61
	San Diego	92111	**50.61**	0.2200435	2.20	4.99	**114.77**	**7.19**	165.38
	Dallas, TX	75247	**69.88**	0.3038261	3.04	4.99	**114.77**	**8.03**	184.65
	Chicago,	60632	**69.89**	0.3038696	3.04	4.99	**114.77**	**8.03**	184.66
	Atlanta, GA	30354	84.1	0.3656522	3.66	4.99	**114.77**	8.65	198.87
	New Jersey	07080	83.13	0.3614348	3.66	4.99	**114.77**	8.65	198.87
	Phoenix, AZ	85043	**68.68**	0.2986087	2.99	4.99	**114.77**	7.98	183.45
	Tampa, FL	33619	**97.45**	0.4236957	4.24	4.99	**114.77**	9.23	212.22
	Miami	33013	102.53	0.4457826	4.46	4.99	**114.77**	9.45	217.30

SHIPPING RATES FOR KAMADO EXTRUDED COCONUT

			No Boxes in Pallet	Pallet Wt 230						
			13	shipping	Shipping	Charcoal	Charcoal	Charcoal	Total Box	T
		Zip Code or	boxes in 230	Pallet Cost	Cost per	Cost Per	Cost Box	Cost per	Shipping &	S
From	Destination	Business	lb. Pallet	per pound	Box	Pound	Box	Pallet	Charcoal	C
			Shipping Cost							
Sac. CA	Will Call		$ -	0.00	0	0.51	*8.99*	**116.87**	**8.99**	
95691	So. CA (most)	90810	$ **49.10**	0.21	3.78	0.51	8.99	**116.87**	**12.77**	
	Oakland	94545	$ **45.84**	0.20	3.53	0.51	8.99	**116.87**	**12.52**	
	San Diego	92111	$ **50.61**	0.22	3.89	0.51	8.99	**116.87**	**12.88**	
	Dallas, TX	75247	$ **69.88**	0.30	5.38	0.51	8.99	**116.87**	**14.37**	
	Chicago,	60632	$ **69.89**	0.30	5.38	0.51	8.99	**116.87**	**14.37**	
	Atlanta, GA	30354	$ **84.10**	0.37	6.47	0.51	8.99	**116.87**	**15.46**	
	New Jersey	7080	$ **83.13**	0.36	6.47	0.51	8.99	**116.87**	**15.46**	
	Phoenix, AZ	85043	$ **68.68**	0.30	5.28	0.51	8.99	**116.87**	**14.27**	
	Tampa, FL	33619	$ **97.45**	0.42	7.50	0.51	8.99	**116.87**	**16.49**	
	Miami	33013	$ **102.53**	0.45	7.89	0.51	8.99	**116.87**	**16.88**	

Coconut Coir/Fiber

SUMMARY

The coconut fiber market is differentiated by end usage. For consumer products, the fiber is woven into door mats and auto floor mats and pressed into coconut fiber pots for nursery use. These products are sold in retail stores and on-line. The price range for these products follows a tight range, with competitive products made of alternative raw materials limiting the upward potential of the market.

In recent years coconut fiber has found a new home in the geotextile market, where it is used to prevent soil erosion. Used in civil engineering to prevent the erosion of road sides, embankments and coastal areas, the demand for these products is expected to increase significantly in the future.

Geotextiles can also find a profitable market close to origin, when small scale production of soil conservation products is sold to domestic initiatives. The success of one such project is the Philippines' Coconet (See Appendix, Page 31). By first gaining experience domestically, small manufacturers are in a better position later to compete for contracts abroad.

Fortunately for East Timor, there is a large demand for coconut fiber is based in Asia, which may provide better opportunity for East Timor given its remote location and costly transportation situation.

DATA SOURCE DISCLAIMER

Data varies tremendously between sources. FATUS coconut coir data has limited use since it specifically tracks US trade data according to the harmonized code. UCAP has a greater interest in pursuing more current data, as it seeks to more fully participate in the market in the future. However, UCAP data found in public domains neither cites data sources nor cross-validates data with other recognized sources.

The following market synopsis combines trends supported by both FATUS and UCAP. UCAP data is referenced for current global market data and FATUS for pricing trends. The original FATUS data is included in the appendix for future reference. UCAP data was secured by scouring its web site and published documents. It is highly recommended that East Timor joining UCAP and/or buy its statistical data, in order to validate figures in this section.

OVERVIEW

The following one-page overview is provided by Wikepedia (www.wikipedia.org).

Processing
Green coconuts, harvested after about six to twelve months on the plant, contain pliable white fibers. Brown fiber is obtained by harvesting fully mature coconuts when the nutritious layer surrounding the seed is ready to be processed into copra and desiccated coconut. The fibrous layer of the fruit is then separated from the hard shell (manually) by driving the fruit down onto a spike to split it (*De-husking*). Machines are now available which crush the whole fruit to give the loose fibers.

Brown fiber
The fibrous husks are soaked in pits or in nets in a slow moving body of water to swell and soften the fibers. The long bristle fibers are separated from the shorter mattress fibers underneath the skin of the nut, a process known as *wet-milling*. The mattress fibers are sifted to remove dirt and other rubbish, dried and packed into bales. Some mattress fiber is allowed to retain more moisture so that it retains its elasticity for 'twisted' fiber production. The coir fiber is elastic enough to twist without breaking and it holds a curl as though permanently waved. Twisting is done by simply making a rope of the hank of fiber and twisting it using a machine or by hand. The longer bristle fiber is washed in clean water and then dried before being tied into bundles or hunks. It may then be cleaned and 'hackled' by steel combs to straighten the fibers and remove any shorter fiber pieces. Coir bristle fiber can also be bleached and dyed to obtain hanks of different colors.

White fiber
The immature husks are suspended in a river or water-filled pit for up to ten months. During this time micro-organism break down the plant tissues surrounding the fibers to loosen them - a process known as retting. Segments of the husk are then beaten by hand to separate out the long fibers which are subsequently dried and cleaned. Cleaned fiber is ready for spinning into yarn using a simple one-handed system or a spinning wheel.

Uses
Brown coir is used in brushes, doormats, mattresses and sacking. A small amount is also made into twine. Pads of curled brown coir fiber, made by *needle-felting* (a machine technique that mats the fibers together) are shaped and cut to fill mattresses and for use in erosion control on river banks and hillsides. A major proportion of brown coir pads are sprayed with rubber latex which bonds the fibers together (rubberized coir) to be used as upholstery padding for the automobile industry in Europe. The material is also used for insulation and packaging. The major use of white coir is in rope manufacture. Mats of woven coir fiber are made from the finer grades of bristle and white fiber using hand or mechanical looms. Coir is recommended as substitute for milled peat moss because it is free of bacteria and fungal spores.

CLASSIFICATION OF COCONUT COIR

Harmonized Code

The US Harmonized Schedule Code (HTS) is a ten digit number assigned to imports and exports and are used to assess import duties and taxes on imports and track import and export statistics for the US Department of Census. The first six digits of the code are harmonized on an international basis, hence the name harmonized standard. The last four digits may vary by product and/or by country.

The market for coconut fiber falls under the Harmonized Code of, "Vegetable Fibers Excluding Cotton"

Harmonized Tariff Schedule of the United States (2006)

Annotated for Statistical Reporting Purposes

XI
53-3

Heading/ Subheading	Stat. Suf-fix	Article Description	Unit of Quantity	Rates of Duty 1 General	Rates of Duty 1 Special	Rates of Duty 2
5305		Coconut, abaca (Manila hemp or Musa textilis Nee), ramie and other vegetable textile fibers, not elsewhere specified or included, raw or processed but not spun; tow, noils and waste of these fibers (including yarn waste and garnetted stock):				
		Of coconut (coir):				
5305.11.00	00	Raw	kg	Free		Free
5305.19.00	00	Other	kg	Free		Free

Reading the HTS – Unit of Quantity

This is the US Customs acceptable measure of quantity for a product, which must be included on commercial invoices.

Reading the HTS – Rates of Duty

The Rates of Duty Column determines the amount of duty you will have to pay on an imported product. Coconut coir is not subject to duty.

Typically these rates of duty are expressed in a quantity/cost rate or as a percentage of the value of the good. Notice that the Rate of Duty Column is divided into three interior columns. These columns are interpreted as follows:

- General (aka Column 1): The typical rate of duty from the majority of the world's countries.
- Special: Special duty rates assigned to specific countries or import scenarios.
- Column 2: The special rate of duty assigned to trade restricted countries. Cuba, North Korea, etc.

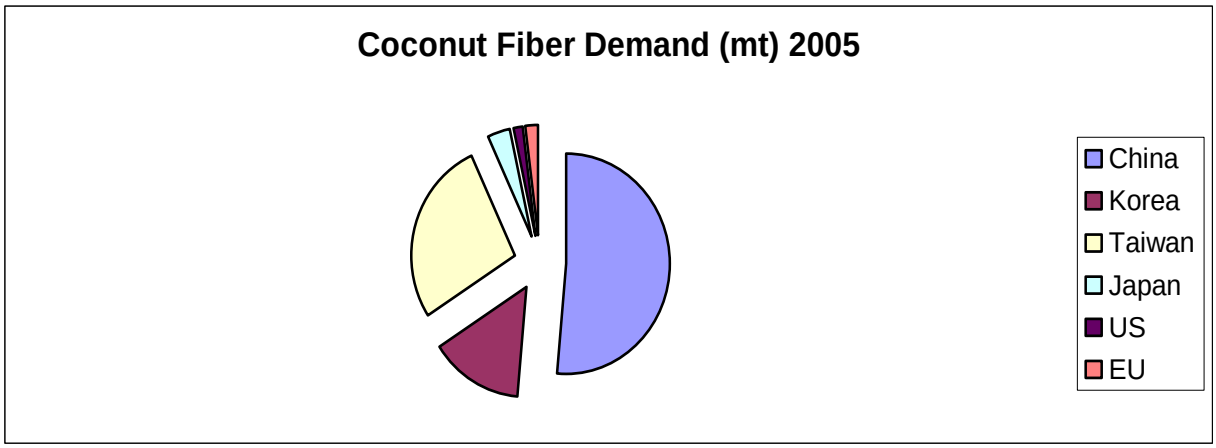
DEMAND

Coconut fiber has diversified use particularly suited for gardening, insulation, erosion control, textiles/apparel and agriculture. According to UCAP, the coconut fiber market is valued at approximately US$390 million per year. Demand is highly concentrated in China and Taiwan, which are believed to buy 40% of global supply. Asian demand for fiber is expected to greatly increase over the next 2-3 years.

Country	Est. Current Monthly/Yearly Demand	% Increase Next Year*
China	30,000 mt/360,000 mt	20%
Korea	8,500 mt/102,000 mt	5%
Taiwan	16,000 mt//192,000 mt	5%
Japan	2,000 mt/24,000 mt	5%
Total	56.50 mt/678,000 mt	Weighted Avg of 13%

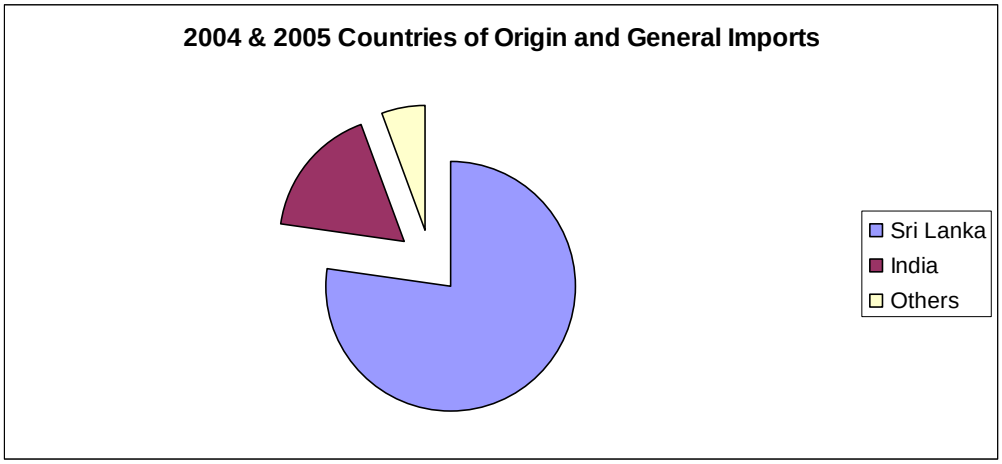
**Speculation by UCAP*

The U.S. market, according to FATUS, is small in comparison. For the first 10 months of 2005 the US imported 8,620 tons of coconut fiber valued at US$2.5 million.



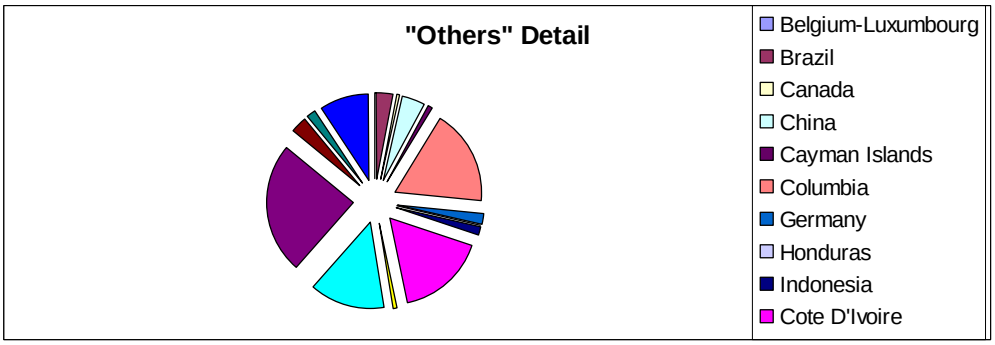
SUPPLY

Sri Lanka is the largest global supplier of coconut fiber, followed by India and Indonesia. India is a major supplier to US markets, and Indonesia is rumored to be a strong market player in Asia. The Philippines, which states that it supplies the world with 25% of its coconut products, supplies a meager 108,000 mt to the market.



FATUS US Import Data

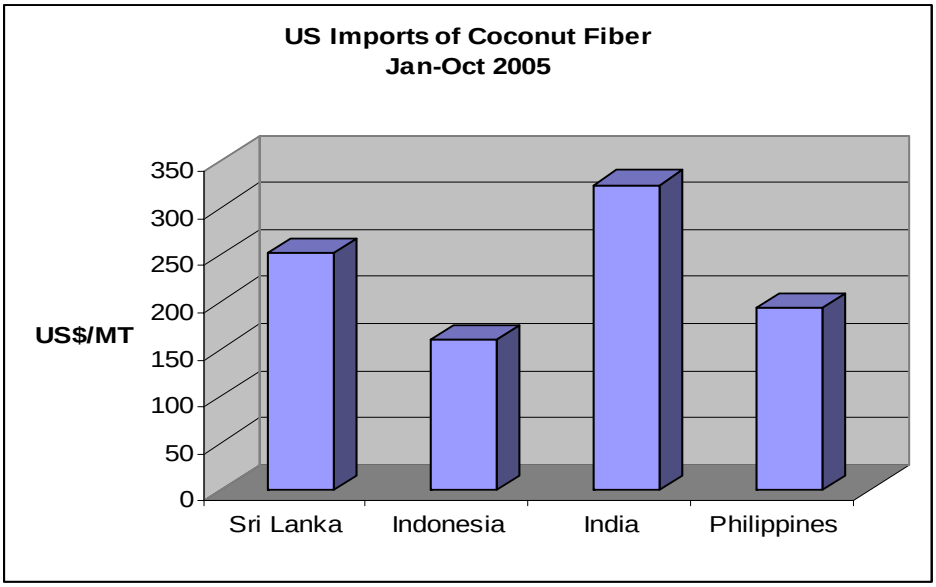
FATUS US Import Data



FATUS US Import Data
Data includes countries that re-export processed fiber products.

MARKET PRICE

According to FATUS, the value per ton paid by the US to import coconut coir varies significantly by origin. In 2004-2005 prices paid at origin from the four largest exporters of coconut fiber ranged from US$160/mt in Indonesia to $325/mt in India.



FATUS US Import Data
Note: the HS code lumps raw and processed coconut fiber together, and pricing can reflect the value added state of the final product, quantity available, etc.

Coconut Coir/Fiber: Geotextiles

SUMMARY

Coconut fiber has received a wave of positive publicity related to its performance in soil erosion. Coconut fiber has become a popular material in the use of soil conservation. Coconut fiber is spun into an eco-friendly material called geotextile, that is more effective than plastics or steel wire as it allows water to pass through soil conservation structures while successfully blocking soil and silt from washing down the escapement. (See installation diagram on Page 58.) According to FATUS, the success of coconut fiber as a geotextile has resulted the doubling of coconut fiber demand since 2001.

DEMAND

The US market for geotextiles is closely linked to government projects. Geotextiles are sold to general contractors who bid on conservation projects. General contractors then acquire the necessary materials and manpower to complete the project in its entirety. The key to success in this market is to become a valued supplier to contractors.
Ms. Calista Rohini Santha, owner and original founder of Rolanka International, has supplied coconut Geofiber products to EPA projects and construction contractors in the US for over 13 years. "It's been a slow and expensive process", she states. A lot of people know about the products, but few care enough to buy the products. Biowoven blankets are a good example of this.

Coconut fiber blankets are used along road sides to stop erosion and as basins for man-made lakes and compete against concrete. The blankest are preferred in applications that benefit from the establishment of a natural environment, as they allow vegetation to grow through the blanket. Concrete is ineffective in this application, as concrete transfers heat that kills the newly sprouting plants. Given the success of the biowoven blanket, it still took Rolanka thirteen years to convince the Georgia DOT to adopt the product. In Ms. Santha's opinion, eco-friendly products do not have significant lobbyists at capital hill to pursue educational campaigns that would encourage quicker adoption of their products into EPA projects.

SUPPLY

Manufacturing of geotextiles products occurs in the same areas of coconut coir origin. Manufacturing is expected to stay concentrated in Southeast Asia, where expensive freight costs are offset by lower labor, insurance and liability costs. This is significant, as coconut coir, being light and bulky, fills an ocean container physically before it hits the weight allowance. Ms. Santha estimates that the bulky nature of the product increases their ocean freight by 25%.

UCAP and the government of the Philippines government are intent on increasing their participation in the coconut fiber market. In the future watch for continued economic incentives and increased global exposure.

UCAP Document dated September 8, 2005 (See supporting articles in Appendix)

PHILIPPINES' GEOTEXTILE A FINALIST IN INTERNATIONAL CONTEST

Philippine coconut geotextile or coconet was chosen as a finalist in the World Challenge sponsored by Newsweek magazine and the British Broadcasting Corp. with the Shell Corp. Coconet was cited for preventing landslides in the Philippines. It serves as a surrogate tree root by holding loose soil together, according to the World Challenge website which announced this year's 12 finalists. The award is given to projects that show enterprise and innovation in the grassroots level. The winner will be awarded $20,000 by Shell.

Dr. Justino Arboleda of Bicol University was cited for pioneering the production of coconut coir geotextile. Arboleda recently received a Global 100 Eco-Tech award at World Expo 2005 in Aichi, Japan. The World Challenge website said 1,500 families were benefiting from the use of coconet which is being produced at the rate of 30,000 sq.m. per month. So far, China is the biggest market for coco fiber, coco peat and other high-end value coconut products.

MARKET PRICES

Ms. Santha finds it difficult to quote market prices, which vary depending on the different grades of coir and the tightness/weight of the weave, etc. Two rules of thumb exist, however, in pricing geotextiles: coir washed in salt water is always valued less than coir washed in fresh water; and the tighter the weave the more expensive the finished product. Given the variability of end product, she estimates that her Sri Lankan suppliers enjoy a 5-10% ROI on most of their products.

According to the 2003 Tennessee Conservation Practices guideline, erosion control blankets and geotextiles ranged from US$1.80-3.00/yd² installed.

COMPONENT (Components Must be Performed in Accordance with the Conservation Practices of Section IV of the NRCS FOTG)		UNIT	TOTAL COST/UNIT
EROSION CONTROL BLANKET			
	Temporary straw, coconut, and wood fiber installed	sq. yd.	$3.00
GEOTEXTILE (installed)		sq. yd.	$1.80

HURDLES TO MARKET ENTRY

According to Ms. Santha, “With time (and patience) there is the potential to enter the market”. To compete successfully in the geotextile industry, suppliers must take the time to develop personal contacts with building contractors, DOT and EPA contractors. The contractors are often geographically limited, and resulting in a large number of customers that order small volumes of product.

Communicating with potential buyers is expensive. Rolanka spends over $120,000 a year in advertising in addition to spending time and resources attending trade shows.

“Trust is the biggest thing.” The buyers rely on solid customer service, constant new product development and quick turn-around of product. Rolanka achieves this by centralizing product research and development in the US, where scientists can communicate directly with end-users. Once a new product is designed, it is patented and sent to suppliers in Sri Lanka. The researchers work with the suppliers to create the prototype and move it to production. After that, the product is shipped as a finished product to the US.

Ms. Santha, who was born and educated in Southeast Asia, states that new suppliers forget that, “The market does not revolve around the supplier. Suppliers cannot be like mushrooms, popping up once and then disappearing.” It is unacceptable for a supplier to produce one or two good quality shipments and then relax their efforts. Shipping poor quality product results in rejected product, which is expensive for everyone.

GEOTEXTILE APPLICATION

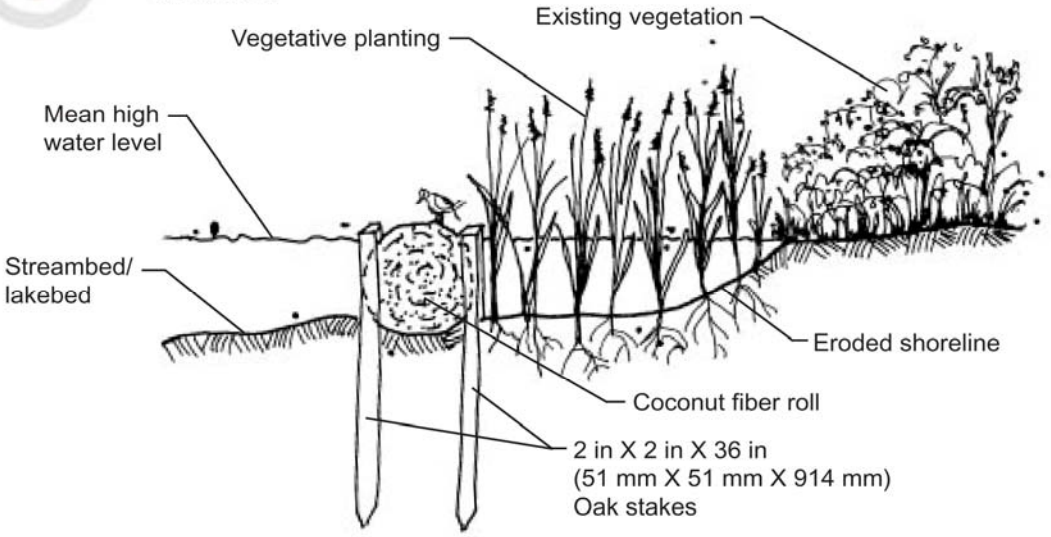
PRIMARY USE: Minimize bank erosion.
ADDITIONAL USES: Sediments are trapped within the fiber roll, encouraging vegetative growth at the water's edge.

COCONUT FIBER ROLL

What is it ? These are cylindrical structures composed of coconut husk fibers bound together with twine woven from coconut. These rolls are most commonly available in 20 ft (6 m) lengths with a 12 in (305 mm)diameter. They are staked in place at the toe of the slope, generally at the stream-forming flow stage.

Purpose

Coconut fiber rolls are used to protect slopes from shallow slides or undermining . Since the rolls are flexible, they mold to the existing curvature of the stream bank requiring little site disturbance.



Coconut Fiber Roll with Emergent Vegetation
Section View

Limitations

They are not appropriate for sites with high velocity flows or large ice build up. Because they are manufactured, coconut-fiber rolls can be expensive and must be ordered well in advance of the anticipated installation date. Manufacturers estimate the product has an effective life of 6 to 10 years.

Materials

Manufactured coconut fiber rolls and dead stout stakes.

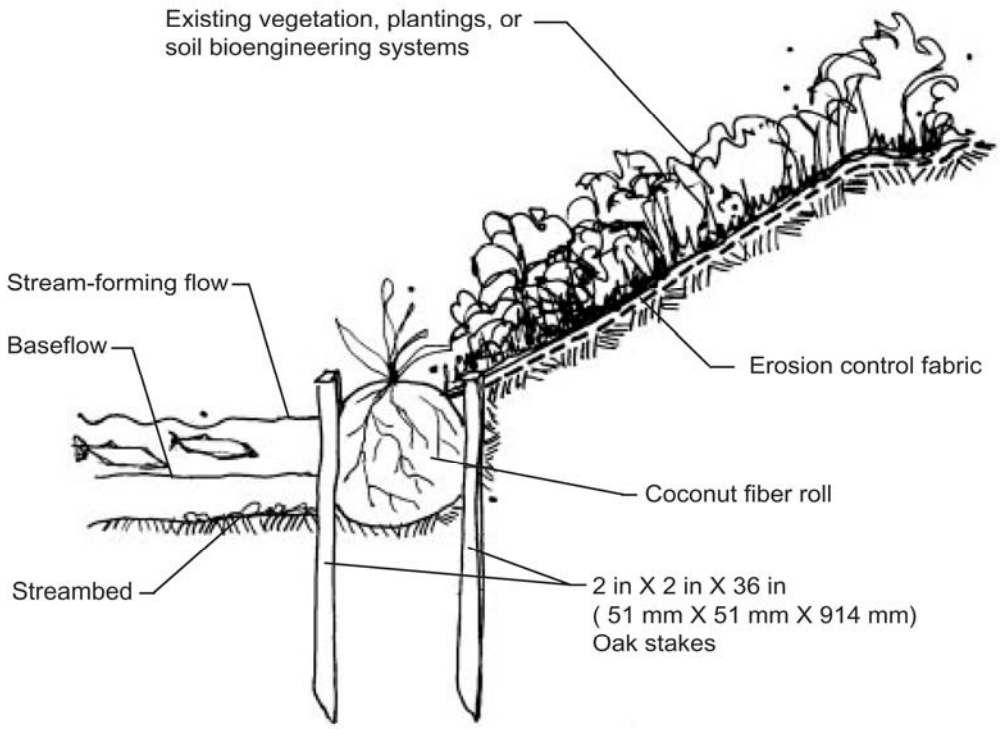
Installation

Coordinate installation of the coconut-fiber rolls with other bank treatments. Excavate a shallow trench at the toe of slope to a depth slightly below channel grade. Place the fiber roll in the trench. Drive 2 in by 2 in by 36 in (51 mm by 51 mm by 914 mm) hardwood stakes on both sides of the roll at 2-4 ft (0.6-1.2 m) spacing. Spacing is dependent upon the anticipated velocities. The top of the stakes should not extend above the fiber roll. Quarter inch (6 mm) rope can be laced across the top of the fiber roll and secured from stake to stake. Backfill with soil behind the roll. If conditions permit, rooted herbaceous plants may be installed in the coconut fiber. Install appropriate vegetation or soil bioengineering systems up-slope from the fiber roll.

Source: Stream Corridor Restotation Handbook, USDA.

COCONUT FIBER ROLL

Additional Drawings:



Coconut Fiber Roll
Section View

Source: Stream Corridor Restoration Handbook, USDA.

EXAMPLES OF COCONUT FIBER PRODUCTS

The following pages depict a sampling of common coconut coir products available in the market today.

- Geotextiles
- Textile/apparel
- Auto
- Consumables: Mats and Brushes

EXAMPLES OF GEOTEXTILES

The following examples of geotextiles using coconut fiber are taken from Rolanka's web site. More information about Rolanka, a recognized industry supplier, can be found at http://www.rolanka.com.

Coconut Roll

RoLanka's BioD-Roll coir rolls are made from densely packed coconut fiber into a 2"x2" outer netting. These strong coir rolls provide initial structural stability for shorelines by resisting wave action and flow velocity. Coir fiber core in BioD-Roll is an excellent medium for plant growth.

Upon installation of coir rolls, desired native plants should be planted on or around coir rolls where plants can get sufficient water. With time, sediment will be deposited around coir rolls creating excellent medium for riparian vegetation. The densely packed coir rolls last over 5 years providing erosion resistance and supporting establishment of sustainable vegetation.

Compacted Block, also available in bricks, disks and bales.

BioD-Medium, coir dust, is a natural, biodegradable by-product from the coconut fiber industry. It is the leftover dust after extraction of fiber from freshwater cured coconut husks. After extraction of fiber, coir dust is stored in open air for 2-3 years before using.

Exposure to natural conditions, rain in particular, weathers coir dust and reduces its salinity and conductivity. Aged coconut dust has properties suitable for promoting plant growth. A 50% increase in root growth has been observed in many plants when they are grown in coir dust mediums. A higher rose production can be achieved using coir dust. BioD-Medium is available in different dry compaction units (8:1, 5:1 and 2:1) and forms. The forms are bricks, blocks, bales and disks.

Coconut Coir Pillow

BioD-Pillow is composed of a 2" thick pad of mattress fiber encased in a BioD-Mat 40 woven blanket. The mattress coir pad holds seeds in place and provides a suitable medium for germinating seeds. RoLanka coir pillow is also an effective sediment trap in waterways.

TEXTILE/APPAREL

Coir Fiber Coco Peat Grow Disks

An organic potting medium made from natural coconut fibers, this medium is ideal for hydroponic and mixed media cultivation. disk expands to over five times its compressed size, or approximately 3 1/2 dry gallons, that will fill 5 six inch pots. Expanding Coir Fiber Coco Peat Grow Disks Pack of 20 for $34.95 at www.**homeharvest**.com.

Coconut Twine

Price for twine and other coconut potpourri products available upon request at www.piercearnold.co.uk. Nursery wholesale does not commonly list prices on public domains.

Coconut fiber Pots

These pots range in size and price. In general, you can buy pots from $4.00 - $6.00 each at many sites, including www.gardenharvestsupply.com

Coconut Fiber Rope

Is manufactured from 100% natural coconut husk fiber. Coconut fiber has high lignin content and low cellulose content, making it strong, resilient, lightweight and durable. Reprocessed with naturally extracted latex, this rope is softer on hands than most other ropes. An excellent organic selection for fastening just about anything. $US60 at www.composters.com

AUTO CAR MATS

Coconut car mats are making a nostalgic comeback with auto aficionados in the EU and US.

UK/EU

Coconut hand made mat, approx 375mm x 225mm, fitted with two brown leather straps long enough to fit a 300mm wide running board.

www.vintagecarparts.co.uk £51.5 each (US$88.20), not including 17.5% VAT tax

US

Cocomats were popular in the 1960s. The mats are custom made in the US from imported coconut material. Cocomats have vinyl edging and a non-slip, ribbed backing, and come in three colors.

Cocomats are custom made and costs vary accordingly. A sampling of costs created this average:

www.autosportcatalog.com
Set of Two $120
Set of Four $140

www.bavauto.com
Set of Four $120

Coco Noir Mats

¾” to 7/8”
Rubber backed

www.seattleluxe.com	23 ½” x 35 ½”	$30	Flat with Monogram	Rectangle
www.seattleluxe.com	23 ½” x 35 ½”	$26	Flat with Monogram	Semi Circle

1” thick

www.lillianvernon.com	18” x 30”	$12-$14	Flat with design	Rectangle

1 ½” thick

OutdoorDecor.com	48”	$49.00	Flat Weave	Rectangle
OutdoorDecor.com	48”	$52.50	Greek Design	Rectangle
OutdoorDecor.com	48”	$42.00	Flat Weave/Design	Semi Circle/Sbt

3” thick

Frontgate.com	24” x 39”	$49.00	Flat Weave	Semi Circle/Sunburst
Frontgate.com	30” x 48”	$69.00	Flat Weave	Semi Circle/Sunburst
Frontgate.com	36” x 72”	$149.00	Flat Weave	Semi Circle/Sunburst

Rubber Backing, Hydraulically pressed

COCONUT BRUSHES

a) Medium texture Sisal Fiber
b) Soft texture Jute Fiber
c) Coarse texture Coconut Fiber
d) Medium texture Sisal Fiber
e) Soft texture Jute Fiber

www.canadadrugsuperstore.com $16.00-25.00 each (Approx. US$14.00-22.00 each)

Body brushes are produced and sold to retailers such as the Canadian Super Store. The brushes are made from natural materials including jute, sisal and coconut fibers.

Jute fibers	soft texture	sensitive skin usage
Sisal fibers	medium-texture	normal skin.
Coconut fibers	coarse texture	callused, dry skin

BUTTONS

The price for buttons varies greatly, from $11-$34 per 100 pieces. Buttons can be sold in small lot quantities on hobby sites and (most successfully) on EBAY. Manufacturers are listed in the Appendix.

Food Grade Coconut

SUMMARY

It is not recommended that East Timor enter the food grade coconut market at this time. The industry, which is prone to wide swings in consumer's preference, is difficult and expensive to participate in. At a minimum, East Timor would be required to:

- Become ISO certified to prove processing and product quality
- Become organic certified in order to differentiate its product from competitors.
- Build a manufacturing facility that would allow for the production of multiple food products, such as desiccated coconut, coconut milk and coconut cream. This allows the manufacturer to adapt quickly to changes in consumer preference, and changes in competitor's manufacturing capability and capacity.
- Incorporate a flexible packaging line that allows nimble changes in consumer packaging preference
- Consistently meet FDA import regulations
- Financial depth that allows for the absorption of costs related to the rejection of finished product. At a minimum this entails costs such as product recall, product storage during FDA audits, and potential law suits regarding food contamination or cross-contamination.
- Ensure consistent product availability, as retailers and food manufacturers are unwilling to incorporate food products into their product mix unless future supply is accessible.

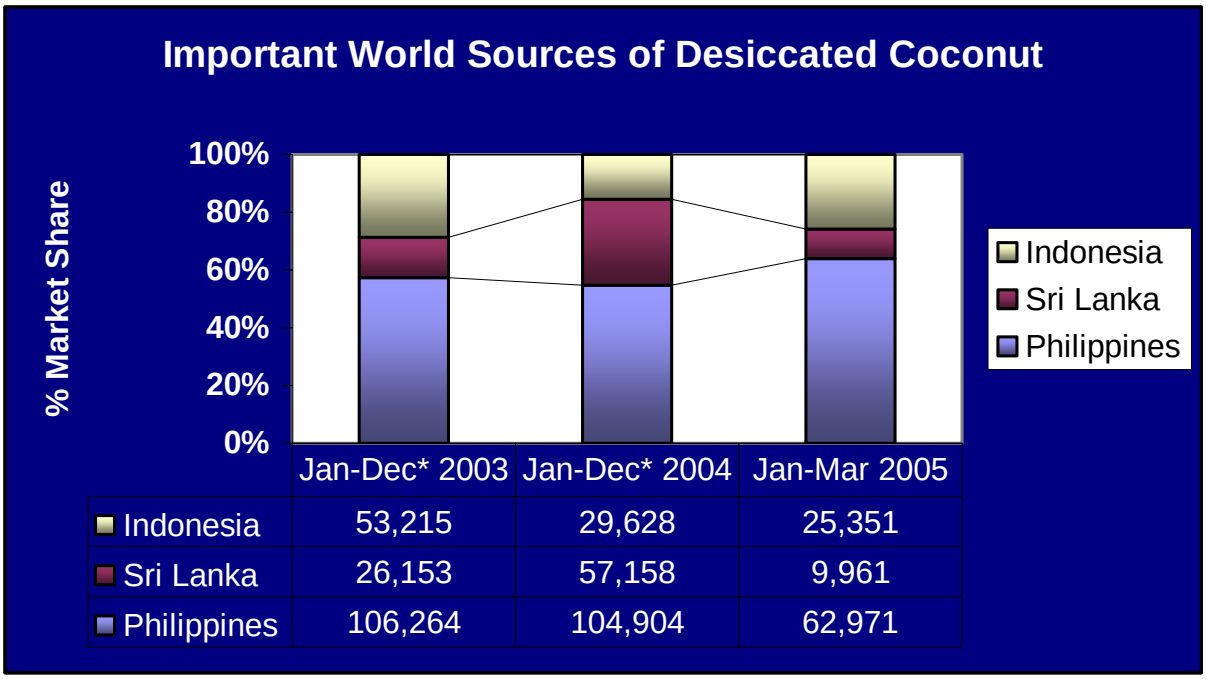
The costs of entering the market, combined with the low market value of the finished good the adherence to good manufacturing practices necessary for food-grade quality make this a market for producers with ample financial resources and previous market experience. It is recommended that East Timor consider food grade production only after it has proven experience consistently meeting sophisticated quality control parameters.

Food Grade Coconut: Desiccated Coconut

SUPPLY

The three most important world wide producers of desiccated coconut are the Philippines, Sri Lanka and Indonesia. World production of the product has been steady over the past two years at approximately 173,000 mt/year. The Philippines has the greatest output potential and supplies the world with over 50% of its annual demand. Sri Lanka product is often sold at a small discount due to favorable freight advantages. When the product is available it often cuts into Indonesian exports.

During the last week of December 2005 medium grade desiccated coconut (non-organic) of fair average quality was quoted at $945/MT C&F Europe (US$0.43/lb.), down by $15/MT from two weeks prior.



	Jan-Dec* 2003	Jan-Dec* 2004	Jan-Mar 2005
Indonesia	53,215	29,628	25,351
Sri Lanka	26,153	57,158	9,961
Philippines	106,264	104,904	62,971

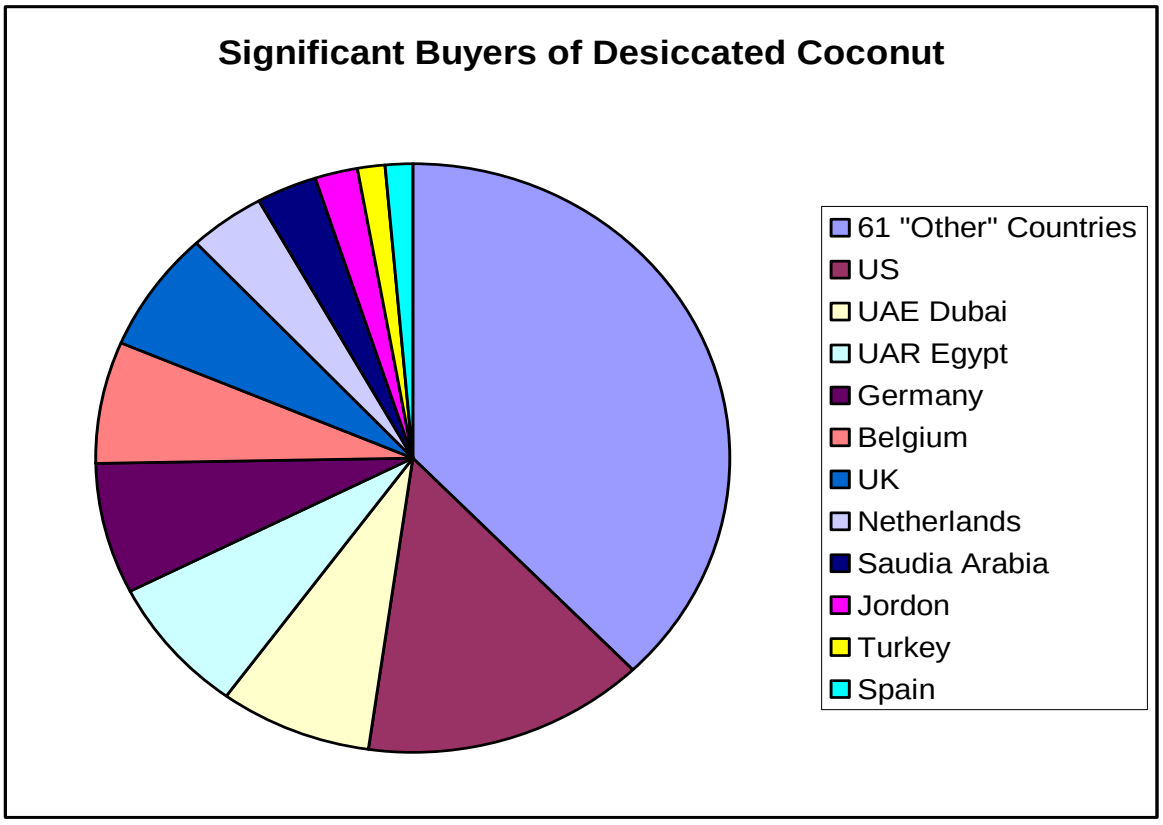
* Source: UCAP data. Figures for December 2003 and 2004 are averaged. All other figures are actual.

Marroquin International Organic Commodity is an importer of organic desiccated coconut, coconut milk and coconut cream. Ms. Camille Nava, Director of Sales and Marketing, quoted the desiccated coconut market for organic medium grade product at $0.70/lb, fob US dock, west coast. While significantly higher that the EU price quote, Ms. Nava stated that her desiccated coconut suppliers in Sri Lanka and the Philippines were able to increase production to meet her demand. In her opinion, the industry at large was not currently seeking new supply options.

DEMAND

In this highly fragmented market, 61 countries exported almost 50% of Sri Lankan and Philippine desiccated coconut in during a one-month period between August - September 2005. The US UAE Dubai and UAR Egypt were the three main importers of desiccated coconut during this period.

The largest "Other" countries include, in descending order: Singapore, Australia, Canada, France, Czechoslovakia, Japan, Sweden, Turkey, Hong Kong, Taiwan, Spain, New Zealand, Korea, Russia, Denmark, South Africa. These countries imported tonnage ranging 102-498 MT during the one month period.



SPECIFICATIONS

Desiccated coconut specifications are both standard and unique. A common desiccated speciation is below. This specification is used for retail products sold by retail grocery chains to individual consumers.

Large food and candy manufactures are known to create their own unique specification, in order to differentiate their end product from their competitors. Buyers such as Kraft (Baker's Coconut Brand), Nestle, General Mills and Kelloggs fall into this group. To supply such a company on a private contract mandates experience and financial dexterity not existent in East Timor today.

Desiccated Coconut- Standard Specifications

Physical Standards	
Colour	Natural white, free from yellow specs and other discolouration and extraneous matter.
Appearance	Free from insect infestation, foreign bodies
Flavour	Fresh and sweet characteristics of coconut with no off-flavour or odour.

Chemical Standards	
Free Fatty Acid (Lauric Acid)	0.3% maximum
Moisture	3.0% maximum
Sugar	4%
Total Fat content	67% + - 5%

Microbiological Standards	
Coliform Count per gram	100 maximum
Escherichia Coli per gram	Negative
Standard Plate Count per gram	10,000 maximum
Salmonella in 25 gram	Negative
Staphcoagulase Positive	Negative
Yeasts and Molds per gram	100 maximum

Shelf Life and Storage

For longer shelf Life D.C has to be stored under appropriate storage conditions.

- At least 1 meter away from the walls
- Stacking should be on wooden platforms and stacks should not exceed 10 bags high
- Any other merchandise should not be stored along with Desiccated Coconut
- Store should be clean and tidy
- Away from direct sun light or heat
- Should be stored in originally vacuum sealed bags

GRADES AND USAGE

Typical Grades and cuts of desiccated coconut are listed in the flowing table, along with the typical usage of each.

Grade	Cut	Usage	Analysis
Fine Grade-Unsweetened and High Fat	Fine Granular Cut	Used as main ingredients for cake and biscuits toppings.	Sieve analysis: a) 100% passes through B.S. Mesh No.10 b) B) not more than 15% remains on B.S. Mesh No.12
Medium Grade	Granular Cut	Used as fillers for candy bars and toppings for cakes and pastries	Sieve analysis: a) 100% passes through B.S. Mesh No.6 b) not more than 15% remains on B.S. Mesh No.8 c) not more than 15% remains on B.S. Mesh No.12 d) not more than 2.5% remains on B.S. Mesh No.16
Thread Grade	Flat Strips	Unsweetened and high Fat – Used for bakery topping and decorations	Thickness: Should be 0.018 to 0.022 inches Length: 90% should be 1.5 inches or shorter.
Chips Grade-Unsweetened and High Fat	Wide Thin Chips	Used as specialty confestionary such as coconut brittle, Peco flakes & haystacks.	Thickness: Should be 0.028 to 0.040 inches Length: 90% should be 1.5 inches or shorter.

Food Grade Coconut: Coconut Milk

SUMMARY

The US coconut cream market is approximately US$1.30/lb FOB dock west coast. While buyers are not interested in finding new sources for coconut cream, coconut milk is another issue.

Industrial volumes of coconut milk have not been available in the US market for the past three years. Sri Lanka, the largest producer of coconut milk, was severely affected by the tsunami and ensuing droughts. Brazil and the Philippines have now stepped up their production.

Unfortunately, nobody is willing to quote an industrial market price without a guarantee of consistent supply. On-line, individual 14-oz cans of coconut milk sell for US$1.78/can, with organic coconut milk at US$2.15/can[1]. These prices do not represent the industrial market price, since the transaction costs associated with these prices and charged to the seller can be as high as 50-60%.

It is difficult to supply coconut milk to the market for several reasons. Ocean freight is an issues, as the product is predominately water. And it is unprofitable to ship water globally, state ocean freight carriers.

In addition, coconut milk tends to separate in transit. NOP certified guar gum can be added to reduce the tendency of separation. Reconstituting the product once it is imported is another additional cost making which can make the product cost prohibitive at the retail shelf.

The coconut milk industry is starting to shift towards semi-condensed coconut milk and coconut cream as theses products have a lower water contents and have fewer problems separating in-transit.

Buyers were asked if East Timor should consider entering the coconut milk market. Even though there is a shortage of coconut milk, Ms. Nava was reluctant to encourage investment in the coconut milk industry. "Nothing is constant in the food industry", she stated. Production capacity can change overnight, consumer demand can swing quickly, and prices are volatile. In general, Ms. Nava and other buyers indicated that the market for coconut milk today, which is short, can easily turn into an oversaturated market by the end of the year, making it difficult to encourage for long term international development purposes.

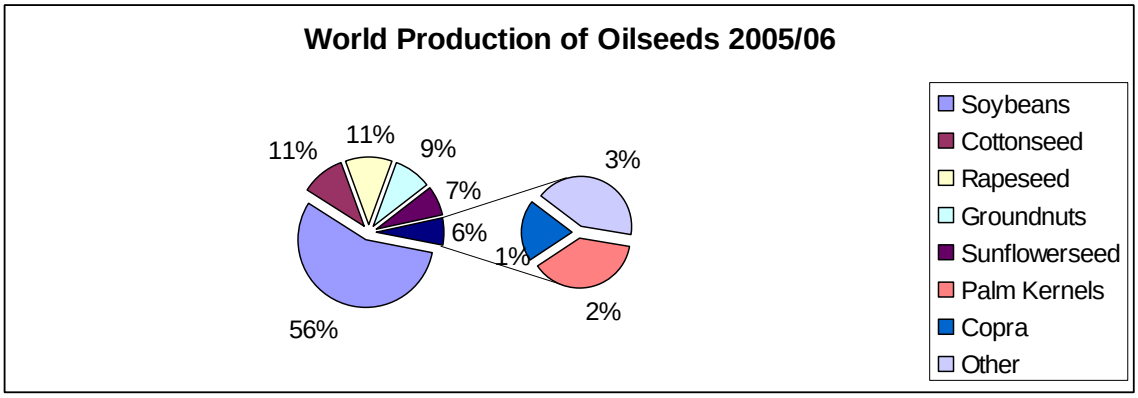
[1] These prices should be considered generous, as the on-line services to sell such product run at US$0.99 per transaction plus 10% of the product cost. In order to sell a single can of milk at US$2.15, the web host (in this case Amazon) charges a fee of US$1.21, or 56% of the sales price. This fee is usually less than 56% of the total sales price, since most orders are for more than one can of milk at a time. This distributes the US$0.99 transaction fee more equitably across more products.

Coconut Copra

SUMMARY

Worldwide production of copra in 2005 was 5.4 million metric tons. At just over 1% of the world wide production of oilseeds, copra production is relatively insignificant. Small production prevents copra from successfully competing in many oilseed markets, as global supply chains value:

- Consistent supply of large volumes
- Globally competitive commodity and transportation costs
- Consistent adherence to quality standards



FAO Food Outlook No.4, December 2005

The demand and price for world oilseeds in 2006 depends on two factors: the demand development in China and the United States as wells as the crop prospects for South America. In December 2005 the market held a favorable outlook for the crop prospects of South America, with prices expected to remain flat for the first half of 2006.

Copra is an undifferentiated commodity, and market participants assume a "price taker" role. To successfully participate in the oilseeds market, East Timor must overcome its greatest barriers to market by:

- finding niche destinations for copra that utilize current Asian-Pacific ocean freight trade routes in order to counteract East Timor's disadvantageous geographic location,
- creating direct relationships with oil seed crushers and eliminate the need for intermediary traders,
- consolidating its exportable quantities in order to leverage the volume for lower shipping expenses and better selling prices
- crushing the copra domestically and sell/consume the resultant value-added product in order to avoid participation in a market with high price volatility.

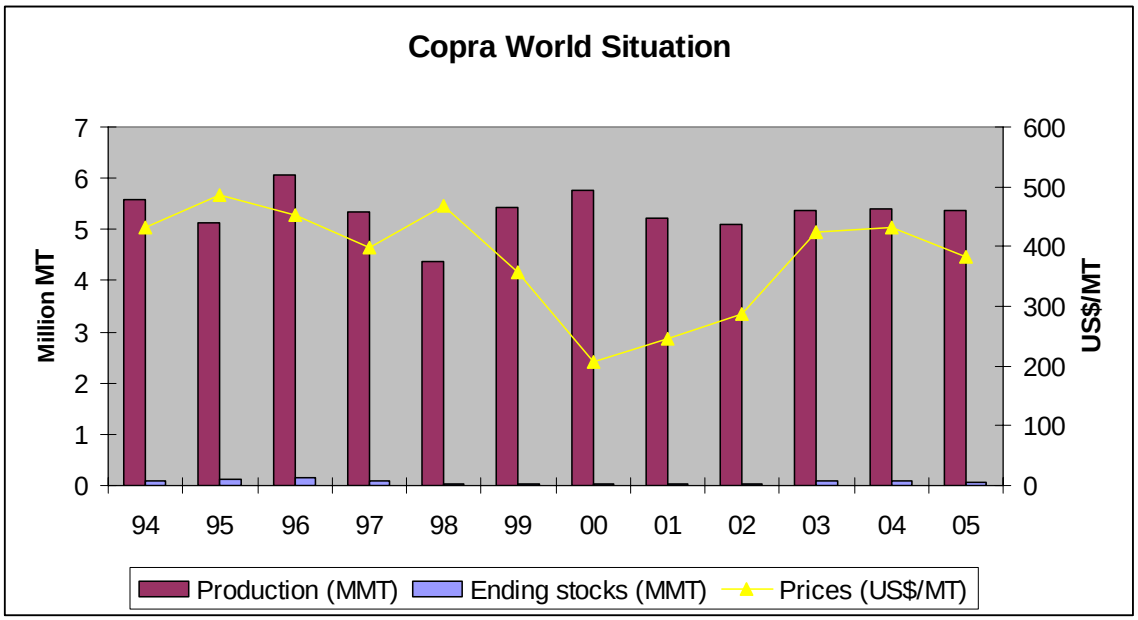
Export of copra to the US or the EU is ill-advised.

SUPPLY

Copra is crushed into oil, creating copra meal as a by-product. World production of copra has remained relatively stable at approximately 5.4 million mt since 1994/95, and is expected to remain stable in 2006. Production will remain constant until significant investment is made to increase the number of trees bearing fruit, or natural disaster destroys a significant portion of the tree stock.

Copra has a rather inelastic supply, which is common for most tree crops. These markets demand large initial capital investment that then creates a return for numerous years afterwards. The inelastic supply is apparent, as price swings and crop carry-over as measured by ending inventory statistics have little effect on production.

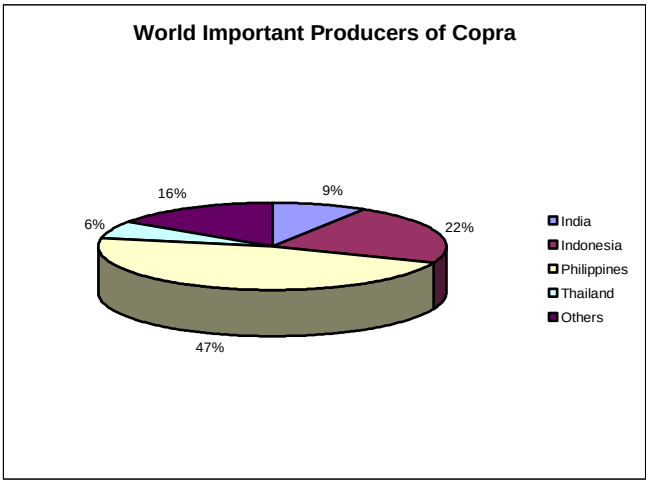
As a result the slight increase in ending stock inventory from 1% in 2000 to 1.3% in 2005 is still considered inconsequential and not expected to effect pricing.



Oil World Statistics Update and FAS Oilseed circulars December 2005, June 2001 & May 1999
Calendar Year start on October 1
Prices are Rotterdam CIF

Important Producers of Copra
The Philippines, Indonesia and India produce over 78% of the world's copra. Most copra does not enter the world market as it is locally crushed into coconut oil.

According to the Foreign Agricultural Service (FAS), only 100,000-160,000 mt per year was exported between 2000 and 2005. This is supported by the fact that the Philippines domestically crushed 98% of its copra in 2003 and Thailand crushed 94% of its 2000 copra crop. *(Sources: GAIN Report #RP3005, Department of Business Economics with cooperation of the customs department, Thailand, FAS Circular Report December 2005).*



Oil World Statistics Update

DEMAND

Copra benefits from a tight supply of (non-copra) global oilseeds, such as soybeans. The tight supply results in an increased price, which causes buyers to search for cheaper alternative oil substitutes. A tight global supply of oilseeds in general benefits copra, as copra becomes more cost effective to use in a greater range of products.

The demand and price for world oilseeds in 2006 depends on two factors: the demand development in China and the United States as wells as the crop prospects for South America. In December 2005 the market held a favorable outlook for the crop prospects of South America, with prices expected to remain flat for the first half of 2006. UCAP mirrors this forecast, predicting copra demand to remain flat at US$384/mt to slightly softer in 2006.

World Copra Production and Prices

	94	95	96	97	98	99	00	01	02	03	04	05
Production (MMT)	5.58	5.14	6.05	5.33	4.38	5.44	5.77	5.21	5.11	5.37	5.39	5.38
Ending stocks (MMT)	0.08	0.11	0.16	0.09	0.04	0.04	0.03	0.03	0.04	0.08	0.08	0.07
Prices (US$/MT)	432	487	452	398	468	357	208	245	287	424	431	384

Oil World Statistics Update and FAS Oilseed circulars December 2005, June 2001 & May 1999
Calendar Year starts on October 1
Prices are Rotterdam CIF

Malaysia, Indonesia, Taiwan and Pakistan have been historically important copra export markets with Myanmar, India, Laos, the Netherlands, Bangladesh, Nepal, and

Kampuchea sporadically entering the market. Copra exports from self-declared data sources indicate that Thailand exported approximately 22,000 metric tons of copra in the first half of 2000. Sri Lanka exported 7,900 tons January-August of 2004 and 9,300 tons in the same time period in 2005. (Note: data not validated.)

The very small volume of exported copra combined with the fact that it is predominantly consumed in Southeast Asia eliminates it from consideration for export to the US and EU. This is supported by the coconut oil report, which indicates that refiners are organized to refine coconut oil and not coconut copra. Export to the US and EU should not be considered.

Comment: Price Volatility

In nontransparent markets, price volatility is occasionally used to predict upper and lower price ranges for commodities. Mark-to-Market volatility measures price risk associated with a given commodity. The higher the risk, the greater potential for price swings. A high mark-to-market risk volatility is difficult for owners and investors, who must be financially prepared to weather broad price swings in the market.

Copra has a large mark-to-market risk volatility valued at US$1.3 billion in 2005. Mark-to market risk volatility is measured by multiplying the crop production quantity times the difference between the top and the bottom of its market price over a period of time, usually ten years or more.

Mark-to-market risk volatility in 2005
5.38MMT * (US$487-US$208) = US$1.3 billion

This equates to US$242/mt, an amazingly high value for a commodity with an average value of US$381/mt and a current market value (12/2005) of US$384/mt. Using last year price of US$381/mt, the mark-to-market risk analysis predicts that copra will trade in a price range of US$260 to US$502. A range that encompasses copra's historic price trend, and that is too broad to use with confidence.

APPENDIX

Links

Biodiesel Association of Australia	www.biodiesel.org.au
Australian Biodiesel Standards	www.deh.gov.au/atmosphere/biodiesel/index.html
Biodiesel Production Equipment	www.biodieselgear.com
Biofuel Literature	www.journeytoforever.org/biofuel_library.html
SOPAC work on Biofuel	www.sopac.org
Biodiesel Handling and Use Guidelines, US Department of Energy	www.nrel.gov
Canadian Renewable Fuels Assoc.	www.greenfuels.org/biodiesel/world.htm
Apparel Information	www.apparelsearch.com
NSF Certification	http://www.nsf.org/international/about_en.asp
Medline Plus	www.nlm.nih.gov/medlineplus/druginfo
Energy and Resource Institute (of India)	http://www.eco-web.com/register/01068.html

Market Research Firms

These companies sell market research and are respected by the industry experts as having the most objective data. They tend to research industries with large markets.

Freedonia Group	http://freedonia.ecnext.com/coms2/summary_0285-22550_ITM
Roskill	http://www.roskill.com/reports/activated
Hoover's	http://www.hoovers.com/global/report/detail.xhtml?RID=1749

B2B Web Sites

Distributors often search B2B web sites to find new sources of hard-to-find products, such as coconut by –products. The following three web sites are a sampling of such B2B web sites.

http://importer.alibaba.com
http://www.business.com/directory/food_and_beverage/distributors_and_wholesalers/importers_and_exporters/
http://sourcetool.resultspage.com/search?w=coconut+milk&p=Q&ts=custom

In addition, countries such as Sri Lanka and India have established country specific web sties that feature domestic production ready for export.

http://www.srilanka.com/exports/exportscategory/EX00024
http://www.srilankabusiness.com/trade_info/srilankaproduct/coconut.htm
http://dir.indiamart.com/indianexporters/ag_spice.html
www.ecplaza.net

Product Identifiers: UPC Codes

Certain traders and end users require standard product identifiers. More information on how to obtain an ISBN or UPC is at the following Web sites:

http://www.isbn.org/
http://www.uc-council.org/

Trade Fairs and Expos of Interest

Biofuel

Biofuelsmarkets™ Asia
"Creating Sustainable and Competitive Biofuels Markets"
5-6 June 2006, Marriott Hotel, Bangkok,Thailand
www.greenpowerconferences.com/events/documents/BiofuelsAsiaBrochure_009.pdf

Bational Biodiesel Conference & Expo 2006
SanDiego convention Center
February 5-8, 2006
San Diego, CA
http://www.biodieselconference.org/2006/conference/schedule.asp

Eastern Biofuels Conference & Expo II
May 30- June 1, 2006
Budapest, Hungary
http://www.easternbiofuels.com/pagedetail.cfm?iConferencesConferencesNavigationID=22

Geotextile

8TH International Conference on Geosythetics
12-22 September 2006, Yokohama, Japan

This conference has been organized by the Japan Chapter of the International Geosynthetics Society (JC-IGS) under the auspices of the International Geosynthetics Society (IGS) and with the support of the ISSMGE. The aims of the conference are to offer:

- an exceptional opportunity for exchanges between specialists and non-specialists as well as between experts in the various disciplines related to geosynthetics (geotechnical engineering, environmental engineering, civil engineering, hydraulics, geology, etc.); and
- perspectives and overview of technical innovations, by giving the widest possible forum to engineers and researchers and by welcoming papers devoted to new techniques and applications.
- The conference will be conducted at a high scientific and technical level and, at the same time, will present practical information to match the expectations of all participants.

All aspects of the use of geosynthetics will be dealt with, drawing on experience gained from case histories as well as research and development into new products and uses: design concepts, dimensional design, specifications, constructional provisions,

construction of structures, inspection, long-term behavior, assessment of product impact(s) on the environment, standardization, certification, etc.

Contact:
8ICG-Yokohama 2006
Tel.: +81-(0)3-3837-2503
Fax: +81-(0)3-3837-5818
E-mail: info@8icg-yokohama.org
Website: www.8icg-yokohama.org

Coconut Shell Activated Charcoal

AHR EXPO International Air-Conditioning Heating and Refrigeration Exposition
January 23-25, 2006
McCormick Place
North & south Halls
Chicago, IL
http://www.ahrexpo.com/

Acrex 2006 India – International Exposition on Air-conditioning Refrigeration and Building Services
Pragati Maidan, New Delhi, India
February 18-21, 2006
http://www.acrex.org.in/

IKK 2006 Internatnational Trade Fair for Refrigeration, Air-conditioning and Ventilation
Nurnberg, Germany
October 18-20, 2006
http://www.ikk-online.com/main/d3zq6el6/page.html

Desiccated Coconut, Coconut Milk and Coconut Cream

Same Recommendations as Coconut Oil

Organic Trade Association (OTA) May 2005, Chicago IL

OTA is the membership-based business association for the organic industry in North America. OTA's mission is to encourage global sustainability through promoting and protecting the growth of diverse organic trade.

OTA draws together all segments of the organic industry to share information, create standards of excellence and promote organic products. A list of their Events can be found at www.ota.com

IFE 2005 BIENNIAL
Mar 13-16, 2005 – London, England
IFE is the UK's number one food and drink exhibition and one of the top food events in the world. It is a serious business to business event attracting the major players from the retail, catering, wholesale and manufacturing industries. The 13th edition attracted 1,350 exhibitors from the UK and overseas and nearly 24,000 visitors from 102 countries. IFE boasts the largest international participation of any food and drink show in the UK, with pavilions from 43 countries exhibiting. For more information, please visit www.ife.co.uk/page.cfm.

NATURAL PRODUCTS EUROPE ANNUAL
April 17-18, 2005 – London, England
Come check out the UK's largest and most respected trade show for the natural and organic products industry. Last year proved to be a success with nearly 500 exhibitors attending from over 50 countries. For more information please visit www.naturalproducts.co.uk.

BIOFACH 2006 ANNUAL
February 2006 – Nuremburg, Germany
Participate in the largest and most important trade show for the international organic and natural products market! The resounding success of 1,900 exhibitors and 29,500 trade visitors at last year's event has definitely set the momentum for extraordinary exhibits in the future. It is expected that Agriculture and Agri-Food Canada and the Canadian Consulate in Düsseldorf will organize and manage the Canadian presence at BioFach 2006. Information can be found at www.biofach.de/main/d3zq3jg8/page.html

FOOD INGREDIENTS EUROPE
30th October – 1st November 2007 at Excel London, UK

FI-Europe is now in its 17th year and is Europe's largest gathering of ingredients suppliers, food producers and manufacturers. Over 1,100 leading food ingredient suppliers the very finest products and services to a record audience of visitors, representing a phenomenal 15% increase on the previous show. Visit the website at www.fi-events.com

INSTITUTE OF FOOD TECHNOLOGY
Institute of Food Technologists
525 W. Van Buren St. Suite 1000
Chicago, IL 60607
800-438-3663; 312-782-8424
Fax: 312-782-0045
website: www.ift.org

The IFT FOOD EXPO® is the forum for Food Product Development, R&D, Quality Assurance, and other food industry decision makers to evaluate new products, applications and technologies. The IFT FOOD EXPO®:
Provides you with opportunities to reach new prospects
Enables you to demonstrate equipment that can't be taken on sales calls
Helps you increase awareness of your company's products, services and expertise, while strengthening customer relationships.
Industry growth will come from the **creation** of new and improved products and **increased exports** of value-added foods and beverages. The IFT FOOD EXPO offers you the opportunity to capitalize on both trends.
The Healthy Food Ingredients Pavilion: Features emerging nutraceuticals, functional foods and organic products.

NATURAL PRODUCTS EXPO WEST ANNUAL
March 17-20, 2005 – Anaheim, California

This is the largest natural products tradeshow in the world -- bringing over 35,000 attendees and approximately 2,500 exhibiting companies. Attendees include thousands of natural and organic retail buyers ranging from independent co-ops, to Whole Foods, Wild Oats, and now larger retailers such as Walmart, Costco, and Target. It also includes an educational conference, Nutracon. Registration to Nutracon includes free admission to NPE West. For more information: www.expowest.com.

WINTER FANCY FOOD AND CONFECTIONARY SHOW ANNUAL
January 22-24, 2006 – San Francisco, California
Recent Fancy Food Shows have attracted from 19,000 to 32,000 attendees from specialty food, gift and department stores, supermarkets, restaurants, mail-order and other related businesses. These attendees come to see over a thousand exhibitors from around the world, presenting over 50,000 specialty foods to discover and sample. Business booms at these trade-only shows, in a unique decision-maker to decision-maker environment. An impressive 87% of attendees either authorize or recommend purchasing decisions! For further information call (212) 482-6440, ext 119 or visit www.specialtyfood.com/do/fancyFoodShow/LocationsAndDates.

Fi ASIA ANNUAL
Bankgkok, 2006

If you want to put your food ingredients on the menu throughout South East Asia, Fi Asia 2005 is the place to be. Doing business face-to-face is most effective, especially in a region where personal contact is highly valued. Hosted by the exciting new location of Kuala Lumpur in Malaysia, it will allow you to show your products to their best advantage – and to thousands of high-quality business prospects. Fi Asia 2006 is a truly international food ingredients show that covers the entire region, so do not miss the chance to be there. For more information visit the Web site at asia2006.fi-events.com

FIC 2006

Food Ingredients China 2006

Venue: Shanghai Everbright Convention and Exhibition Centre (SECEC), Shanghai, China. Address: No. 88, Caobao Road, Xuhui District, Shanghai, China
Show Dates: March 1-3, 2006
Website www.chinafoodadditives.com

FIC is the most efficient way to make contact with existing customers, launch new products, meet new buyers, evaluate trends and discover what's new in food ingredients production and application technology. Thousands of buyers from all over the world are expected to come to FIC because they know that it is the single most cost and time-effective way to source and compare food ingredients products. With more than 800 exhibitors in more than 1,700 booths, FIC is an annual must for food ingredients and additives professionals around the globe.

CONTACTS

The contacts in red expresses a willingness to communicate with East Timor in the future.

Biodiesel

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(402) 397-2522
marcw@eomllc.com

MN Energy (Farmer Owned Cooperative: Ethanol Facility)
Mr. Randy Hahn
General Manager
777 West Borden Avenue,
Buffalo Lake, MN 55314
(320) 833-5321 ex 248

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http://www.rolanka.com
770-506-8211

Desiccated Coconut, Coconut Milk and Coconut Cream

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www.marroquin-organics.com

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Philippine coconut food distributor
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Distributor for Fiesta Brands, UK
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AsianFoodGrocer.com
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San Francisco, CA 94080, US
www.asianfoodgrocer.com
Toll Free: 1-888-482-2742
Tel: (650) 873-7600 ext 107
Fax: (650) 871-9154
info@asianfoodgrocer.com

Global Experts in Specialty Foods
American Roland Food Corp.
71 West 23rd Street
New York, NY 10010
(800) 221-4030
(212) 741-8290

www.rolandfood.com/products/

Coconut Shell Activated Carbon (CSAC)
Activated Charcoal Carbon and AAA Aircare Systems
Ms. Sara St. John
Owner
www.activated-charcoal-carbon.com
1-800-735-7263

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Kenneth Schaeffer
President
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J.B. Carbon Activators
Mr. Richard Mumford
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Email: bob@cglcarbon.com
www.Cameron.Great.Lakes.com

Coconut Lump Charcoal
Kamado Coconut Lump Charcoal

2200 Rice Avenue
Sacramento, CA 95691
1-888-526-2367
www.kamado.com
sales@kamado.com

Coconut Misc.

Brushes
Merben International Inc.
HEAD OFFICE AND DISTRIBUTION CENTRE
3520 pharmacy avenue, unit 7
toronto, Ontario
Canada m1w 2t8
t 416.492.7754
f 416.492.6742
e-mail info@merben.com
1.866.463.7236

Buttons
Aero Enterprises
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Fax+(91)-(11)-23671063
Email : aeroent@ndb.vsnl.net.in

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Imports coconuts and manufacturers buttons to order
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Tel: 852-2393-1919, Fax: 852-2397-8599
email: sales@winnerbutton.com
Website: www.winnerbutton.com

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www.piercearnold.co.uk
sales@piercearnold.co.uk

DIRECTORY OF ACTIVATED CARBON IMPORTERS

Canada
Action Carbon-Chem Inc. - ON, CANADA - - Pellets, granular and powdered activated carbon

China
Bengbu Ocean Activated Carbon Factory - P. R. CHINA - - Impregnated and High Activated Carbon
Datong Huibao Active Carbon Co.,Ltd. - CHINA - - All kinds of Activated carbon
Fujian Snowblack Activated Carbon Co., Ltd - CHINA - Granular, Pellet, and Powdered Activated Carbon
Huanian Activated Carbon Factory - P R CHINA - Granulated Activated Carbon
Mindong Lianyi Group - CHINA -
Jilin Activated Carbon Factory - CHINA - - Granular, Pellet, and Powdered Activated Carbon
Shaanxi New Times (Group) Co. - CHINA - - 80 types of Granular Activated Carbon
Sino-Canadian Liyang Zhuxi Activated Carbon Co. Ltd. - CHINA - - Nut Shell and Coal Activated Carbon
ZUOYUN HONGTAI Environmental Protection Material - CHINA

EU
Chemviron Carbon - BELGIUM - - Coal Based Agglomerated Activated Carbon
Dryden Aqua - UK - - Activated Carbon
Waterlink Sutcliffe Carbons - UK -

India
Active Carbon India Limited - INDIA - - Coconut Shell Activated Carbon
Indo German Carbons Limited - INDIA - - Granulated Coconut Activated Carbon

Malaysia
KD Technology Sdn Bhd - MALAYSIA - Activated Carbon

Taiwan
China Activated Carbon Ind. Ltd. - TAIWAN - - Coconut Shell and Wood Activated Carbon

US
ARCE Systems, Inc. - MA - - Granular Activated Carbon and Remediation Equipment
Calgon Carbon Corporation - PA - - Granular, Powdered, Catalytic, and Impregnated Activated Carbon
Cameron Great Lakes, Inc. - OR - - - Over 20 Types of Activated Carbons and Other Zeolites
Carbochem, Inc. - PA - - - Pellets, Granular, and Powdered Activated Carbon

Carbon Activated Corp. - CA - - Granular, Pelletized and Powdered Activated Carbon
CPL Carbon Link Corporation - OH - - Quality Coal and Coconut Shell Activated Carbons
General Carbon Corp. - NJ - - - Pelletized and Granulated Activated Carbon
George L. Throop Company - CA - - Granular Activated Carbon
Norit Activated Carbon - TX - - - Hydrodarco Lignite Powdered Activated Carbon
TIGG Corporation - USA - - 60 standard products, coal, coconut, impregnated
Winfield Industries, Inc. - CO - - Bituminous, Anthracite and Lignite Coal Activated Carbon
USFilter Westates Carbon - CA - - Aquacarb Virgin Activated Carbon

BIODIESEL STANDARDS:

A comparison of the current world standards

		Austria	Czech Republic	France	Germany	Italy	Sweden	USA
Standard/ Specification		ON C1191	CSN 65 6507	Journal Officiel	DIN E 51606	UNI 10635	SS 155436	ASTM PS121-99
Date		1-Jul-97	Sep-98	14-Sep-97	Sep-97	21-Apr-97	27-Nov-96	Jul-99
Application		FAME	RME	VOME	FAME	VOME	VOME	FAMAE
Density 15°C	g/cm3	0.85-0.89	0.87-0.89	0.87-0.90	0.875-0.90	0.86-0.90	0.87-0.90	-
Viscosity 40°C	mm2/s	3.5-5.0	3.5-5.0	3.5-5.0	3.5-5.0	3.5-5.0	3.5-5.0	1.9-6.0
Distillation 95%	C	-	-	< 360	-	< 360	-	-
Flashpoint	C	> 100	> 110	> 100	> 110	> 100	> 100	> 100
CFPP	C	0/-15	-5	-	0/-10/-20	-	-5	-
Pourpoint	C	-	-	< -10	-	< 0/< -15	-	-
Sulfur	% mass	< 0.02	< 0.02	-	< 0.01	< 0.01	< 0.001	< 0.05
CCR 100%	% mass	< 0.05	< 0.05		< 0.05			< 0.05
10% dist.resid.	% mass			< 0.3		< 0.5	-	
Sulfated ash	% mass	< 0.02	< 0.02	-	< 0.03	-	-	< 0.02
(Oxid) Ash	% mass	-	-	-	-	< 0.01	< 0.01	-
Water	mg/kg	-	< 500	< 200	< 300	< 700	< 300	< 0.05%
Total contam.	mg/kg	-	< 24	-	< 20	-	< 20	-
Cu-Corros. 3h/50°C		-	1	-	1	-	-	< No.3
Cetane No.	-	> 49	> 48	> 49	> 49	-	>48	>40
Neutral. No.	mgKOH/g	< 0.8	< 0.5	< 0.5	< 0.5	< 0.5	< 0.6	< 0.8
Methanol	% mass	< 0.20	-	< 0.1	< 0.3	< 0.2	< 0.2	-
Ester content	% mass	-	-	> 96.5	-	> 98	> 98	-
Monoglycides	% mass	-	-	< 0.8	< 0.8	< 0.8	< 0.8	-
Diglyceride	% mass	-	-	< 0.2	< 0.4	< 0.2	< 0.1	-
Triglyceride	% mass	-	-	< 0.2	< 0.4	< 0.1	< 0.1	-
Free glycerol	% mass	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02
Total glycerol	% mass	< 0.24	< 0.24	< 0.25	< 0.25	-	-	< 0.24
Iodine No.		< 120	-	< 115	< 115	-	< 125	-
C18:3 and high. unsat. acids	% mass	< 15	-	-	-	-	-	-
Phosphor	mg/kg	< 20	< 20	< 10	< 10	< 10	< 10	-
Alcaline met. (Na, K)	mg/kg	-	< 10	< 5	< 5	-	< 10	-

RME.....Rapeseed oil Methyl Ester
FAME.....Fatty Acid Methyl Ester
VOME.....Vegetable Oil Methyl Ester

>.....Greater than
<.....Less than

All standards information courtesy of BLT Wieselburg Austria.

STANDARD INDUSTRY STANDARD SPECIFICATION FOR WATER FILTER APPLICATION

CAMERON GREAT LAKES, INC.
MOLECULAR FILTRATION SPECIALISTS

CGL/CCS

DESCRIPTION:	**Coconut shell activated carbon** with a well developed pore structure, providing a wide range of molecular adsorption. Media is available in various mesh sizes.
APPLICATIONS:	**Controls a wide range of molecular weights** making it ideally suited for all general commercial and industrial air filtration applications requiring chemical filtration.

PHYSICAL PROPERTIES

Activity for CCL_4, (ASTM D3467-94)	60 - 65%
Bulk Density, Typical	29 LBS/ CU FT
Moisture content, As Packed	2%
Ball Pan Hardness, (ASTM D3802-79)	98, Minimum
Iodine Number, MG/G (ASTM 4607-94)	1150, Minimum
Ash Content, Maximum	3%

PACKAGING OPTIONS:
50 pound bags
200 pound fiber drums
1,000 pound super sacks

Mid-West Office
741 Hicks Drive
Elburn, IL 60119

Corporate Office
2335 NW 29th Ave. Portland, OR 97210
Phone: (800) 777-4044 Fax: (503) 225-0137

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166 Sandybrooke Dr.
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"CONVERTING TRASH TO CASH"
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Justino Arboleda

Engineer Justino Arboleda is this month's feature for Global Pinoy of the Month. His "Coconet" is among the twelve finalists for this year's "World Challenge." "World Challenge" is a company based in United Kingdom. The company has an ongoing contest aired in British Broadcasting Corporation and featured Newsweek.

This year's competition is participated in by individuals or groups of individuals from around the world with projects that make a difference in their communities. The competition and the projects that were accepted are intended to inspire others who have the ability to make a difference.

Engineer Arboleda has a degree in Agricultural Engineering and a Masters Degree in Agricultural Engineering from Tokyo University. His educational attainment may be a surefire formula to success – he knew the key to his province's progress – finding other commercially viable uses for coconut, its principal product. But lack of funds and support from the government has put him on the verge of collapse.

Sad Truth

When he was still the dean of Bicol University College of Agriculture, he tried to persuade the government and financing agencies to fund a cooperative to carry out a program that aims to reduce poverty in Bicol. His tool was the "Coconet" project, but sadly, banks and local government agencies that should have helped him found the venture too risky.

Optimism

Just when he was about to exhale his last breath of optimism and confidence, the Canadian government, which funded his initial research, agreed to his joint venture proposal.

With 500,000 pesos on hand, he set up his own company named Juboken Enterprises. He took a leave of absence from the university and focused more on a project that will generate collective growth. For one, 70 percent of Bicol's arable land is devoted to coconuts, and although the coconut may be considered as the tree of life, Bicol is still among the country's poorest provinces.

With the sum of money, he bought a truck and made his own decorting machine – a gadget used to extract fiber from the husk.

The Birth of Coconet

Arboleda's research led him to focus on coconut husk, 12 to 13 billion pieces of which are turned out by the country each year but are mostly justified rot or burned as waste. Unknown to many, the products boast a wide range of commercial uses, from preventing soil erosion to helping plants grow lush.

Soon he was producing erosion control nets. He first sold his nets to clients in Japan and Germany. Later, developers like Ayala Land, Fil-Estate, Metro Pacific, and the Jaka group took notice.

His first government project, contracted with the Philippine National Oil Corp. in 1998, involved a six-hectare slope that was on the verge of collapsing over a geothermal plant in Leyte. An American company bid 20 million pesos for the project, but Juboken, the Arboledas' firm, bid six million pesos and bagged the contract. Obviously satisfied with the project results, PNOC remains a valued customer up to now.

The PNOC contract, Arboleda proudly says, provided additional income for around 800 families.

To produce the twine for the nets, Juboken buys husk from coconut farmers, who get all the money for themselves because the landlords generally do not find the husk of great value.

After the husk is processed, the fiber is turned over to farming villages, whose residents weave it into nets. A family can earn up to 200 to 300 pesos a day making the nets in between harvesting seasons – quite a big sum for a coconut farmer who earns an average income of 1,700 pesos a month.

The first village that Arboleda tapped was somewhere in Guinobatan, Albay. Desperately poor, it did not even have a sari-sari store at the time, but today, it has five. Its residents use their own money to buy desks for their school building.

President Gloria Macapagal Arroyo honored him in 2004 for his achievement. He also won the gold in the Nature's Wisdom Award of the World Expo 2005 in Japan and the Global 100 Eco-tech Award. These awards are the country's first in the 150-year history of world expositions.

What is Coconet?

Coconet is made from coconut coir fiber twine woven into high strength mats. It is becoming popular in shoreline stabilization because of its strength, ecological qualities and biodegradability. It is used as a soil erosion control device. Coconet readily absorbs water. It also builds up soil fertility and unbelievably replenishes lost essential nutrient in the soil.

What Engineer Arboleda did is he made the coconet more useful. He uses it to arrest soil

runoff and promote re-greening by protecting vegetative shoots. He designed his own decorticating machine.

While Arboleda developed other uses for the different waste products of coconut in his coconut farm like doormats, stuffing for car seats and mattresses and fertilizer, it is coconet that prevents erosion that has garnered the most demand.

Erosion control nets, made from coconut husk fiber, are ideal for bioengineering. Logically, using Engineer Arboleda's principle is more feasible since concrete is vulnerable to earthquakes, which means landslide will still be inevitable if an earthquake occurs.

The nets are not only more eco-friendly; they also cost less.

In bioengineering, plants are allowed to grow on bare slopes. Erosion control nets are used to prevent the slopes from eroding while the seedlings have not yet taken root. Nets from coconut fiber, unlike those made of synthetic materials, are strong, absorb water, and stick better to the ground surface, thus giving seedlings a better hold.

Vote for Our Fellow Filipino

Now you know what Coconet is and what its inventor intends to do, let us support our fellow Filipino! This is an opportunity for us to be united, so please log on to http://www.theworldchallenge.co.uk/ and cast your vote! The winner will be based on online voting. The announcement of the winner and awarding ceremony will be held in London on November 17, 2005.

His invention, the "Coconets" (Coconuts for Erosion Control), recently won the World Challenge Competition, a worldwide contest sponsored by BBC.

“UNLEASHING THE COCO POTENTIAL”

First posted 03:39am (Mla time) Jan 02, 2006
By Ronna D. Mercado
Philippine Daily Inquirer

THE RECENT TRIUMPH IN THE BBC WORLD Challenge of the Philippines' coconet, a soil erosion net made from coconut husks, was welcome news for the country and for the coconut industry, in particular. The recognition-along with the respect won by virgin coconut oil in health circles; the increasing interest in alternative fuel sources, like biodiesel (coco methyl ester); and the market potential for geotextiles (coco fiber)-points to a brighter future for the coconut industry.

However, despite contributing to the national economy an average annual earning of $690.5 million during the period 2000-2004, the coconut industry remains in a moribund state, snagged by several problems which are not insurmountable. Among these are low farm productivity due to aging trees and monocropping, low farm gate prices, lack of research and development and lack of infrastructure support. All these have also worked to ensure that coconut farmers are among the Philippines' poorest citizens.

Around 90 percent of coconut farmers and farm workers live below the poverty line. A typical coconut farmer earns P12,000 annually or around P33 per day. It is very hard to imagine how a coconut farmer can support a family of six with this kind of income. To help the farmers and to unleash the potential of the coconut industry, financial resources are undoubtedly needed to fund programs and to address the problems that have long hobbled the industry.

The coco levy fund exists precisely for this purpose. The levy was initially intended by the Marcos administration to address the crisis brought about by an "abnormal situation in the world market for fats and oils." However, succeeding presidential decrees made the levy permanent, and eventually it took the nature of private funds "to be owned by the coconut farmers in their own private capacities."

As history would later show, the coco levy fund would be used not for the farmers' benefit but to serve the business interests of some Marcos' cronies. With coco levy money, the United Coconut Planters Bank (UCPB) was acquired and used as a springboard to acquire assets and corporations that were used in turn to put the coconut industry under a monopolistic regime. At the same time, coco levy money was also used for purposes that had nothing to do with the industry, such as the acquisition of San Miguel Corp. (SMC) shares.

It was not until four years ago, in December 2001, that the Supreme Court issued a crucial decision in favor of the coconut farmers. After almost 15 years from the filing of cases for the farmers' recovery of the fund, the high court categorically ruled that the money was public fund. This decision gave way to subsequent Sandiganbayan decisions

which recognized the coconut farmers as the owners of coco levy-funded assets and corporations.

Despite these court victories, the farmers have yet to actually benefit from the coco levy fund. The Sandiganbayan still has to issue an order directing the execution of the partial summary judgment on the 27-percent SMC-CIIF (Coconut Industry Investment Fund) shares. Expectedly, persons who have vested interests in the coco levy fund refuse to let go of the fund, or parts of it, without a fight. There have been repeated attempts to strike a compromise deal involving the 27-percent SMC-CIIF shares.

An out-of-court settlement is not acceptable because these shares have already been declared as held by the government in trust for the farmers. The only thing that is left for the Sandiganbayan to do is to declare the decision final and executory. To strike a compromise deal is to favor the very perpetrators of injustice. To compromise is to remove the accountability of those who were responsible for the "systematic plunder of the coconut industry."

An alarming development in the coco levy recovery efforts is the removal of three farmer-directors from the board of UCPB last November. Aside from being vocal with their non-compromising stand, these farmer-directors were against the attempts to use the still contested 20-percent block of SMC shares to pay the UCPB loans of the very people behind the coco levy scam. Even more alarming are the speculations that President Macapagal-Arroyo had a hand in their removal, a move that was effected reportedly to pay political debts incurred when the impeachment case was killed in the House of Representatives.

Unlike other sectors of agriculture, the coconut industry has an enormous pool of funds that can help the industry and its farmers. All that the government has to do is to facilitate the immediate recovery of the coco levy money. During the audit conducted in 1986, it was found out that the original levy had reached the staggering amount of P9.695 billion. At present the levy has an estimated worth of P120 billion. This is a big amount that can go a long way in helping the 25 million people directly and indirectly dependent on the industry. This is equivalent to addressing the economic problems of close to one-third of the country's population.

To borrow the words of the solicitor general in his Aug. 8, 2005 Motion for Execution, the proper use of the levy assets "could be the only hope to genuinely address the multifarious and complicated problems in the coconut industry and the long-standing hardship in the lives of the millions of coconut farmers."

FATUS DATA

January 03, 2006
UNITED STATES DEPARTMENT OF AGRICULTURE
ECONOMIC RESEARCH SERVICE
FATUS IMPORT AGGREGATIONS

AREA/COUNTRIES OF ORIGIN AND COMMODITIES IMPORTED GENERAL IMPORTS				VALUES IN 1000 DOLLARS/QUANTITIES IN REPORTED VOLUMES JANUARY - DECEMBER 2000		2001		2002		2003		2004	
				Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
AUSTRALIA(*)	**FIBERS, EXCL COTTON**		**MT**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**36.1**	**12**	**0.0**	**0**
	OF COCONT,RAW,PC	5305110000	**MT**	0.0	0	0.0	0	0.0	0	36.1	12	0.0	0
AUSTRIA	**FIBERS, EXCL COTTON**		**MT**	**382.0**	**288**	**289.3**	**231**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**
	FLAX TOW & WASTE	5301300000	**MT**	382.0	288	289.3	231	0.0	0	0.0	0	0.0	0
BELGIUM-LUXEMBOURG(*)	**FIBERS, EXCL COTTON**		**MT**	**2,019.4**	**2,015**	**1,105.5**	**874**	**933.0**	**869**	**1,163.9**	**1,157**	**1,167.3**	**1,152**
	FLAX TOW & WASTE	5301300000	**MT**	1,934.6	1,948	1,063.8	839	889.1	821	1,162.2	1,145	1,142.5	1,129
	JUTE OT TEXTL FB	5303100000	**MT**	0.0	0	0.0	0	0.3	1	0.7	3	19.7	6
	TRUE HEMP RAW/PR	5302100000	**MT**	0.0	0	0.2	-	0.0	0	0.0	0	2.2	2
	OF COCONT,RAW,PC	5305110000	**MT**	0.0	0	0.0	0	0.3	1	0.2	1	1.5	4
	FLAX,BRK/SC,PROC	5301290000	**MT**	1.0	5	1.5	8	40.7	36	0.6	4	0.7	6
	SISAL RAW	5304100000	**MT**	0.0	0	1.2	3	0.3	2	0.0	0	0.5	3
	FLAX,RAW/RETTED	5301100000	**MT**	0.1	1	0.1	1	0.3	6	0.1	4	0.2	3
	FLAX,BRK/SCT/HCK	5301210000	**MT**	35.7	40	0.3	-	0.0	0	0.0	0	0.0	0
	TRUE HEMP PROCSD	5302900000	**MT**	0.0	0	18.0	11	0.0	0	0.0	0	0.0	0
	JUTE OT TEX FBR	5303900000	**MT**	29.6	9	0.0	0	1.0	-	0.0	0	0.0	0
	SISAL PROCESSED	5304900000	**MT**	0.0	0	0.0	0	0.9	2	0.0	0	0.0	0
	RAMIE&OT VEG FBR	5305900000	**MT**	0.0	0	0.0	0	0.0	1	0.0	0	0.0	0
	RAMIE,OT VEG FBR	5305990000	**MT**	18.5	12	20.5	12	0.0	0	0.0	0	0.0	0
BANGLADESH	**FIBERS, EXCL COTTON**		**MT**	**559.8**	**247**	**324.5**	**143**	**114.4**	**62**	**25.2**	**18**	**558.6**	**345**
	JUTE OT TEX FBR	5303900000	**MT**	0.0	0	0.0	0	0.0	0	13.3	6	456.6	298

	JUTE OT TEXTL FB	5303100000	**MT**	559.8	247	324.5	143	114.4	62	11.9	11	102.0	46
BELARUS	**FIBERS, EXCL COTTON**		**MT**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**138.8**	**75**	**174.2**	**125**
	FLAX TOW & WASTE	5301300000	**MT**	0.0	0	0.0	0	0.0	0	138.8	75	134.2	97
	FLAX,RAW/RETTED	5301100000	**MT**	0.0	0	0.0	0	0.0	0	0.0	0	40.0	28
BRAZIL	**FIBERS, EXCL COTTON**		**MT**	**37.5**	**30**	**62.3**	**47**	**130.2**	**98**	**96.4**	**51**	**137.1**	**51**
	SISAL PROCESSED	5304900000	**MT**	22.4	14	18.6	16	83.8	66	96.4	51	100.3	45
	OF COCONT,RAW,PC	5305110000	**MT**	0.0	0	0.0	0	0.0	0	0.0	0	32.8	4
	SISAL RAW	5304100000	**MT**	15.1	16	43.7	31	46.5	32	0.0	0	4.0	2
CANADA	**FIBERS, EXCL COTTON**		**MT**	**55,573.1**	**16,429**	**58,531.9**	**17,358**	**34,403.6**	**10,915**	**30,605.4**	**10,376**	**31,483.3**	**10,472**
	FLAX TOW & WASTE	5301300000	**MT**	52,866.6	15,578	47,733.7	14,980	33,506.3	10,601	30,422.4	10,223	31,358.9	10,356
	TRUE HEMP RAW/PR	5302100000	**MT**	197.7	135	194.9	139	227.2	169	127.3	130	71.1	83
	FLAX,RAW/RETTED	5301100000	**MT**	9.6	3	10.9	12	21.8	6	20.0	10	18.1	11
	TRUE HEMP PROCSD	5302900000	**MT**	191.6	125	16.9	12	2.6	2	7.2	7	15.1	14
	JUTE OT TEX FBR	5303900000	**MT**	1.5	2	0.7	1	0.0	2	0.0	0	14.2	1
	OF COCONT,RAW,PC	5305110000	**MT**	0.0	0	0.0	0	0.0	0	0.0	0	5.1	7
	SISAL RAW	5304100000	**MT**	2.0	8	0.0	0	1.2	3	0.6	1	0.8	1
	OTH VEG MAT/STF	1402909000	**MT**	0.0	0	34.3	13	0.0	0	0.0	0	0.0	0
	FLAX,BRK/SCT/HCK	5301210000	**MT**	2,304.0	577	10,539.9	2,197	643.6	128	0.0	0	0.0	0
	FLAX,BRK/SC,PROC	5301290000	**MT**	0.0	0	0.0	0	0.0	0	28.1	5	0.0	0
	JUTE OT TEXTL FB	5303100000	**MT**	0.2	1	0.5	2	1.0	4	0.0	0	0.0	0
	RAMIE,OT VEG FBR	5305910000	**MT**	0.0	0	0.1	1	0.0	0	0.0	0	0.0	0
	RAMIE,OT VEG FBR	5305990000	**MT**	0.0	1	0.0	0	0.0	0	0.0	0	0.0	0
CAMBODIA	**FIBERS, EXCL COTTON**		**MT**	**0.0**	**-**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**
	RAMIE,OT VEG FBR	5305990000	**MT**	0.0	-	0.0	0	0.0	0	0.0	0	0.0	0
SRI LANKA	**FIBERS, EXCL COTTON**		**MT**	**6,993.0**	**1,679**	**5,278.4**	**1,259**	**5,560.7**	**1,205**	**5,907.6**	**1,326**	**10,175.7**	**2,224**
	OF COCONT,RAW,PC	5305110000	**MT**	6,870.4	1,636	5,252.7	1,224	5,551.8	1,193	5,893.6	1,310	10,174.9	2,221
	VEG MATRLS/BROO	1403009400	**MT**	0.0	0	0.0	0	8.9	12	14.1	16	0.8	3

	M												
	VEG MATRLS/BROOM	1403904000	**MT**	11.2	21	10.2	22	0.0	0	0.0	0	0.0	0
	JUTE OT TEX FBR	5303900000	**MT**	90.0	14	0.0	0	0.0	0	0.0	0	0.0	0
	RAMIE,OT VEG FBR	5305990000	**MT**	21.4	9	15.5	12	0.0	0	0.0	0	0.0	0
CHINA, PEOPLES REPUB	**FIBERS, EXCL COTTON**		**MT**	**64.5**	**110**	**51.6**	**63**	**20.6**	**17**	**44.8**	**134**	**118.3**	**92**
	OF COCONT,RAW,PC	5305110000	**MT**	0.0	0	0.0	0	0.0	0	9.0	11	48.2	15
	JUTE OT TEX FBR	5303900000	**MT**	16.8	12	21.1	10	0.2	1	0.0	0	42.2	29
	RAMIE&OT VEG FBR	5305900000	**MT**	0.0	0	0.0	0	0.0	0	17.8	66	23.2	31
	SISAL PROCESSED	5304900000	**MT**	1.2	5	0.0	0	2.0	7	3.0	13	2.6	10
	VEG MAT STFF/PAD	1402009900	**MT**	0.0	0	0.0	0	18.0	6	0.0	0	1.4	2
	JUTE OT TEXTL FB	5303100000	**MT**	1.1	2	0.0	0	0.0	0	0.4	2	0.6	2
	TRUE HEMP RAW/PR	5302100000	**MT**	10.8	32	0.0	0	0.4	4	2.8	9	0.2	1
	OTH VEG MAT/STF	1402909000	**MT**	2.6	2	6.8	11	0.0	0	0.0	0	0.0	0
	VEG MATRLS/BROOM	1403009400	**MT**	0.0	0	0.0	0	0.0	0	11.8	34	0.0	0
	TRUE HEMP PROCSD	5302900000	**MT**	0.6	3	0.0	0	0.0	0	0.0	0	0.0	0
	SISAL RAW	5304100000	**MT**	5.0	7	3.7	31	0.0	0	0.0	0	0.0	0
	RAMIE,OT VEG FBR	5305990000	**MT**	26.4	46	20.0	11	0.0	0	0.0	0	0.0	0
COLOMBIA	**FIBERS, EXCL COTTON**		**MT**	**0.0**	**0**	**158.3**	**27**	**0.0**	**0**	**399.8**	**69**	**197.0**	**33**
	OF COCONT,RAW,PC	5305110000	**MT**	0.0	0	158.3	27	0.0	0	399.7	68	197.0	33
	JUTE OT TEXTL FB	5303100000	**MT**	0.0	0	0.0	0	0.0	0	0.1	1	0.0	0
COSTA RICA	**FIBERS, EXCL COTTON**		**MT**	**0.0**	**0**	**11.6**	**1**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**
	OF COCONT,RAW,PC	5305110000	**MT**	0.0	0	11.6	1	0.0	0	0.0	0	0.0	0
ECUADOR	**FIBERS, EXCL COTTON**		**MT**	**1,588.5**	**1,383**	**726.3**	**498**	**164.1**	**149**	**21.3**	**33**	**11.3**	**12**
	OF ABACA:RAW/PRC	5305210000	**MT**	1,588.5	1,381	726.3	498	164.1	149	21.3	33	11.3	12
	OTH VEG MAT/STF	1402909000	**MT**	0.0	2	0.0	0	0.0	0	0.0	0	0.0	0
EGYPT	**FIBERS, EXCL COTTON**		**MT**	**0.0**	**0**	**0.0**	**0**	**55.4**	**46**	**85.3**	**94**	**132.9**	**136**

	FLAX TOW & WASTE	5301300000	**MT**	0.0	0	0.0	0	55.4	46	85.3	94	132.9	136
EL SALVADOR	**FIBERS, EXCL COTTON**		**MT**	**20.4**	**25**	**27.9**	**27**	**0.0**	**0**	**0.0**	**0**	**59.6**	**85**
	SISAL RAW	5304100000	**MT**	20.4	25	0.0	0	0.0	0	0.0	0	41.0	60
	JUTE OT TEX FBR	5303900000	**MT**	0.0	0	0.0	0	0.0	0	0.0	0	18.6	26
	SISAL PROCESSED	5304900000	**MT**	0.0	0	20.4	24	0.0	0	0.0	0	0.0	0
	OF COCONT,RAW,PC	5305110000	**MT**	0.0	0	7.5	3	0.0	0	0.0	0	0.0	0
ETHIOPIA(*)	**FIBERS, EXCL COTTON**		**MT**	**0.0**	**0**	**26.4**	**35**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**
	VEG MATRLS/BROOM	1403904000	**MT**	0.0	0	26.4	35	0.0	0	0.0	0	0.0	0
FRANCE(*)	**FIBERS, EXCL COTTON**		**MT**	**810.2**	**713**	**414.2**	**346**	**1,484.7**	**1,357**	**3,279.0**	**3,040**	**1,976.8**	**1,853**
	FLAX TOW & WASTE	5301300000	**MT**	592.2	422	224.8	160	1,102.0	938	2,747.7	2,592	1,760.4	1,680
	FLAX,RAW/RETTED	5301100000	**MT**	0.0	0	11.1	7	67.1	42	143.4	84	155.4	116
	TRUE HEMP RAW/PR	5302100000	**MT**	0.0	0	19.5	10	119.9	72	228.5	158	61.1	56
	TRUE HEMP PROCSD	5302900000	**MT**	19.9	9	87.2	56	39.6	27	59.1	44	0.0	1
	FLAX,BRK/SCT/HCK	5301210000	**MT**	183.3	228	71.5	113	129.6	209	100.3	158	0.0	0
	FLAX,BRK/SC,PROC	5301290000	**MT**	14.9	53	0.0	0	26.5	69	0.0	1	0.0	0
	SISAL PROCESSED	5304900000	**MT**	0.0	1	0.0	1	0.0	0	0.0	-	0.0	0
	RAMIE&OT VEG FBR	5305900000	**MT**	0.0	0	0.0	0	0.0	0	0.0	1	0.0	0
GERMANY(*)	**FIBERS, EXCL COTTON**		**MT**	**84.7**	**31**	**134.0**	**148**	**97.8**	**79**	**232.0**	**233**	**255.9**	**259**
	JUTE OT TEX FBR	5303900000	**MT**	0.0	0	82.7	83	80.0	65	207.0	211	233.2	252
	FLAX TOW & WASTE	5301300000	**MT**	17.1	7	21.5	35	0.0	0	0.0	0	22.8	7
	TRUE HEMP PROCSD	5302900000	**MT**	5.4	4	0.0	0	0.0	0	1.9	8	0.0	-
	FLAX,BRK/SC,PROC	5301290000	**MT**	0.0	0	0.2	2	0.0	0	0.0	0	0.0	0
	TRUE HEMP RAW/PR	5302100000	**MT**	0.0	0	6.2	4	0.0	0	0.0	0	0.0	0
	JUTE OT TEXTL FB	5303100000	**MT**	0.0	0	0.0	0	0.4	2	0.5	1	0.0	0
	SISAL RAW	5304100000	**MT**	0.0	0	0.0	0	0.0	0	2.7	4	0.0	0
	SISAL PROCESSED	5304900000	**MT**	0.0	0	0.0	0	0.0	-	0.0	1	0.0	0
	OF COCONT,RAW,PC	5305110000	**MT**	52.3	14	6.9	7	17.4	12	19.9	9	0.0	0

	RAMIE,OT VEG FBR	5305990000	**MT**	9.8	7	16.5	18	0.0	0	0.0	0	0.0	0
HAITI	**FIBERS, EXCL COTTON**		**MT**	**0.0**	**0**	**16.4**	**15**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**
	SISAL RAW	5304100000	**MT**	0.0	0	16.4	15	0.0	0	0.0	0	0.0	0
HONG KONG	**FIBERS, EXCL COTTON**		**MT**	**83.0**	**48**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**31.2**	**20**
	FLAX,BRK/SCT/HCK	5301210000	**MT**	0.0	0	0.0	0	0.0	0	0.0	0	31.0	20
	SISAL RAW	5304100000	**MT**	0.0	0	0.0	0	0.0	0	0.0	0	0.2	-
	FLAX,RAW/RETTED	5301100000	**MT**	23.0	38	0.0	0	0.0	0	0.0	0	0.0	0
	OF COCONT,RAW,PC	5305110000	**MT**	60.0	10	0.0	0	0.0	0	0.0	0	0.0	0
HUNGARY	**FIBERS, EXCL COTTON**		**MT**	**0.7**	**5**	**120.5**	**207**	**44.9**	**86**	**1.7**	**14**	**15.8**	**41**
	TRUE HEMP PROCSD	5302900000	**MT**	0.3	2	0.1	3	3.7	21	1.2	11	15.2	36
	JUTE OT TEX FBR	5303900000	**MT**	0.0	0	0.2	1	0.5	3	0.4	3	0.7	5
	VEG MATRLS/BROOM	1403009400	**MT**	0.0	0	0.0	0	40.0	59	0.0	0	0.0	0
	VEG MATRLS/BROOM	1403904000	**MT**	0.0	0	119.4	197	0.0	0	0.0	0	0.0	0
	TRUE HEMP RAW/PR	5302100000	**MT**	0.0	0	0.2	1	0.0	0	0.0	0	0.0	0
	RAMIE&OT VEG FBR	5305900000	**MT**	0.0	0	0.0	0	0.7	4	0.0	0	0.0	0
	RAMIE,OT VEG FBR	5305990000	**MT**	0.4	3	0.6	4	0.0	0	0.0	0	0.0	0
INDONESIA	**FIBERS, EXCL COTTON**		**MT**	**92.0**	**76**	**106.4**	**81**	**66.8**	**63**	**86.6**	**96**	**74.4**	**83**
	VEG MAT STFF/PAD	1402009900	**MT**	0.0	0	0.0	0	66.5	61	86.6	96	74.4	82
	RAMIE&OT VEG FBR	5305900000	**MT**	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1
	KAPOK RAW/WASTE	1402100000	**MT**	92.0	76	106.4	81	0.0	0	0.0	0	0.0	0
	JUTE OT TEX FBR	5303900000	**MT**	0.0	0	0.0	0	0.2	1	0.0	0	0.0	0
	SISAL PROCESSED	5304900000	**MT**	0.0	0	0.0	0	0.0	1	0.0	0	0.0	0
INDIA	**FIBERS, EXCL COTTON**		**MT**	**1,410.0**	**1,181**	**875.6**	**828**	**1,142.4**	**810**	**1,307.3**	**979**	**1,315.2**	**738**
	OF COCONT,RAW,PC	5305110000	**MT**	127.0	64	70.5	67	300.4	170	554.2	388	787.5	274
	VEG MATRLS/BROOM	1403009400	**MT**	0.0	0	0.0	0	708.7	529	645.7	461	497.9	430
	JUTE OT TEXTL FB	5303100000	**MT**	2.0	2	48.1	46	23.5	24	71.0	74	22.3	22

	JUTE OT TEX FBR	5303900000	**MT**	1.3	3	13.4	13	28.8	33	34.3	49	4.4	3
	VEG MAT STFF/PAD	1402009900	**MT**	0.0	0	0.0	0	2.1	6	2.0	6	3.1	9
	VEG MATRLS/BROOM	1403904000	**MT**	1,265.5	1,094	743.3	700	0.0	0	0.0	0	0.0	0
	FLAX,RAW/RETTED	5301100000	**MT**	0.0	0	0.0	0	36.2	20	0.0	0	0.0	0
	FLAX,BRK/SC,PROC	5301290000	**MT**	0.1	2	0.3	2	0.0	0	0.0	0	0.0	0
	FLAX TOW & WASTE	5301300000	**MT**	0.0	0	0.0	0	0.0	0	0.1	2	0.0	0
	SISAL PROCESSED	5304900000	**MT**	0.0	0	0.0	0	1.3	3	0.0	0	0.0	0
	OF ABACA:RAW/PRC	5305210000	**MT**	14.1	17	0.0	0	0.0	0	0.0	0	0.0	0
	RAMIE&OT VEG FBR	5305900000	**MT**	0.0	0	0.0	0	41.4	27	0.0	0	0.0	0
ISRAEL(*)	**FIBERS, EXCL COTTON**		**MT**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**1.1**	**7**	**6.3**	**57**
	FLAX,BRK/SC,PROC	5301290000	**MT**	0.0	0	0.0	0	0.0	0	0.7	4	3.8	35
	JUTE OT TEX FBR	5303900000	**MT**	0.0	0	0.0	0	0.0	0	0.4	3	2.5	22
ITALY(*)	**FIBERS, EXCL COTTON**		**MT**	**0.0**	**3**	**8.9**	**5**	**0.6**	**10**	**0.1**	**10**	**5.4**	**9**
	TRUE HEMP PROCSD	5302900000	**MT**	0.0	2	0.0	0	0.2	3	0.0	1	5.3	4
	FLAX TOW & WASTE	5301300000	**MT**	0.0	-	0.0	0	0.0	1	0.0	4	0.0	2
	JUTE OT TEX FBR	5303900000	**MT**	0.0	0	8.9	5	0.4	3	0.0	0	0.0	2
	JUTE OT TEXTL FB	5303100000	**MT**	0.0	0	0.0	0	0.0	2	0.0	0	0.0	1
	FLAX,BRK/SC,PROC	5301290000	**MT**	0.0	0	0.1	1	0.0	0	0.0	1	0.0	1
	VEG MAT STFF/PAD	1402009900	**MT**	0.0	0	0.0	0	0.0	0	0.0	4	0.0	0
	FLAX,RAW/RETTED	5301100000	**MT**	0.0	0	0.0	-	0.0	0	0.0	0	0.0	0
	TRUE HEMP RAW/PR	5302100000	**MT**	0.0	0	0.0	0	0.0	0	0.0	1	0.0	0
	SISAL RAW	5304100000	**MT**	0.0	0	0.0	0	0.0	2	0.0	0	0.0	0
	RAMIE,OT VEG FBR	5305990000	**MT**	0.0	1	0.0	0	0.0	0	0.0	0	0.0	0
COTE D'IVOIRE	**FIBERS, EXCL COTTON**		**MT**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**58.4**	**10**
	OF COCONT,RAW,PC	5305110000	**MT**	0.0	0	0.0	0	0.0	0	0.0	0	58.4	10
JAPAN	**FIBERS, EXCL COTTON**		**MT**	**45.6**	**26**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**
	OTH VEG MAT/STF	1402909000	**MT**	45.6	26	0.0	0	0.0	0	0.0	0	0.0	0

KENYA	**FIBERS, EXCL COTTON**		**MT**	**0.0**	**0**	**0.0**	**0**	**0.3**	**1**	**0.0**	**0**	**0.0**	**0**
	SISAL PROCESSED	5304900000	**MT**	0.0	0	0.0	0	0.3	1	0.0	0	0.0	0
KOREA, REPUBLIC OF	**FIBERS, EXCL COTTON**		**MT**	**0.0**	**0**	**0.0**	**0**	**12.5**	**11**	**4.0**	**5**	**0.0**	**0**
	VEG MAT STFF/PAD	1402009900	**MT**	0.0	0	0.0	0	2.4	5	0.0	0	0.0	0
	FLAX,RAW/RETTED	5301100000	**MT**	0.0	0	0.0	0	9.4	4	0.0	0	0.0	0
	TRUE HEMP RAW/PR	5302100000	**MT**	0.0	0	0.0	0	0.0	0	3.4	2	0.0	0
	JUTE OT TEXTL FB	5303100000	**MT**	0.0	0	0.0	0	0.0	0	0.6	3	0.0	0
	SISAL RAW	5304100000	**MT**	0.0	0	0.0	0	0.7	3	0.0	0	0.0	0
LATVIA(*)	**FIBERS, EXCL COTTON**		**MT**	**0.0**	**0**	**0.0**	**0**	**36.5**	**30**	**199.4**	**164**	**97.9**	**82**
	FLAX TOW & WASTE	5301300000	**MT**	0.0	0	0.0	0	36.5	30	199.4	164	97.9	82
LITHUANIA(*)	**FIBERS, EXCL COTTON**		**MT**	**28.8**	**11**	**8.5**	**6**	**337.2**	**179**	**199.0**	**104**	**257.9**	**160**
	FLAX TOW & WASTE	5301300000	**MT**	0.0	0	0.0	0	328.7	173	199.0	104	257.9	160
	VEG MAT STFF/PAD	1402009900	**MT**	0.0	0	0.0	0	8.5	6	0.0	0	0.0	0
	OTH VEG MAT/STF	1402909000	**MT**	28.8	11	8.5	6	0.0	0	0.0	0	0.0	0
MEXICO	**FIBERS, EXCL COTTON**		**MT**	**5,484.8**	**6,627**	**2,926.7**	**6,308**	**2,722.4**	**4,619**	**2,085.9**	**4,083**	**1,740.3**	**3,968**
	VEG MATRLS/BROOM	1403009400	**MT**	0.0	0	0.0	0	1,061.7	599	1,022.3	567	836.1	579
	ISTLE	1403009200	**MT**	0.0	0	0.0	0	844.6	3,810	802.4	3,434	770.2	3,318
	OF COCONT,RAW,PC	5305110000	**MT**	2,653.4	594	491.4	121	743.8	163	230.8	46	101.3	15
	SISAL RAW	5304100000	**MT**	56.8	169	35.7	144	8.9	16	0.4	5	9.0	13
	SISAL PROCESSED	5304900000	**MT**	62.8	27	32.3	24	35.5	27	11.7	11	8.9	4
	VEG MAT STFF/PAD	1402009900	**MT**	0.0	0	0.0	0	0.0	0	4.8	16	6.3	25
	FLAX TOW & WASTE	5301300000	**MT**	0.0	0	13.5	1	27.1	3	13.2	1	5.5	1
	VEGETABLE HAIR	1402009100	**MT**	0.0	0	0.0	0	0.0	0	0.0	0	2.2	8
	JUTE OT TEX FBR	5303900000	**MT**	0.0	0	0.0	0	0.0	0	0.3	2	0.6	1
	JUTE OT TEXTL FB	5303100000	**MT**	0.0	0	0.0	1	0.0	1	0.0	0	0.1	3
	RAMIE&OT VEG FBR	5305900000	**MT**	0.0	0	0.0	0	0.7	-	0.0	0	0.1	1
	OTH VEG MAT/STF	1402909000	**MT**	14.6	13	22.4	25	0.0	0	0.0	0	0.0	0
	ISTLE	140390	**M**	1,190.	4,71	1,218.	5,26	0.0	0	0.0	0	0.0	0

		2000	T	2	6	4	0						
	VEG MATRLS/BROOM	1403904000	MT	1,506.9	1,108	1,111.4	728	0.0	0	0.0	0	0.0	0
	OF ABACA:RAW/PRC	5305210000	MT	0.0	0	1.6	4	0.0	0	0.0	0	0.0	0
	RAMIE,OT VEG FBR	5305910000	MT	0.0	0	0.0	-	0.0	0	0.0	0	0.0	0
	RAMIE,OT VEG FBR	5305990000	MT	0.0	-	0.0	0	0.0	0	0.0	0	0.0	0
MALAYSIA	**FIBERS, EXCL COTTON**		**MT**	**0.0**	**0**	**21.3**	**15**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**
	OF ABACA:RAW/PRC	5305210000	MT	0.0	0	21.3	15	0.0	0	0.0	0	0.0	0
NETHERLANDS	**FIBERS, EXCL COTTON**		**MT**	**108.1**	**186**	**19.3**	**23**	**45.1**	**58**	**43.8**	**75**	**163.6**	**133**
	OF COCONT,RAW,PC	5305110000	MT	0.0	0	0.0	0	0.0	0	0.0	0	145.8	83
	VEG MATRLS/BROOM	1403009400	MT	0.0	0	0.0	0	15.3	44	25.6	63	17.7	48
	JUTE OT TEX FBR	5303900000	MT	0.0	0	0.0	0	0.0	0	0.0	0	0.1	1
	JUTE OT TEXTL FB	5303100000	MT	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1
	VEG MATRLS/BROOM	1403904000	MT	86.8	161	9.5	17	0.0	0	0.0	0	0.0	0
	FLAX,BRK/SCT/HCK	5301210000	MT	0.0	0	0.0	0	0.0	0	18.2	12	0.0	0
	TRUE HEMP RAW/PR	5302100000	MT	0.0	0	0.0	0	5.5	3	0.0	0	0.0	0
	TRUE HEMP PROCSD	5302900000	MT	3.0	15	0.0	0	0.1	1	0.0	0	0.0	0
	SISAL RAW	5304100000	MT	0.0	0	9.8	5	0.0	0	0.0	0	0.0	0
	SISAL PROCESSED	5304900000	MT	18.3	10	0.0	0	0.0	0	0.0	0	0.0	0
	OF ABACA:RAW/PRC	5305210000	MT	0.0	0	0.0	0	24.2	11	0.0	0	0.0	0
NORWAY(*)	**FIBERS, EXCL COTTON**		**MT**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.3**	**1**	**0.0**	**0**
	RAMIE&OT VEG FBR	5305900000	MT	0.0	0	0.0	0	0.0	0	0.3	1	0.0	0
NEPAL	**FIBERS, EXCL COTTON**		**MT**	**0.0**	**-**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**
	TRUE HEMP PROCSD	5302900000	MT	0.0	-	0.0	0	0.0	0	0.0	0	0.0	0
PORTUGAL	**FIBERS, EXCL COTTON**		**MT**	**2.0**	**8**	**0.1**	**-**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**
	SISAL PROCESSED	5304900000	MT	0.0	0	0.1	-	0.0	0	0.0	0	0.0	0
	RAMIE,OT VEG	530599	M	2.0	8	0.0	0	0.0	0	0.0	0	0.0	0

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ROMANIA	**FIBERS, EXCL COTTON**		**MT**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**1.0**	**4**	**0.0**	**0**
	TRUE HEMP PROCSD	5302900000	**MT**	0.0	0	0.0	0	0.0	0	1.0	4	0.0	0
PHILIPPINES	**FIBERS, EXCL COTTON**		**MT**	**5,542.2**	**6,905**	**2,174.2**	**1,823**	**292.1**	**231**	**25.2**	**50**	**10.1**	**43**
	RAMIE&OT VEG FBR	5305900000	**MT**	0.0	0	0.0	0	0.1	1	14.0	38	10.1	42
	TRUE HEMP PROCSD	5302900000	**MT**	0.1	-	0.0	0	0.0	0	0.0	0	0.0	1
	OTH VEG MAT/STF	1402909000	**MT**	72.9	52	39.7	29	0.0	0	0.0	0	0.0	0
	FLAX,BRK/SCT/HCK	5301210000	**MT**	0.0	0	21.3	19	0.0	0	0.0	0	0.0	0
	TRUE HEMP RAW/PR	5302100000	**MT**	212.5	233	21.3	18	0.0	0	0.0	0	0.0	0
	JUTE OT TEXTL FB	5303100000	**MT**	0.0	0	0.0	0	0.1	-	0.0	0	0.0	0
	JUTE OT TEX FBR	5303900000	**MT**	67.9	38	0.0	0	0.0	0	0.0	0	0.0	0
	SISAL PROCESSED	5304900000	**MT**	0.0	0	0.0	0	12.2	34	11.2	11	0.0	0
	OF COCONT,RAW,PC	5305110000	**MT**	6.1	4	7.3	2	65.1	19	0.0	0	0.0	0
	OF ABACA:RAW/PRC	5305210000	**MT**	5,170.6	6,561	2,055.2	1,724	214.6	177	0.0	0	0.0	0
	RAMIE,OT VEG FBR	5305990000	**MT**	12.1	17	29.5	33	0.0	0	0.0	0	0.0	0
RUSSIAN FEDERATION	**FIBERS, EXCL COTTON**		**MT**	**0.0**	**0**	**0.0**	**0**	**7.1**	**4**	**39.9**	**23**	**0.0**	**0**
	FLAX TOW & WASTE	5301300000	**MT**	0.0	0	0.0	0	7.1	4	39.9	23	0.0	0
SOUTH AFRICA, REPUBL	**FIBERS, EXCL COTTON**		**MT**	**10.7**	**9**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**
	VEG MATRLS/BROOM	1403904000	**MT**	10.6	9	0.0	0	0.0	0	0.0	0	0.0	0
	SISAL RAW	5304100000	**MT**	0.1	-	0.0	0	0.0	0	0.0	0	0.0	0
SIERRA LEONE	**FIBERS, EXCL COTTON**		**MT**	**15.6**	**10**	**34.2**	**13**	**23.2**	**14**	**8.0**	**5**	**16.0**	**13**
	VEG MATRLS/BROOM	1403009400	**MT**	0.0	0	0.0	0	23.2	14	8.0	5	16.0	13
	VEG MATRLS/BROOM	1403904000	**MT**	15.6	10	15.2	9	0.0	0	0.0	0	0.0	0
	OF COCONT,RAW,PC	5305110000	**MT**	0.0	0	19.0	4	0.0	0	0.0	0	0.0	0
SINGAPORE	**FIBERS, EXCL COTTON**		**MT**	**0.0**	**0**	**0.0**	**0**	**5.5**	**1**	**0.0**	**0**	**3.5**	**14**
	RAMIE&OT VEG FBR	5305900000	**MT**	0.0	0	0.0	0	0.0	0	0.0	0	3.5	14

	OF COCONT,RAW,PC	5305110000	**MT**	0.0	0	0.0	0	5.5	1	0.0	0	0.0	0
SPAIN	**FIBERS, EXCL COTTON**		**MT**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.1**	**2**	**0.0**	**-**
	FLAX,BRK/SC,PROC	5301290000	**MT**	0.0	0	0.0	0	0.0	0	0.0	0	0.0	-
	FLAX TOW & WASTE	5301300000	**MT**	0.0	0	0.0	0	0.0	0	0.0	1	0.0	0
	JUTE OT TEX FBR	5303900000	**MT**	0.0	0	0.0	0	0.0	0	0.1	2	0.0	0
SWEDEN	**FIBERS, EXCL COTTON**		**MT**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.1**	**2**
	SISAL PROCESSED	5304900000	**MT**	0.0	0	0.0	0	0.0	0	0.0	0	0.1	2
SWITZERLAND(*)	**FIBERS, EXCL COTTON**		**MT**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**17.6**	**7**	**0.0**	**0**
	FLAX TOW & WASTE	5301300000	**MT**	0.0	0	0.0	0	0.0	0	17.6	7	0.0	0
THAILAND	**FIBERS, EXCL COTTON**		**MT**	**53.8**	**35**	**60.4**	**37**	**37.8**	**46**	**1.5**	**1**	**0.8**	**1**
	JUTE OT TEX FBR	5303900000	**MT**	0.0	0	0.1	-	0.0	0	1.5	1	0.8	1
	VEG MAT STFF/PAD	1402009900	**MT**	0.0	0	0.0	0	16.0	9	0.0	0	0.0	0
	OTH VEG MAT/STF	1402909000	**MT**	53.8	35	60.1	36	0.0	0	0.0	0	0.0	0
	TRUE HEMP RAW/PR	5302100000	**MT**	0.0	0	0.2	-	0.0	0	0.0	0	0.0	0
	JUTE OT TEXTL FB	5303100000	**MT**	0.0	0	0.0	0	21.8	36	0.0	0	0.0	0
TURKEY	**FIBERS, EXCL COTTON**		**MT**	**0.0**	**-**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**
	JUTE OT TEX FBR	5303900000	**MT**	0.0	-	0.0	0	0.0	0	0.0	0	0.0	0
TAIWAN	**FIBERS, EXCL COTTON**		**MT**	**0.0**	**-**	**0.0**	**0**	**0.0**	**0**	**1.8**	**10**	**0.0**	**-**
	JUTE OT TEXTL FB	5303100000	**MT**	0.0	-	0.0	0	0.0	0	0.0	0	0.0	-
	TRUE HEMP PROCSD	5302900000	**MT**	0.0	0	0.0	0	0.0	0	0.3	2	0.0	0
	JUTE OT TEX FBR	5303900000	**MT**	0.0	0	0.0	0	0.0	0	0.3	3	0.0	0
	RAMIE&OT VEG FBR	5305900000	**MT**	0.0	0	0.0	0	0.0	0	1.2	6	0.0	0
UNITED KINGDOM	**FIBERS, EXCL COTTON**		**MT**	**99.4**	**116**	**84.4**	**88**	**26.5**	**59**	**21.8**	**30**	**26.4**	**23**
	FLAX TOW & WASTE	5301300000	**MT**	0.0	0	0.0	0	0.0	0	0.0	0	22.2	9
	SISAL PROCESSED	5304900000	**MT**	1.7	4	23.4	37	18.2	41	10.4	20	3.5	8
	JUTE OT TEXTL FB	5303100000	**MT**	0.1	1	7.5	17	4.6	10	0.0	0	0.6	1
	TRUE HEMP RAW/PR	5302100000	**MT**	16.0	8	34.5	26	3.5	2	0.0	0	0.0	3
	RAMIE&OT VEG FBR	5305900000	**MT**	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2

	FLAX,BRK/SCT/HCK	5301210000	MT	0.0	0	0.0	0	0.0	0	0.0	0	0.0	-
	FLAX,BRK/SC,PROC	5301290000	MT	4.4	10	0.0	1	0.0	1	0.0	1	0.0	0
	TRUE HEMP PROCSD	5302900000	MT	13.5	8	0.0	0	0.0	1	11.4	8	0.0	0
	JUTE OT TEX FBR	5303900000	MT	0.1	3	0.1	1	0.0	4	0.0	1	0.0	0
	OF ABACA:RAW/PRC	5305210000	MT	63.6	82	0.0	0	0.0	0	0.0	0	0.0	0
	RAMIE,OT VEG FBR	5305990000	MT	0.0	0	18.9	7	0.0	0	0.0	0	0.0	0
UKRAINE	**FIBERS, EXCL COTTON**		**MT**	**0.0**	**0**	**0.0**	**0**	**72.7**	**41**	**0.0**	**0**	**0.0**	**0**
	FLAX TOW & WASTE	5301300000	MT	0.0	0	0.0	0	72.7	41	0.0	0	0.0	0
VIETNAM	**FIBERS, EXCL COTTON**		**MT**	**101.0**	**16**	**145.0**	**22**	**99.8**	**19**	**0.0**	**0**	**17.0**	**1**
	OF COCONT,RAW,PC	5305110000	MT	101.0	16	145.0	22	99.8	19	0.0	0	17.0	1
ZAMBIA	**FIBERS, EXCL COTTON**		**MT**	**3.1**	**3**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**
	SISAL PROCESSED	5304900000	MT	3.1	3	0.0	0	0.0	0	0.0	0	0.0	0

Data Source: Department of Commerce, U.S. Census Bureau, Foreign Trade Statistics
(*) denotes a country that is a summarization of its component countries.

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OF COCONT,RAW,PC	**SRI LANKA**	5305110000	**MT**	**6,870.4**	**1,635,553**	**5,252.7**	**1,224,379**	**5,551.8**	**1,192,630**	**5,893.6**	**1,310,183**	**10,174.9**	**2,221,230**
	INDIA			127.0	63,889	70.5	67,019	300.4	169,719	554.2	387,818	787.5	274,416
	COLOMBIA			0.0	0	158.3	26,979	0.0	0	399.7	68,491	197.0	33,490
	NETHERLANDS			0.0	0	0.0	0	0.0	0	0.0	0	145.8	82,646
	MEXICO			2,653.4	593,920	491.4	120,594	743.8	162,628	230.8	45,581	101.3	15,394
	COTE D'IVOIRE			0.0	0	0.0	0	0.0	0	0.0	0	58.4	9,648
	CHINA, PEOPLES REPUB			0.0	0	0.0	0	0.0	0	9.0	10,875	48.2	15,490
	BRAZIL			0.0	0	0.0	0	0.0	0	0.0	0	32.8	3,941
	VIETNAM			101.0	16,439	145.0	21,840	99.8	18,900	0.0	0	17.0	1,000
	CANADA			0.0	0	0.0	0	0.0	0	0.0	0	5.1	6,501
	BELGIUM-LUXEMBOURG(*)			0.0	0	0.0	0	0.3	1,161	0.2	879	1.5	3,772
	AUSTRALIA(*)			0.0	0	0.0	0	0.0	0	36.1	11,856	0.0	0
	COSTA RICA			0.0	0	11.6	1,200	0.0	0	0.0	0	0.0	0
	EL SALVADOR			0.0	0	7.5	2,803	0.0	0	0.0	0	0.0	0
	GERMANY(*)			52.3	13,865	6.9	7,438	17.4	11,955	19.9	9,365	0.0	0
	HONG KONG			60.0	10,200	0.0	0	0.0	0	0.0	0	0.0	0
	PHILIPPINES			6.1	4,077	7.3	2,102	65.1	18,560	0.0	0	0.0	0
	SIERRA LEONE			0.0	0	19.0	3,500	0.0	0	0.0	0	0.0	0
	SINGAPORE			0.0	0	0.0	0	5.5	1,160	0.0	0	0.0	0