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COCOINFO INTERNATIONAL

Cocoinfo International is a popular journal on the coconut industry published twice a year by the Asian and Pacific Coconut Community (APCC)
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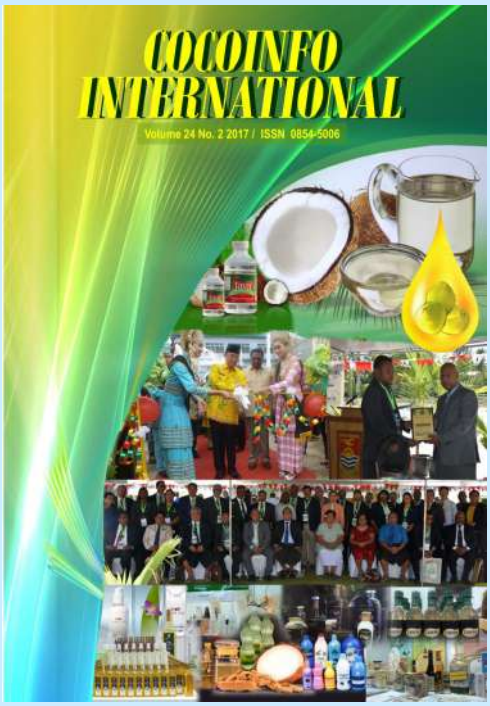

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CHALLENGES AND OPPORTUNITIES WITH HEALTHY STATUS OF COCONUT PRODUCTS

The Tarawa Accord was the agreement reached between the member countries of the Asian and Pacific Coconut Community at the 53rd APCC Session/Ministerial Meeting held last October 2017 in the Republic of Kiribati to vigorously promote the health and nutritional attributes of coconut and its many wellness products.

The truth about the healthy status of coconut and coconut oil has been around for many generations since coconut was discovered. APCC Scientific Advisory Committee on Health and the APCC Panel of Experts on Saturated Fats are fully prepared for constructive dialogue with FAO and WHO with the ultimate goal of ensuring the documented warnings against use of coconut oil is officially removed.

Manufacturing corporations around the world are investing heavily in the upgrading and new construction of processing facilities utilizing advanced technologies. Benchmarking is seriously pursued by the same manufacturers who are reaching for the highest quality in standards for products to meet consumer acceptance. Users of coconut products world over are practically chasing after the new emerging products for health and wellness.

At present the market trends are clearly indicative of consumer choice and acceptance of the varied products of coconut. Growth rates in export volumes continue to increase each year for Virgin Coconut Oil 30%, Coconut Water 150%, Coconut Milk/Cream/ Powder 50%, Desiccated Coconut 30%, Coconut Flour 115% and similar trends for other emerging products.

Young innovators are entering the industry at micro and small to medium enterprise levels around the world. An interesting array of products and marketing approaches are on the rise in India, Philippines and in small Pacific island states where production levels are much lower compared to their Asian neighbors.

As the world continues to experience severe effects of bad weather and climate change, it places demand on the coconut community who prepare to shift towards climate smart agriculture practices and seek out improved management systems to counter the rising threats of pest and disease affecting the coconut population.

Aging coconut trees must now be replaced with elite plant material that are early bearing, high yielding and resistant to pests and diseases so that the coconut industry could be sustained. Advanced technologies developed by the Yucatan Centre for Scientific Research (CICY) in Mexico is pursued by the Community as a means for mass production of coconut planting material.

APCC encourages consumption of fresh coconuts, coconut oil and the use of all healthy products of coconut for nourishment, health and overall wellness for families. The global Coconut Community therefore unites to promote the goodness of Coconut and foster inclusive growth of the Coconut Sector.

URON N. SALUM
Executive Director and Editor in Chief

FIJI MINISTER OF AGRICULTURE VISITS APCC SECRETARIAT

The Fiji Minister of Agriculture, Hon. Inia B. Seruiratu visited APCC Secretariat on 7 August 2017. He was accompanied by Dr. Apaitia Macanawai, Director for Research Division, Ministry of Agriculture and two Officials from Embassy of the Republic of Fiji in Jakarta i.e. Ms. Meneseini Q. Waibuta, Charge d'Affairs, and Mr. Hansel Whippy, Second Secretary. APCC Team had the honor to welcome the Fiji delegates. During the visit, APCC Executive Director, Mr. Uron N. Salum presented the latest update on coconut industry and way forward. Special discussion was given to the planned training programs that will be launched by APCC in cooperation with Coconut Research Institute of Sri Lanka as well as the tissue culture technology for speedy coconut breeding. The APCC team who joined the discussion were Ms. Sri Utami Widya Lestari, Mr. Alit Pirmansah, Mr. Muhartoyo. The Fiji delegates were pleased to have fruitful discussion and to receive the latest publications of APCC.

VALUE CHAIN WORKSHOP TO PROPEL GROWING COCONUT INDUSTRY IN THE PACIFIC

A workshop aimed at improving the coconut industry in the Pacific was held in Nadi involving over 50 stakeholders from around the region and experts from South East Asia and the Caribbean.

Local farmers, regional traders, farmer cooperatives, non-governmental organisations, industry consultants, and representatives from key trading partners and actors from all levels of the industry came together for the three-day workshop from 11-13 July.

The *"Coconut Industry Development for the Pacific Value Chain Stakeholders Workshop"* was organised by the Coconut Industry Development for the Pacific project (CIDP), a EUR 4 million (FJD 9.33 million) joint initiative with the Pacific Community (SPC), the European Union (EU) and the African Caribbean & Pacific Group of States (ACP).

Participants had the opportunity to take a 360-degree view of the trends, opportunities, constraints and challenges that the industry and stakeholders face. The information exchange, varying perspectives, in-depth discussions and creative solution finding in the workshop will formed the basis for developing an operational plan with key activities and priorities to be implemented by the CIDP project.

"Without a doubt, coconuts are highly significant for daily subsistence and economic and cultural value in the Pacific. The 'tree of life' is abundant in our islands and provides not only a direct source of cash income for those in the rural areas, but also a myriad of products that are useful. In food security, land stability, construction and building, beauty and skincare, cultural production, transportation, and even in mixed production systems where copra meal can be used as a source of protein for cattle and livestock, coconuts feature prominently in almost all aspects of day-to-day Pacific life," the Director of the Land Resources Division of the Pacific Community, Jan Helsen said.

The workshop included a "Coconut Market Place" where participants showed examples of their products and innovations and share ideas about new product development and market opportunities.

"Identified as one of the most important agricultural crops in the Pacific Islands, a multitude of opportunities are rapidly emerging in the sector that will bring positive effects in local economies and livelihoods around the region. Despite all this, the coconut sector in all Pacific Island countries is behind in reaching its full potential," said Karen Mapusua, Team leader for the CIDP.

CIDP was established to address these issues and developments, and is determined to bolster the coconut sector through improving the competitiveness of small producers, strengthening regional integration of related markets and intensifying production. By bringing together diverse industry stakeholders for this workshop, CIDP will be able to identify priority areas for training, needs for potential study tours and develop robust value chain road maps.

Ms. Mapusua further added that the workshop is an excellent platform to provide private sector members exposure to examples of innovation in the coconut sector from their Pacific neighbours and the international arena. *(https://eeas.europa.eu)*

INDIA PACKAGED COCONUT WATER MARKET TO GROW AT A CAGR OF 17% BY 2022 - GROWTH DUE TO RISING HEALTH CONCERNS - RESEARCH AND MARKETS

India packaged coconut water is projected to grow at a CAGR of over 17%, in value terms, during 2017-2022, on the back of rising health concerns due to hectic and stressful lifestyle and increasing consumer spending on wellness products to prevent signs of ageing. Moreover, surging demand for packaged coconut water can be attributed to growing awareness about potential health benefits of drinking coconut water, natural and healthy drinks over high calorie carbonated drinks. All the above stated factors are likely to propel demand for India packaged coconut water market over the next five years.

The market for India packaged coconut water is anticipated to grow at a robust CAGR, on account of increasing online presence of major packaged coconut water manufacturers and shifting focus of manufacturers towards highlighting the health benefits of coconut water as compared with carbonated fizzy drinks. *(http://www.erienewsnow.com)*

IBSA FUND APPROVES NEW PROJECTS FOR KIRIBATI

The Board of Directors of the India, Brazil and South Africa Facility for Poverty and Hunger Allevia-

tion (IBSA Fund) approved three projects of which one was for Kiribati. The proposal for Kiribati aimed at enhancing inclusive sustainable economic development through the coconut sector, which has strong capacity-building elements among coconut farmers, extension workers/trainers and interested youth; the three initiatives together represent a budget of about $2.3 million, and exemplify the demand-driven and thematically-varied support of the IBSA Fund across continents. *(https://www.unsouthsouth.org)*

PHILIPPINE KEY INDUSTRY PLAYERS JOIN FORCES TO DRIVE SUSTAINABLE COCONUT OIL PRODUCTION

Four key industry players, BASF, Cargill, Procter & Gamble (P&G) and the Deutsche Gesellschaft for Internationale Zusammenarbeit (GIZ) GmbH, have come together to drive the production of sustainable coconut oil in the Philippines and Indonesia. They are collaborating on the project which will create a sustainable, transparent and certified supply chain of coconut oil.

The project is in collaboration with the 'develoPPP.de' programme launched by the German Federal Ministry for Economic Cooperation and Development (BMZ). The develoPPP.de programme aims to provide training for local employees, promote the use of climate-friendly technologies and to improve social standards at production facilities. It works alongside companies with projects in developing countries to ensure sustainable international business commitment are met.

The collaboration will focus on Southern Mindanao and Southern Leyte in the Philippines and Amurang in North Sulawesi, a province in Indonesia, as these countries are the two largest producers of coconuts and exporters of coconut-based products. In the Philippines and Indonesia, most farmers are smallholders with less than four hectares of land, meaning there are little or no economies of scale, a lack of financing and training resources, as well as a rigid supply chain. BASF, Cargill, P&G and GIZ are hoping to work alongside farmers and to train them in hopes they will be able to increase their incomes and self-sufficiency due to having more productive farms. (*UCAP Bulletin*)

AUSTRALIA PROVIDES ADDITIONAL FUNDING TO AGRIBUSINESS PROJECT IN SAMOA INCLUDING COCONUT

The Government of Australia has provided AU$1 million ($750,000) in additional financing to the ongoing Samoa Agribusiness Support Project designed to boost the south Pacific nation's economic performance by addressing challenges hindering increased trade and export. The project, cofinanced by the Asian Development Bank (ADB) and the Governments of Australia and Samoa, was launched in May 2015 and provides access to finance and tailored business support services to agribusinesses in the country.

"We depend on agriculture to help develop and grow our economy," said Lavea Tupa'imatuna Iulai Lavea, Chief Executive Officer of the Ministry of Finance. "Agribusiness partnerships and promotion of commercial value chains in increasing and sustaining economic productivity are key priority areas for us." Agribusinesses are often family-owned enterprises, mostly involved in agro-industrial processing of local raw materials, such as taro and coconut, supplied by smallholder families. Agribusinesses are, therefore, critical for stimulating agricultural production and sustaining local employment generation.

"Private sector development continues to be important in catalyzing sustainable and inclusive economic growth in Samoa," said Emma Fan, Regional Director of ADB's Pacific Liaison and Coordination Office in Australia. "By partnering with commercial banks and addressing the constraints that hinder access to finance, the project can help agribusinesses expand and create more jobs for the community." The project has now partnered with four commercial banks to provide suitable and affordable financial services to participating agribusinesses. With project support, increased willingness to provide sustained commercial funding to the agribusiness sector in Samoa is anticipated.

"Enabling economic growth is a key priority of Australia's aid program and our aid for trade focus. In supporting Samoan agribusinesses, this project increases economic opportunities for farmers, families, and communities," said Australian High Commissioner Sue Langford. The project has been performing well for the past 12 months, providing advisory services and assistance to obtain commercial funding to medium-sized businesses. The supported agribusiness segments include cocoa, coconut, root crop, and poultry farming.

ADB has been working with the Government of Samoa since 1966 and has approved $186.19 million in loans, $122.97 million in Asian Development Fund grants, and $32.06 million in technical assistance. ADB, based in Manila, is dedicated to reducing poverty in Asia and the Pacific through inclusive economic growth, environmentally sustainable growth, and regional integration. Established in 1966, ADB is celebrating 50 years of development partnership in the region. It is owned by 67 members—48 from the region. In 2016, ADB assistance totaled $31.7 billion, including $14 billion in cofinancing. *(https://www.adb.org)*

VANUATU TO REPLANT 1 MILLION COCONUT TREES BY 2026

The Government of Vanuatu has embarked on an ambitious plan to plant 1 million coconut trees by 2026. The Director of the Department of Agriculture and Rural Development, Antoine Ravo says coconut trees have withered as a result of cyclones apart from growing

old and there is a need to plant new ones. A new coconut sector strategy will identify gaps and provide causes of action to help revive the sector. Ravo said that mature coconut trees that are old and donot bear fruits will be cut down and used as timber. Coconut timber milling trial at Malekula PRV plantation has already started. Department of Forestry will provide assistance in the coconut timber milling process. He also said that DARD aims to do more research and produce dwarf coconut plants which can produce more fruits and are also able to withstand cyclones and windy weather. Ravo said that they are also looking at incorporating climate change and environmental issues in coconut sector development. Environmental impact assessment will be conducted in pilot ares to determine extent of degradation on soil fertility. The 2007 agriculture census recorded a very low rate of replanting or planting of new stock of coconut. The national stock currently comprises of very old and non producing stands, the majority being well over 70 to 80 years of age. The highest number of young coconuts were planted between the years 1977-1986 with an average of 291,568 young trees per year. The increase is attributed to the coconut development program funded by the European Union during that period. Coconut seedlings are expected to be distributed next month. *(www.loopvanuatu.com)*

IRI FIGURES SHOW WE'RE GOING NUTS FOR COCONUT -INSPIRED BEAUTY PRODUCTS TO THE TUNE OF MORE THAN £12M PER YEAR IN UK

The growth in coconut food and drink is reflected as gap between internal and external health closes. Coconut is the ingredient of choice for today's shoppers looking for inspiration when buying health and beauty products, according to the latest data from IRI, the provider of big data and predictive analytics for FMCG manufacturers and retailers. Figures show 23% growth in value sales over the last year (52 w/e 10 June 2017) of coconut products in Health Beauty & Accessories (HBA) now worth more than £12m a year to UK supermarkets, high street chemists and independent pharmacies, and corresponding with the growing popularity of coconut-inspired food and drink products like coconut milk and water.

RI's data shows particularly strong growth in the haircare and personal care categories, with combined sales of more than £11m a year. Coconut haircare products have grown by 29% over the last year, driven largely by coconut oils and milks to help condition hair, with conditioners growing by 50% to £3.5m and shampoos by 31% to £4.1m. Value sales of personal care products have also grown by 31%, driven by an 11% growth in liquid soaps (to £15.5k) and 7% growth in shower products (to £3.7m).

"Looking at our data, we can see that coconut as an ingredient has really been gaining in popularity since January of last year, which corresponds with figures showing that coconut-related web searches have been on the rise over the past couple of years," comments Kaajal Bhatti, Retail Insight Manager, IRI. "I think what we're actually seeing is something of a coconut revolution, rather than just a fad, as the gap between food and drink and health and beauty closes, suggesting that more and more people are looking to products and ingredients that look after both their internal and external health. There are a few ingredients that work well across both sectors, like lemon and aloe vera, and coconut is a great example of this."

According to IRI sales data looking at coconut food and drink categories last year, coconut water was the standout item with value sales of £60m (52 w/e 26 March 16), followed by coconut milk with sales of £16.4 million, while coconut oil was worth more than £14 million per year. "Although the trend started in the food and drink industry, it has quickly evolved into health and beauty showing the true versatility and popularity of the ingredient and the opportunities for both manufacturers and retailers in terms of product innovation, range optimisation and promotional campaigns. But we could see it challenged in the future by other new ingredients hitting the shelves, including charcoal, which has been creeping into a number of products like face masks." *(https://www.iriworldwide.com)*

COCONUT FACES A LOOMING GLOBAL SUPPLY SHORTAGE, BUT COULD AN AUSTRALIAN INDUSTRY CRACK IT?

Demand for coconuts is booming and as ageing trees threaten to curtail world supply, researchers suggest northern Australia could develop a local coconut industry. Australians, like many in the western world, are developing a taste for coconut. While we have long enjoyed a dusting of dried coconut on lamingtons and other baked treats, it is now health conscious consumers that are driving exponential growth in the market for high-value products like coconut water and virgin coconut oil.

Strong niche markets are also emerging for coconut-based snacks, milk, yoghurt and ice cream, as well as coconut flour and coconut sugar, while demand for the traditional desiccated coconut remains solid. Bao Vuong, a senior industry analyst with market research company IBISWorld, said the growth in products was explained by consumers buying into the perceived health benefits of coconut.

He pointed out that the number of brands offering coconut water products was ever expanding, with major supermarket Coles even launching its own private label coconut water. "There is rising consumer demand for alternative products and I guess Coles is trying to tap into that market."

Nearly all the fresh coconuts and coconut products sold in Australia come from overseas, or are pro-

duced locally from imported raw materials. Australian Bureau of Statistics trade data shows we are importing more coconut than ever before.

In the last financial year, Australia bought in more than $35 million worth of coconut oil, a figure that has almost tripled in the past decade. Imports of fresh and dried coconut have also increased rapidly. It is possible to source fresh locally grown coconuts in northern Australia, but coconut production is not on a commercial scale and restricted to harvesting fruit from ornamental palms in parks, along beaches and in gardens.

Most of the world's coconuts are grown in countries such as Indonesia, the Philippines, India, Brazil, Sri Lanka, Vietnam, Mexico, Thailand and Malaysia. Coconut production is also a key source of revenue for Pacific nations Fiji, Samoa, Papua New Guinea, Vanuatu and Kiribati. The Philippines is the world's largest producer of coconut oil and is also ramping up production of coconut water. According to the Asian and Pacific Coconut Community, an intergovernmental agency that works to promote the coconut industry, exports of coconut water from the Philippines jumped from just 647,000 litres in 2008 to 1.8 million litres in 2010. It then soared to 61 million litres in 2015.

While business is booming for the Philippines' coconut industry, the country, like many other coconut producing nations, faces a looming shortage as trees age and production declines. Uron Salum, a coconut farmer from Papua New Guinea who serves as Executive Director of the Asian and Pacific Coconut Community, said it was widely acknowledged that after 60 years most coconut trees passed their production peak and entered decline, producing fewer nuts. Some estimates suggest the world needs to plant a billion new trees to keep coconut production on track.

Mr. Salum said the industry now faced a predicament of increasing demand at a time when farmers had not been replanting for 20 to 30 years.

"It's only in the last seven years that the industry has taken a revolutionary turnaround in terms of viability, and the higher value products came onto the market and began to be received well," he said. "Prices became good and the issue of viability became more assured for farmers. "Seven to 10 years ago it was very difficult to tell a farmer to replant his stock because he probably didn't see any future in it [the coconut industry]. There is now."

In the Philippines, there is now a concerted effort to encourage farmers to replant coconut palms, while Sri Lanka has launched a campaign to replant 6 million palms every year to ensure future supply. Pacific governments are also giving priority to helping farmers plant more palms. But despite these efforts, the squeeze is already being felt. Mr. Salum said many large factories, which were established to process hundreds of thousands of coconuts each day, were now operating at roughly half their capacity. "They can't get enough coconuts now," he said.

As many countries race to plant more trees, it is likely there will be a shortage of popular hybrid varieties of new plants. That is where Australian research could play a crucial role. Scientists at the University of Queensland have been developing tissue culture cloning technology to produce baby coconut palm plants, known as plantlets, quickly and more cheaply. Dr. Julianne Biddle, a researcher with the University's School of Agriculture, said in working on projects to assist neighbouring Pacific nations with their coconut production, researchers began pondering whether Australia could also grow coconuts commercially. There has been talk in the past of developing a commercial coconut industry in Australia, but it has never taken off.

Dr. Biddle believes a number of factors mean the timing could now be right for a local industry. As well as the advancement in cloning technology, which has the potential to produce plants that bear nuts more quickly, soaring consumer demand has built a strong market and good prices for value-added coconut products. Add to that the development of new machinery, like coconut climbing robots, means labour costs of harvesting and processing coconuts could be reduced.

"The way that technology is advancing you could put coconuts in the ground now and within three years when you've got fruit. Imagine the changes that will have happened," Dr. Biddle said. "In the last six months we've had four producers contact us who are interested in planting areas to coconut in northern Australia and I expect that the interest will continue to increase."

One potential grower was considering planting 150 hectares of coconuts in the Northern Territory. "If you are planting 125 coconuts per hectare and you can get about 200 coconuts per plant, you're getting about 25,000 coconuts per hectare, per year," she said.

"And if you are just selling those as, say, a whole drinking fruit for $2 each, you'd end up with about $50,000 per hectare." Dr. Biddle sees potential parallels between Australia's olive oil industry and a new virgin coconut oil industry.

"People planting olives were criticised initially and they've done so well," she said. "It's been a lot of good product branding, encouraging people to visit the region and really own the brand. I think that could be something we could work towards in the coconut industry, for sure." Dr. Biddle predicts a local coconut industry would also bring benefits for Australian consumers.

"A lot of people would argue that the fresh products that are coming into the country are not being well looked after and that people are getting products on the shelves in supermarkets in the fruit section that are rancid before they even arrive," Dr Biddle said.

"[If we had a local industry] you would have much better access to fresh drinking coconuts.

Mr. Salum of the Asian and Pacific Coconut Community also sees potential in a coconut industry in Australia's north, and said demand for the product is only likely to increase.

"As long as the population is increasing in the world, I believe the demand for coconuts will also grow." *(http://www.msn.com)*

NEERA LIKELY TO GO GLOBAL

Addressing a roadshow in Chennai on World Food India 2017, to be held on November 3-5 in New Delhi, Union Minister for Food Processing Harsimrat Kaur Badal said products such as neera would go a long way in promoting Indian processed food at the global arena and provide a platform for international collaborations.

Gagandeep Singh Bedi, Principal Secretary (Agriculture), Tamil Nadu, said the state government is working to bottle and sell neera. Neera has low glycemix index and possesses essential minerals, making it a health drink. "It could be a healthy alternative to softdrink," Bedi said. "We are in discussions with the Coconut Development Board and food processing companies to move the project forward". *(UCAP Bulletin)*

SUPPLY OF TENDER COCONUT WATER MADE COMPULSORY IN MULTIPLEXES IN MYSURU, INDIA

The district administration has made it compulsory for multiplex owners in the city to offer tender coconut to its movie going customers. With an objective to help coconut growers and farmers who have been facing acute drought, Deputy Commissioner of Mysuru D. Randeep has asked the multiplexes in Mysuru to make available tender coconut water. Following instructions from the Commissioner of Horticulture Department, the DC has written a letter and urged the Mysuru Chalanachitra Mandiragala Okkuta to allow sale of tender coconut water at all multiplexes and film theatres in the city. A demand to ban sale of aerated beverages and cool drinks in multiplexes was made by MLC M K Pranesh recently in the legislative council. Following this the Horticulture Department with an intent to help the farmers, issued a note to all Deputy Commissioners in the state to instruct the multiplex and theatre owners to make available tender coconut water. *(http://www.uniindia.com)*

INDONESIA LOOKS TO EXPORT COCONUT AND PINEAPPLE TO UZBEKISTAN

Indonesia and Uzbekistan will enhance bilateral cooperation in agriculture, as the two countries have a huge potential in the sector. Indonesia's Agriculture Minister Amran Sulaiman, after a meeting with Uzbekistan Deputy Prime Minister Zoir T Mirzaev said that Uzbekistan was a potential export market for the country's commodities, including coconut, pineapple and other products. Both countries have agreed that the cooperation would focus on various issues, including the exchange of students and researchers. Uzbekistan has also asked for the transfer of cultivation technology for pepper, spices and soybean, and an exchange of soybean genetic sources, Amran revealed. Indonesia will adopt irrigation technology from Uzbekistan and has asked the country to help it promote its palm oil. *(http://www.freshplaza.com)*

COCONUT INDUSTRY BENEFITS FROM CARDI PROJECT

Since the implementation of the Caribbean Coconut Industry Development Project two-and-a-half years ago, the Caribbean Agricultural Research and Development Institute (CARDI) has made several strides in improving the local coconut industry through training as well as the establishment of new nurseries among other targeted initiatives. The four-year project was undertaken through a partnership between CARDI and the International Trade Centre (ITC), with funding provided by the European Union. It was aimed at improving income and employment opportunities, food security, and overall competitiveness of the Caribbean coconut sector. Participating countries in the project include Jamaica, Belize, St Vincent and the Grenadines, St Lucia, and Suriname, among others in the region. According to CARDI country representative for Jamaica Dr. Gregory Robin, Jamaica has the most organised coconut industry board in the region and so a partnership was developed with the local Coconut Industry Board, which had established a national stakeholder platform that addresses all the issues along the value chain, from production to the manufacturing of coconut water, oils and soaps. *(http://caricom.org)*

PHILIPPINE COCONUT AUTHORITY TO GET P1.4 BILLION BUDGET FOR NEXT YEAR

The Philippine Coconut Authority (PCA) will get P1.4 billion allocation for 2018, the same budget level in the current year. Bulk of the amount will be used for replanting of coconut trees nationwide. While PCA failed to get a higher budget as proposed at P3.5 billion, PCA Administrator Romulo dela Rosa said the agency would effectively utilize its approved allocation. "Our priority next year will be replanting, the bulk of the budget will go to that. We will focus on fertilization and research and development," Dela Rosa said.

The PCA targets to increase the number of coconut trees by at least 10 million trees this year, 15 million trees in 2018, and 20 million trees every year starting 2019. The agency is also focusing on other livelihood component such as coconut enterprise and high value coconut products, allowing farmers to deviate from the mere coconut and copra alone to supplement income. Latest data showed that 3.5 million hectares are planted with coconut or 26 percent of the coun-

Try's total agricultural land. Sixty-eight out of the 81 provinces are coconut areas. The Philippines is the top exporter of coconut oil and other coconut-based products globally despite being only the third largest coconut producer after India and Indonesia. Coconut remains a leading agricultural export of the country, earning no less than $1.5 billion annually since 2010. Highest revenue was recorded in 2011 at $1.95 billion. *(UCAP Bulletin)*

ROADMAP TO STRENGTHEN COCONUT INDUSTRY

The Philippine Coconut Authority (PCA) presented their roadmap for 2018-2022 focusing on strengthening the coconut industry through addressing the challenges like low production in order to meet the global demand of coconut products. In her report during the 3rd general assembly of the Davao Region Coconut Industry Cluster, Inc. at Grand Men Seng Hotel, PCA-Davao Project Development Officer Juvy Alayon said that the PCA aims to increase the average annual production from 2.523 million metric tons copra by 2025 as well as the hectarage of bearing coconut trees from 3.4 to 4.4 million hectares for the next seven years.

Accordingly, Philippines is one of the top coconut producers worldwide, however, Alayon said that some farmers were discouraged to venture or continue in coconut farming because of the low income they get unlike other agricultural crops which led to the decline of its productivity. Low productivity is also the result of circumstances like natural calamities particularly El Niño and typhoon which affects the agricultural products, conversion of farms to residential area, and shifting of farmers to other crops. Thus, the PCA is committed to "increase the farm income to a level at least at par with existing poverty threshold, reckoned at an average of 2.1 hectares per farmer and increase annual foreign exchange earnings from $877 million to a minimum of $1 billion by 2025."

They have initiated interventions such as the rehabilitation through the fertilization and plant selected seednuts with option of obtaining high yields varieties and hybrids. In fact, in their Smallholder oil palm development project (SOPDP), in 2015 they have planted a total of 12,288 seedlings while 12,000 for 2016.

Under their new roadmap, Alayon said PCA will increase productivity & production, promote intercropping, value adding entrepreneurial activities, farm & product diversification and organize coco farmers preferably into cooperatives. After that, if cooperatives were established, it would easily give the farmers access to direct credit to enhance their farming. Senility of coconut trees, illegal cutting of coconut trees, imminent decline in number of coconut farmers and inadequate social benefits, over-capacity/under-utilization of oil mills, low copra price and prevalence of poor quality copra were also some of the matters they are battling right now. With this roadmap, they will involve the farmers in the trading & processing sectors of the industry and product diversification, invest in Research & Development on medicinal & nutritional benefits from coconut products in coordination with the private sectors.

She added that marketing efforts will also be enhanced particularly for non-traditional high value products and prioritize establishment of mini oil mills in islands and remote rural areas to be operated by coco farmers' cooperatives.
(http://www.sunstar.com.ph)

KOKONUT PACIFIC SOLOMON ISLANDS ACHIEVES FOOD SAFETY CERTIFICATION

Kokonut Pacific Solomon Islands (KPSI), a local producer of virgin coconut oils and soap products, has recently achieved food safety certification to the internationally recognized HACCP (Hazard Analysis and Critical Control Point) certification standard. It is only the second time that a company in Solomon Islands has achieved such certification and will allow KPSI to meet international standards for food safety and expand their export markets. KPSI Managing Director Bob Pollard said, "Achieving this certification has been a real challenge, especially for our young team, it has been one of our key goals. We are very thankful to PHAMA for their support. This will support us in our export business, the real beneficiaries are the coconut farmers and we hope this will allow us to open new markets to sell more."

The certification was supported by the Pacific Horticultural and Agricultural Market Access (PHAMA) Program. PHAMA is an Australian Government initiative, co-funded by the New Zealand Government. PHAMA is also working with seven other local businesses who are working hard to undertake their HACCP certification audits around November this year. These businesses are involved in a range of food product industries including coconut, seafood, root crops and ngali nuts. PHAMA's Country Manager in Solomon Islands, Andrew Piper, commented that "most companies are able to comply with the practical requirements for HACCP certification. The major challenges for local businesses are often the documentation and record -keeping requirements." He added that "we hope several other businesses will also be able to achieve HACCP certification later this year".

In order to compete in international markets, it is important for exporting businesses to be able to show overseas customers they meet recognised food safety standards such as HACCP. KPSI's HACCP certification audit was conducted in May 2017 by international HACCP auditors AsureQuality. The full certification process took about 2 years starting with an initial gap assessment in 2016 that identified potential hazards and provided food safety recommendations that have since been implemented by KPSI. KPSI sources virgin coconut oil from village producers and co-

conut farmers throughout Solomon Islands. This product is refined and packaged at KPSI's factory at Lungga for sale as virgin coconut oil and cosmetic products to markets in Australia, New Zealand, America and Europe. KPSI currently exports about 200 metric tonnes of product per year and hopes to increase this trade in future. *(http://phama.com.au)*

REGIONAL EFFORT NEEDED IN BEETLE FIGHT

A concerted regional effort is required to eradicate the invasive pest Coconut Rhinoceros Beetle (CRB), General Manager of Guadalcanal Plains Palm Oil Limited (GPPOL) Craig Gibsone said. He warned that it is only a matter of time before the pest reaches Vanuatu and Fiji or even the more coconut- dependent countries such as Kiribati and Tuvalu. "I would like more attention to be paid to the CRB and its potential impact not only on Solomon Islands as we have seen." The CRB has passed from Guam to Papua New Guinea and to Guadalcanal and is spreading on the most populous Malaita and also the volcanic Savo Island. "This is really a regional problem and will have regional consequences. There needs to be a combined effort across the whole Pacific to eradicate this invasive pest" he told.

Mr. Gibsone said he is concerned that CRB is going to have devastating impacts on the national economy and food security. "I believe the solution is further research to identify ways in which the beetle can be controlled. Some research has been done within the Pacific, but more is required in order to come up with a long-lasting and economical solution. There are experts within the region that have the capability to do this but more attention needs to be given to the urgency of the problem", he added.

The GPPOL oil palm plantation was invaded by these invasive pests two years ago. "So far we are trying out many things to control the beetle, but we are yet to find anything that is effective enough to impact on the beetle population". The GPPOL General Manager said it is the smallholder oil palm growers and also coconut growers who are hard hit by the beetle invasion as they do not have the resources to implement their own control measures.
(http://www.solomonstarnews.com)

SECOND COCONUT TRIANGLE IN SRI LANKA TO BE ESTABLISHED IN NORTH EAST

Government is planning to establish the second coconut triangle basing the North and East with the aim of doubling the coconut production in 10 years, said Plantation Industries Minister Naveen Dissanayaka. "We have got a budget allocation of Rs 200 million for the coconut project. Under this project we will establish nurseries, start offices while lands have been identified. In addition 300,000 coconut plants will be given to the people of this area. The government is planning to give more resources to the people through the Kapruka Agriculture societies", said the Minister. The coconut triangle which includes the districts of Kurunegala, Puttlam and Colombo produces 3000 million nuts annually and out of this 200 million are exported while the balance is consumed locally. The coconut triangle covers 66 percent of the total acreage of the country. *(www.news.lk/news)*

VIETNAM VARIETY COCONUT FARMING GETS POPULAR

Farming of Vietnam variety coconut is spreading rapidly in the southern region of the country as the land here is very suitable for growing it and growers get high prices, farmers and experts said. On a visit to the horticulture centre in the district, it was found that 40,000 Vietnam variety coconuts had been distributed to farmers from the centre for the last one year, and the number was increasing day by day. Faruk Sarder, a farmer of Chouhutkathi area in Babuganj upazila, said he got five hundred seeds of Vietnam variety coconut last year and planted those. "After three years, we will get at least 200-250 coconuts from each tree," he added. Local variety coconut trees take a long time to bear fruit, but the Vietnam variety will give full production within three years, said farmer Mainul Shikder of Babuganj area. Mainly Siam Blue and Siam Green varieties have been planted in the region, said Deputy Director (DD) of the district Horticulture Centre Swapan Kumar Halder. "We are introducing Vietnam variety like Siam Blue and Siam Green because they bear fruits within a short time. Farmers will be more benefited farming this variety, and production will rise three times in this region," he said. Swapan said the soil here is suitable for coconut farming as it grows fast in saline water. Vietnam variety has been cultivated on over 1,000 acres of land, he added. *(http://www.thedailystar.net)*

AWARENESS SESSION FOR PACKAGERS OF COCONUT WATER

The Bureau of Standards Jamaica hosted a coconut water awareness session on 27 September 2017 at the BSJs Multipurpose facility in Kingston. The presentations included relevant standards, relevant codes of practice, labelling requirements, microbiological requirements and understanding reports. *(http://www.bsj.org.jm)*

POTENTIAL FOR GROWTH IN COCONUT INDUSTRY

It is time Papua New Guinea diversifies the coconut industry and develops other byproducts. Concerns have already been raised by the Department of Agriculture and Livestock that the copra sector has not been doing well and failing to make a big enough contribution to the economy.

Why are we worrying about money from copra only? Why not look at expanding and adding value to coconut by developing other byproducts?

We can have virgin coconut oil, coconut fibre and coconut lumber-industries. Another potential export are coconut shells. Papua New Guinea is listed as among the top 10 coconut-producing country in the world along with Indonesia, Philippines, India, Brazil, Sir Lanka, Mexico, Thailand and Malaysia.

Statistics show that in 2011 we produced over 1.2 million tonnes of copra. The Kokonas Indastri Koporesen (KIK) office should expand more into products like virgin coconut oil, coconut fibre, coconut shells and coconut charcoal, which has a variety of uses. For Papua New Guinea, we possibly may have an oversupply of coconut trees and coconuts in general, but our challenge is to produce the volume that will be required to meet demands from world markets. There should also be a replanting programme with copra producers asked to start replanting now rather than later. To leverage and take advantage of these, the KIK needs to aggressively put in place an 18 to 24-month plan, from drafting the strategies to exploring and securing markets. Furthermore, we need to re-align and build capacity, and plan and strategies how to do it from the top down to the growers, buyers and exporters.

By diversifying we will create stability and be able to better weather the storms of fluctuating world prices, and consequently, maintain a steady flow of income for our growers. Much of the work of diversification can be done by the growers themselves. As they harvest the coconut meat and prepare it for drying, they prepare the shells and the fibre and therefore get three raw products from one nut. We don't need to go far to see how and where we can exploit our coconut shells. Philippines, one of our neighbouring Asian countries, is currently the world's number one coconut producer. In 2011 we were ranked within the top 10 coconut-producing nation in the world with Philippines at the top. They have doubled their production of coconut shells for the charcoal industry from 25,000 tonnes to 45,000 tones. Their exports of natural activated carbon from coconut shells for use in water filtering industry increased from 23,000 tonnes to 38,000 tonnes in the same year. These lessons, examples and attractive rates of what these countries are doing to boast and diversify their coconut industry certainly put Papua New Guinea not too far behind. It's time to muscle up, put all our efforts and thinking cap on to accelerate and take our coconut industry to the next level to diversify the industry and maintain a constant income for our growers and the nation in general.
(http://www.thenational.com.pg)

PHILIPPINE COCONUT ROADSHOW COMES TO LOS ANGELES

Leaders and members of the Philippine coconut industry launched a coconut roadshow on Friday, September 8 at the San Gabriel Hilton Hotel in San Gabriel, Los Angeles. The show was the first out of four being held throughout the United States meant to share the outlook of the Philippines' booming coconut oil industry that was recently threatened by a report by the American Heart Association (AHA) report. Sponsored by the Philippine Coconut Authority (PCA), the United Coconut Association of the Philippines (UCAP), and the Philippine government, around 20 coconut industry companies and organizations came together to promote coconut products for both food and non-food markets. Key speakers at the lunch panel included Virgin Coconut Oil of the Philippines (VCOP) founding member Marco Reyes, and United Coconut Association of the Philippines (UCAP) President Dean Lao, Jr. Renowned Filipina Chef Cecilia de Castro also made an appearance.

HAYCARB WINS BIG AT PRESIDENTIAL AWARDS 2016

Haycarb PLC has won the awards of 'Highest Value Added Exporter' as well as 'Highest Foreign Exchange Earner' in Coconut Non-Kernal Products Sector (in recognition of its Coconut Shell Based Activated Carbon Manufacture and Exports) at the prestigious Presidential Export Awards 2016 organized by the Export Development Board - Sri Lanka held in a gala ceremony presided by the President of Sri Lanka. They have been recognized for their immense contribution towards the development of activated carbon industry in Sri Lanka as pioneers in the country to become the highest value added exporter and highest foreign exchange earner in this category. *(http://www.haycarb.com)*

HOW COCONUT OIL IS HELPING COMMUNITIES IN VANUATU!

The project is funded through the Australian Government's aid program, and the training was delivered completely in the local language, Bislama, with Bislama resources for the people to take home with them. The whole training package was also tailored to this particular group who are setting up businesses related to a pilot we are working with them which is about having reliable access to food.

This week the participants have been learning about how other businesses operate in and around the capital of Vanuatu, Port Vila. Specifically, they have been learning about marketing to both local and tourist markets to apply lessons in their own communities on the islands of Gaua, Pentecost and Maewo. The women have bought packaging for their oil and they all have great ideas on how and where to sell their products when they return to their communities. One woman owns a shop, another will utilise a cooperative, and another will discuss her products with the popular shop in the local town and try to sell there. The coconut oil they produce uses a different machine to others and utilises a method which is more pure than other approaches because it is taken directly from the coconut, not separated using water. This means the oil is of particularly high quality. Our colleague, Grace, who has been visiting there, has seen a sample and says it is the most fragrant coconut oil she has ever come across! *(https://anglicanoverseasaid.org.au)*

HOW THE WRONG SCIENCE IS MAKING PEOPLE SICK: THE TRUTH ABOUT SATURATED FAT, ANIMAL FAT AND COCONUT OIL

Dr. Fabian Dayrit[1]

Introduction

On June 15, 2017, the American Heart Association released its Presidential Advisory entitled "Dietary Fats and Cardiovascular Disease."Although the title mentioned dietary fats, it was actually an attack on coconut oil.Although this Advisory tried to appear authoritative and objective, a detailed analysis shows that it is full of errors and biases.

1. AHA attacked coconut oil using studies that did not involve coconut oil.

Although the AHA Presidential Advisory claimed that it would present the "most recent studies, on the effects of dietarysaturated fat intake," it in fact just recycled old studiexs and reinterpreted them using statistical arguments. Four of the studies dated from the 1960s and 1970s and had been previously criticized for being poorly executed. But more to the point, all of these studies are irrelevant to coconut oil because none of themused coconut oil as a test material: these studies used animal fat and AHA just assumed that animal fat and coconut oil are the same. They are not!

Table 1 compares the fatty acid profiles and cholesterol content of coconut oil, butter, beef fat (tallow), and hog fat (lard). The following conclusions are clear:

1. Coconut oil has a vastly different fatty acid profile from animal fats and to assume a similarity is simply incorrect. Further, coconut oil is about 63% medium-chain fat while beef and hog fat do not contain any

Table 1. Fatty acid profile and cholesterol content of coconut oil and various animal fats.

Fatty Acid	Coconut Oil[1]	Animal Fat[2]		
		Butter	Beef Fat	Lard (Hog Fat)
C4:0,% butyric acid		3		
C6:0,% caproic acid	<0.7	2		
C8:0,% caprylic acid	7			
C10:0,% capric acid	7	3		
C12:0,% lauric acid	49	4		
Medium-Chain Fatty Acids, %	**63**	**9**	**0**	**0**
C14:0,% miristic acid	19	12	3	2
C16:0,% palmitic acid	9	26	27	27
C18:0,% stearic acid	3	11	7	11
Long-Chain Saturated Fatty Acids, %	**31**	**49**	**37**	**40**
C16:1,% palmitoleic acid		3	11	4
C18:1,% oleic acid	7.5	28	48	44
C18:2,% linoleic acid	1.8	2	2	11
C18:3,% linoleic acid	<0.2			
Unsaturated Fatty Acids, %	9	33	61	59
Cholesterol, mg/kg	0 to 3	2150	1090	950

[1] Codex Alimentarius 210-1999, amended 2015. Median values are calculated.
[2] USDA Food Composition Databases. https://ndb.nal.usda.gov/

Figure 1: Reproduction of part of the fatty acid table from the AHA Presidential Advisory (AHA page e4). AHAexcluded caproic acid (C6), caprylic acid (C8), and capric acid (C10) as components of coconut oil and lumped all saturated fats into one group

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Table. Fatty Acid Composition of Fats and Oils

	Saturated, g/100 g			Monounsaturated, g/100 g		Polyunsaturated, g/100 g		
	Total	Lauric (12:0), Myristic (14:0), Palmitic (16:0)	Stearic (18:0)	Total	Oleic (18:1)	Total	Linoleic (18:n-6)	α-Linolenic (18:3n-3)
Coconut oil	82	67	3	6	6	2	2	0

medium-chain fat (butter contains 9% medium-chain fat);
2. Coconut oil has negligible cholesterol content while animal fats are high in cholesterol; and
3. Animal fats are actually not saturated fats as Keys mistakenly assumed: in fact, animal fats containcomparable proportions of saturated fat and unsaturated fat.

Unfortunately, most studies, including those used by AHA, assume that animal fats are saturated fats and that coconut oil and animal fats are similar. In fact, animal fat is actually composed of *long-chain* saturated fat with lots of unsaturated fat. On this basis alone, we can say that the whole AHA campaign against saturated fat is based on the wrong definition of saturated fat and the warning against coconut oil is not valid. This represents over 50 years of defective dietary recommendations and false information!

The AHA provided an incomplete fatty acid profile of coconut oil in the tablethat it presentedby *not* listing capoic acid (C6), caprylic acid (C8), and capric acid (C10) as components of coconut oil (Figure 1). These fatty acids, together with lauric acid (C12), are medium-chain fatty acids, and the AHA has consistently ignored medium-chain fatty acids as a distinct metabolic group from long-chain fatty acids.The correct fatty acid profile of coconut oil is given in Table 1.

The AHA Presidential Advisory is clearly full of errors.

The AHA ignored studies that were unfavorable to its position.

AHA selected information that wasin favor of its agenda and ignored other facts that were unfavorable, in particular, those pertaining to LDL and HDL, and the Minnesota Coronary Survey. Regarding LDL, the AHA stated that "because coconut oil increases LDL cholesterol, a cause of CVD, and has no known offsetting favorable effects, we advise against the use of coconut oil."(AHA page e13) This statement is scientifically unacceptable because the evidence of the link between LDL and CVD is only a correlation and its causality has not been proven. The AHA advisory cited two papers, neither of which presented convincing evidence that coconut oil was linked to CVD.I n fact, one of the papers that AHA cited contradicted its position regarding coconut oil stating that: although coconut oil raised LDL cholesterol, "observational evidence suggests that consumption of coconut flesh or squeezed coconut in the context of traditional dietary patterns does not lead to adverse cardiovascular outcomes."

The AHA tried to further discredit coconut oil by ignoring the beneficial effects of coconut oil on HDL claiming that: "changes in HDL cholesterol caused by diet or drug treatments can no longer be directly linked to changes in CVD, and therefore, the LDL cholesterol-raising effect should be considered on its own." (AHA page e13) The justification for this statement was based on a study that showed that a genetic variant rendered HDL as an unreliable marker for protection against heart disease. However, this genetic variant was found in only 2.6% of the population. Similarly, a recent paper reported that extremely high HDL levels may increase the risk of death but this was found in only 0.4% of men and 0.3% of women. Clearly, these examples represent a minority of the population and are outliers. Extremely high and low HDL (and LDL) levels are unhealthy but this does not negate the value of HDL as a beneficial cardioprotective marker for coconut oil.

The Minnesota Coronary Survey (MCS) was a study that Keys himself designed and implemented together with Ivan Frantz Jr. MCS was meant to finally prove Keys's saturated fat-heart disease hypothesis using a large number of subjects (n=9,423), a long feeding period (4.5 years, from 1968-1973), a high level of dietary control, and double blind randomized design. This study was conducted at the same time that Keys was coordinating the Seven Countries Study and would have provided powerful validation for his saturated fat-heart disease hypothesis.

In the end, Keys did not participate in the publication of the results of the MCS study. A partial report was made in a 1989 paper with Frantz as lead authorbut without Keys as co-author.This work remained hidden until 2016 – forty-three years after its completion – when the raw data were unearthed and turned over to Ramsden and co-workers, who then analyzed the data. The mainconclusion from the MCS study was that a high omega-6 diet effectively lowered serum cholesterol, but also increased the risk of heart disease, a result that was the opposite of what Keys desired.

The AHA eliminated the MCS study from its list of "high quality" core studies because of its "short duration, large percentage of withdrawals from the study, and intermittent treatment, which is not relevant to clinical practice." (AHA page e7) They conveniently ignored the fact that the MCS study was longer than some of the "high quality" studies that it cited and was likely better designed and implemented (by Keys himself). The AHA concern regarding subject withdrawals had already been adequately addressed previously by Broste and Frantz. The AHA also critiqued the use of "lightly hydrogenated cornoil margarine in the polyunsaturated fat diet" which would have contained

trans-fat, which is known to raise cholesterol. Ramsden and co-workers addressed this concern in their paper by pointing out that both Keys and Frantz were well aware of this problem and had already devised diets from previous studies which achieved reductions in cholesterol.The MCS study should remain an important study for consideration notwithstanding the AHA objection.

The AHA Presidential Advisory is clearly biased.

Coconut has always been part of a healthy traditional tropical and Pacific island diet.

The AHA Presidential Advisory complained that: "A recent survey reported that 72% of the American public rated coconut oil as a 'healthy food' comparedwith 37% of nutritionists. This disconnect between layand expert opinion can be attributed to the marketing ofcoconut oil in the popular press." (AHA page e13)

Obviously, the AHA is of the opinion that the perception of coconut oil as a health food is just a health fad and that, as previously mentioned, it has "no known offsetting favorable effects."Coconut oil may be a fad in the US, but it has been part of a healthy traditional diet in the tropics and Pacific islands for thousands of years.The AHA probably believes that a healthy diet can only be proven within the confines of its clinics and laboratories and not in the real world where people actually consume the food. The AHA does not realize that people cannot live on a tropical island and not consume coconut every day, and that despite this,do not suffer from heart disease.

Healthy Virgin Coconut Coconut Oil

The AHA is obviously unaware of the numerous published studies that document howPacific island inhabitantswho shifted from a coconut diet to a Western dietbecame more prone to heart disease and obesity. The AHA wants us to miss the forest for the trees: There is no evidence that coconut oil causes heart disease; instead, they want to focus only on LDL.

At the same time that the AHA is attacking coconut oil, it has been promoting a high omega-6 diet. In 2009, AHA issued a science advisory which endorsed a *minimum* of 10% omega-6 in the diet, contrary to the recommendations of international health agenciesto limit total omega-6 + omega-3 fat consumption to about 8%, and to keep an omega-6 to omega-3 ratio of no more than 5:1.The excessive consumption of omega-6 fat and deficiency in omega-3 fat may be one of the major contributors to the epidemic of obesity and diabetes in the US.It is soybean oil, an omega-6 fat, which has profited the most from the AHA support for a high omega-6 diet and warning against coconut oil.

In 1987, the American Soybean Association launched a "truth-in-labeling campaign" to demonize coconut oil to "increase market share for soybean oil."This campaign, which came to be known as the Tropical Oils War, severely damaged the coconut industry.Today, soybean oil accounts for 55% of the edible vegetable oil consumption in the US and the soybean industry has been funding the AHA in the guise of supporting its health campaignto further increase its market share. In exchange, AHA is once again using defective science that demonizes coconut oil andmakesAmericans obese and sick.

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FAKE NEW ALERT: THE AMERICAN HEART ASSOCIATION PROCLAIMS COCONUT OIL UNHEALTHY

Dr. Bruce Fife[1]

In June 2017 the journal *Circulation* published an online article prepared by the American Heart Association (AHA) titled "Dietary Fats and Cardiovascular Disease." The focus of the article was to reiterate the AHA's long-standing position against the use of saturated fats, recommending that we replace them with poly-unsaturated fats, which they stated, are as effective as cholesterol-lowering statins in reducing the risk of heart disease.

This article was not the result of any new study but simply a statement of position by the AHA, supported by select (cherry picked) studies. The article demonized all saturated fats as bad because they increase LDL cholesterol—the so-called bad cholesterol; which in turn, supposedly increases the risk of heart disease. Only half of one page, out of the 24 page article, addresses coconut oil specifically, along with discussions on dairy fats, trans fats, and others. The article was not about coconut oil, it was about saturated fats. However, the editors at *USA Today* saw it as a way to stir up controversy by attacking the wholesome image of coconut oil with the attention grabbing headline, "Coconut Oil Isn't Healthy, It's Never Been Healthy."

Coconut oil has been gaining ground as one of the premiere healthy fats. The editors of *USA Today* knew that a widely perceived healthy fat that was now being labeled as unhealthy by the AHA would generate huge interest, and sell a lot of papers. And they were right!

Healthy Coconut Oil

Immediately following publication of the article, other publications quickly jumped on the bandwagon and started producing their own shocking stories with headlines such as:

"Coconut Oil As Unhealthy As Beef Fat"

"Coconut Oil May Not Be As Healthy As You think?"

These articles stirred up a swarm of confusion. Over the past few years numerous new studies, articles, and books have sung the praises of coconut oil and many people, including doctors and nutritionists have recommend it as one of the good fats. Now, all of a sudden, according to the media, the AHA is declaring it unfit for human consumption. What is going on here? What is the truth?

These articles are examples of "fake news" perpetuated by editors solely to attract attention to their publications. Did you know that 50 percent of the media headlines about medical studies are deceptively wrong? And that these headlines don't accurately match the content or conclusions of the medical journal articles on which they are based. This fact is from a review published in the *New England Journal of Medicine*. Today editors are often interested more in sensationalism than in reporting the facts and, consequently, we get a lot of fake health news misleading the public. This is the case with the attack on coconut oil. The AHA article was not specifically about coconut oil, it was a statement of their position on saturated fats.

The AHA has always maintained the stance that saturated fats are bad and increase cholesterol levels, which they claim increases the risk of heart disease. They argue that all saturated fats raise

total cholesterol and LDL cholesterol and, therefore, increase the risk of heart disease. What they conveniently fail to mention is that total cholesterol is not an accurate indicator of heart disease risk. They also don't mention that saturated fats, including coconut oil, increase HDL cholesterol—the good cholesterol that reduces the risk of heart disease.

Another fact they tend to downplay is that there are actually two types of LDL cholesterol: one, that is small and dense, and another, that is large and buoyant. The large buoyant LDL cholesterol is also a form of good cholesterol. It is the type of cholesterol that is used to make bile, hormones, and vitamin D; it is essential not only for good health, but for life itself. The small dense LDL, on the other hand, is the type of cholesterol that becomes oxidized, and all oxidized lipids are unhealthy, and can contribute to heart disease. Coconut oil increases HDL, large LDL, and reduces small dense LDL. The overall effect is that coconut oil reduces the cholesterol ratio, thus lowering the risk of heart disease. The cholesterol ratio is recognized as being a far more accurate indicator of heart disease risk than total cholesterol. Coconut oil may increase total cholesterol in some people, but it does so by increasing good LDL and HDL, not the bad LDL.

Blood triglycerides is another independent risk factor for heart disease. In fact, they seem to have a greater influence on heart disease risk than cholesterol. Sugar and refined carbohydrates increase triglycerides, while coconut oil reduces triglycerides, thus again lowering risk of heart disease. Did the AHA report mention this? No, the authors seem to have forgotten to say anything about this important point. In fact, the AHA article seemed to leave out a lot of important information such as the fact that polyunsaturated vegetable oils increase the small, bad LDL cholesterol and increase the risk of cancer, neurological disorders (including macular degeneration), and autoimmune disease, or that coconut oil can prevent, and possibly even reverse these conditions.

> "Coconut oil is still healthy. It 's always been healthy"

The report also failed to mention that populations that use coconut oil as their primary source of fat have the lowest rates of heart disease in the world. The report failed to mention a lot of important facts, including the financial associations of the authors. I examined the original article and could find no financial disclosure that generally accompanies scholarly articles. Which strongly suggests that the authors may have financial ties with the vegetable oil or pharmaceutical industries. Indeed, Dr Barbara Roberts, a cardiologist, discusses the financial connection of the authors in her article here: http://www.thedailybeast.com/the-heart-associations-junk-science-diet.

The AHA should not be allowed to profit off their own dietary advice, but apparently they do which makes their recommendations questionable. The article entitled "Controversial Pharma CEO To Chair AHA Charity Ball" by Larry Husten, March 24, 2017 (www.cardiobrief.org) also explains about the financial relationship between the AHA and the pharmaceutical industry. This is just one example of the conflict of interest with the AHA. It's no wonder why the AHA is so much against coconut oil and other health-promoting saturated fats.

I am not alone in saying the AHA is misguided on this issue. The following links go to several others who have come out with statements regarding coconut oil and heart disease.

Dr. Anthony Pearson, a cardiologist at St. Luke's Hospital in St. Louis in his article "Beware Of More Misinformation From The American Heart Association On Coconut Oil and Saturated Fats" (https://theskepticalcardiologist.com/2017/06/18/beware-of-more-misinformation-from-the-american-heart-association-on-coconut-oil-and-saturated-fats/), provides an excellent rebuttal to the AHA article.

Bestselling author of *Eat Fat, Get Thin*, Mark Hyman, MD, weighs in on the controversy. http://drhyman.com/blog/2016/04/06/is-coconut-oil-bad-for-your-cholesterol/

Diana Rogers, RD, explains why coconut oil won't kill you, but listening to the American Heart Association might! http://sustainabledish.com/coconut-oil-wont-kill-listening-american-heart-association-might/

Mary Newport, MD, who used coconut oil to successfully treat her Alzheimer's affected husband, comments. https://www.facebook.com/CoconutOilandAlzheimers/posts/898200733651342

Gary Taubes, an investigative science and health journalist and bestselling author, gives a detailed analysis. http://garytaubes.com/vegetable-oils-francis-bacon-bing-crosby-and-the-american-heart-association/

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THE INVESTMENT OPPORTUNITIES IN COCONUT SECTOR IN INDRAGIRI HILIR

Muhartoyo[1]

Indragiri Hilir Regency, Riau Province is a strategic area for investors as it is located between Malaysia and Singapore. It is also close to the centers of economic growth of Batam and Bintan. In addition to the location, the Regency government also gives necessary support for investors by providing integrated investment service the so called "One Door Service" which will give complete service to investors including potential business opportunities as well as admistrative formalities.

Indragiri Hilir is the regency with the largest coconut stands in Indonesia accounting for 429,694 Ha or about 12.12% of Indonesian coconut plantation. About 70% of people in this regency are dependent on coconut.

According to Indragiri Hilir Regent, Mr. H.M. Wardan, with large coconut areas in his regency, opportunities for investors are wide open. Currently about 100,000 Ha coconut plantations are badly damaged, and this is an opportunity for investors to revitalize these areas. Morever, a high yielding coconut variety called Sri Gemilang is now available. This coconut variety is suitable for this area as it has high yields, with high oil content and adaptive to the tidal swampy areas.

Another opportunity is in the coconut processing industry. Currently there are 5 big coconut industries processing 5 million nuts a day or about 1.8 billion nuts a year. Meanwhile about 70-80 million nuts are exported to neighbouring countries and for domestic consumption. It is estimated that about 2.8 billion nuts per year are still available for processing. These figures show that investment in coconut processing is still wide open.

A Coconut Plantation in one of Coconut Areas in Indragiri Hilir

The incumbent Regent, Mr. Wardan, said that coconut is not only the tree of life for Indragiri Hilir people, it is the primemover of people's economy. In other words, improving coconut sector means improving the welfare of the Indragiri Hilir people. Therefore, since he assumed office of the Regency, he did his best to improve his people's werfare through coconut development program. He tried to retain coconut supremacy in the economy of Indragriri Hilir community.

Unique Coconut Cultivation System

It is interesting to note that unlike coconut in other areas which usually grows in dry land, coconut in coconut in Indragiri Hilir is cultivated in tidal swampy areas. This geographic condition makes coconut production in this area way below standard as coconut plantations were often unandated when sea level rises. However, it was Syaikh Abdurrahman Shiddiq, an Islamic religous leader in early 1900s, who had

brilliant ideas to make canals to control the tidal waters. The canal system proved to be a good solution to improve coconut production in this area.

The increased coconut production is due to the minerals brought in during the rising tide and left in the coconut farms during the low tide. The canal systems did not only improve coconut productivity but also give solution to the transportation problems when they wanted to transport their coconuts to other areas. The canals systems enable coconut farmers to transport their coconuts from the farms to the down stream ports or processing site by floating them in the canals or trenches during the low tide. This success story was soon spread out all over the region. A lot of cannals and trenches were developed thourghout coconut plantations in this regency. Therefore this regency is also called the Land of a thousand trenches.

Coconuts are being floated from the farm to a down stream processing site

The canal-based coconut farming system uniquely practiced in this regency is the result of local wisdom to adapt with the geographical and climatic condition of this area. With this good coconut cultivation coupled with the good price of coconut in 70's to early 80's coconut gained supremacy in the Indragiri Hilir economy.

The success of this canal-based coconut farming system in this tidal swampy area depends on three factors, i.e. 1) Embankement to prevent sea water intrusion, 2) canals, 3) canal gate valve. In the last decade, coconut production in Indragiri Hilir was decreasing. Having observed the condition in the fields, the Regency Government concludes that the decreasing coconut production was caused by the destroyed mangroves resulting in the abrasion along the coastal regions. As a result, the mud carried by the rising tide quickly makes creeks, canals, and trenches shalow.

Due to the sedimentation of canals and creeks, seawater intrusion is inevitable because when rising tides come the seawater is trapped inside the coconut plantation. Unandated coconut farms make coconut production drops, even coconut trees are dying.

The committment for coconut revitalizing coconut sector in Indragiri Hilir regencey is translated into the priority in the infrastructure development. Every year the Regency government allocates substantial amount of its budget for the rehabilitation of canal embankment and each sub-district is provided with one excavator that can be used to improve the damaged embankement in its own sub-district.

As coconut is the main livelihood of this region, price of coconuts directly affect the people's welfare. Therefore the Regency Government is trying hard to stabilize coconut price in this region which is remunerative for coconut farmers so that they will be wholeheartedly maintain their coconut farms. One of the efforts is to allow export of whole coconuts to other countries such as Malaysia, Philippines, and Thailand. Direct export of whole coconuts has provided coconut farmers more alternative to sell their coconuts and proved to be capable of improving coconut price.

Actually the Regency government prefers the coconut not to be exported but to be processed in the region so that

people get the value addition from their coconuts. In line with this intention, the Regency government encourages the existing coconut processing factories to help the local government to improve people's welfare by purchasing coconuts at reasonable price, similar to the price given by coconut exporters so that coconut farmers will be enouraged to maintain their coconut farms and the factories get raw materials they need.

Investment Campaigns

As the Regency with the largest coconut hectarage, Indragiri Hilir Regent are rigorously working to attract more investors to invest in coconut sector. To attract the investments to come to this region, physical infrastructures in the area are being improved. Since 2015 Tempuling airport has been operating and Susi Air is now plying Tembilahan-Pekanbaru once a week (every Thursday). A total of 21 small river ports have been built with their supporting facilities. This port measures 8 meter wide and 50 m long with the capacity of 300 ton. In addition, the Regency is preparing the development of Kuala Enok port as an ocean port which has bulk terminal, cargo terminal, passanger terminal, and tug boat terminal.

Trade cooperation with China is now being explored the Regency Government. Recently Chinese business delegates facilitated by China Council for the Promotion of International Trade (CCPIT) visited Indragiri Hilir. During this visit the Regent said that when trade cooperation is in place, Indragiri Hilir is ready to supply coconut products to China.

Meanwhile the representative of Chinese delegate, Mr. He Sheng Xiang said that at the moment coconut products are gaining popularity in China. Some of the popular coconut products are coconut milk drink, coconut candy and biscuits. He further said that there are 400 coconut processing companies in Hainan and the area under coconuts is less than 70,000 Ha. As the the demand for coconut products continues to grow, they need more raw materials which cannot be supplied by the existing coconut plantation in Hainan. He further said that more detailed prospectus from the Indragiri Hilir Regency is needed to follow up the trade cooperation.

To support the investment campaigns on coconut sector, on September the Regency Government organized the World Coconut Day and International Coconut Festival from 9 to 11 September 2017 in Tembilahan, the capital city of the regency. A number of events were organized during the celebration including the seminar to discuss coconut sector revitalization. APCC Team consisting Mr. Uron N. Salum, APCC Executive Director, Mrs. Deepthi Nair, Assistant Director, Mr. Alit Pirmansyah, Market Development Officer, and Mr. Muhartoyo, Documentalist, were part of the Guests of honors during this event. During the Seminar, Mr. Uron presented a paper on the Global Scenario on Production, Productivity and Marketing of Coconut Commodities. This event was successful in generating increased awareness on the importance of coconut sector development.

Guest of honors on the main stage during the Opening Ceremnony of World Coconut Day and International Coconut Festival 217 in Tembilahan, Riau.

Mr. Uron N. Salum, APCC Executive Director (Second from Left) and Mr. Wardan, Regent of Indragiri Hilir (Fourth from Left) were visiting the exhibition of coconut products

The Cultural Show during the Gala Dinner

[1]Muhartoyo is Documentalist of Asian and Pacific Coconut Community, Jakarta, Indonesia

THE ROLE OF INDUSTRIALIZATION IN IMPROVING THE WELFARE OF COCONUT FARMERS

Tay Enoku[1]

Coconut's growth cycle is relatively longer than competing crops. Consequently, it typically is not compatible with mainstream business cycle that is shorter in nature. To synchronize the two cycles, proper management strategies and practices need to be ensured. From harvesting to shipping processed goods out. The significance of the management strategies and practices becomes more pronounced when the nature of the processing is that of integrated one. In this context, the undertaking becomes a giant balancing act as different products are consumed by different markets and at different rhythms and cycles.

Such that sustainable coconut processing must be understood through ecosystem perspective. To try to understand the role of industrialization of coconut processing in less than ecosystemic manner is not only limiting progress but also to the detriment of the coconut farmers. Ecosystemic perspective is the only way to ensure that industrialization will be achieved in a sustainable manner. Assuming the ecosystemic perspective requires taking into account the significance of all valuable stakeholders. This also concerns the determination of who should be included and excluded from the ecosystem itself as well as how should the included parties behave to ensure sustainability of the ecosystem.

Unlike some other competing crops, the majority of coconut plantations belong to the smallholder farmers. Increasing the ownership of coconut plantations by private sector will not necessary make positive contribution to the sustainability of the ecosystem itself. Advanced multirateral developments would be required to overcome this particular obstacle.

Sustainable industrialization that aims to improve the welfare of coconut farmers must take into coconut economic realities at macro level, especially that of inflation. Inflation influences coconut farmers' cost of living, which in turn, influences the price at which they would be willing to accept to continue their coconut plantations.

Continued disharmony between regulatory, processing technology and business infrastructures would compromise the sustainability and consistency of coconut industry's growth. From sovereignty perspective, it will also determine the who the ultimate beneficiary will be. Fundementally, the disharmony primarily caused by misalignment between the different stakeholders' time horizons. Sustainable and consistent industrialization of coconut processing that aims to improve the welfare of coconut farmers need to be understood and implemented by using longer time horizon.

Using longer time horizon means prioritizing long term objectives over short term ones. Developments that jeopardizes those long term objectives are detrimental to the welfare of coconut farmers whether directly of indirectly. Sustainable improvement of coconut farmers' welfare must equally take into account environmental, social and economic perspectives. Environmental degradation would render the plantation infertile, so would lack of climate change mitigation implementations. Socially ignorant practices and policies would intensify the existing disharmonious relationship within the ecosystem. Not ensuring economic sustainability of all stakeholders would impair the industrialization of coconut processing.

To counter the above cautionary observations, there are plenty of reasons to be optimistic about the development of coconut industry, which are primarily driven by the increasing number of health conscious consumers. Empowered by the development of information technology, consumers of today and tomorrow are able to access facts and information in making smarter choices and decisions. This has been so when it comes to the selection of coconut -based products in place of less healthy alternatives.

Sustainable industrialization of coconut processing coupled with sustainable farming practices would allow the stakeholders in both parties to maximize the benefits from this developing trend. Fundamentally, there is no and must not be dichotomy between the coconut processing industry and the coconut farmers as they are essentially "in the same boat" in the long run. Models that are not supporting the self-enforcement of benefits between the coconut farmers and the coconut processing industries will not be sustainable.

Such model must clearly and

Coconut Farmer and Coconut Processing Industry should prosper together in a sustainable manner

equally benefit the farmers, the government and the industry. Such model should also ensure that capita proceeds be optimally pumped back into the supply chain to incentivize coconut farmers to sustain their plantation instead of switching to competing crops. Such economic strategy would support the social and environmental needs of the coconut farmers. Most importantly, the implemented governance infrastructure must support such model.

Considering the relatively longer growth cycle of coconut trees, any mishaps of governance related the sustainable industrialization would not typically result in immediate feedback. Nevertheless, the delayed cost of such mishaps is still great. The higher opportunity cost value that is impacted by the mishaps, the higher the cost.

Ideally, the model that should be supported by stakeholders must be based on a comprehensive understanding about the variety of possible cause-and-effects relationships that make up the model itself. Neglecting any of the important cause-and-effect relationship will result in suboptimal model, which in turn, will undermine the sustainability of the industrialization process itself. In turn, this will undermine the industry's ability to improve the welfare of the coconut farmers in sustainable and consistent manner.

From economic perspective, sustainability and consistency can be achieved by adding as much value as possible to the coconuts itself as the input feed of the industry. Equally important, the industry must also function as the conduit through which the value can be transferred to the farmers to incentivize them to sustain their coconut plantations. Lastly, the governance in place can either enhance or inhibit industry's function to do so. Considering the current demand-supply gap for coconut products, the production of coconut products will very likely improve in the future. So would exports. The only remaining question is which country will end up being the top exporter of coconut products and which will end up being the top importer of coconut products. Expectedly, the one with most coherent efficiency and governance will most likely win the coconut race.

[1]Tay Enoku is Vice President Director, Sambu Group, the world largest integrated coconut industry based in Indonesia.

PEST AND DISEASE FREE COCONUT

P. Chowdappa, Vinayaka Hedge, Chandrika Mohan, A. Josephrajkumar, Merin Babu[1]

1. Introduction

Integrated Pest and Disease Management (IPDM) in coconut is a holistic concept wherein all components of management strategies are integrated in as compatible manner as possible so as to prevent the insect population/ diseases attaining action threshold. While ensuring the pest and disease incidence under tolerant level, IPDM maintains a quality environment for the use by next generation. Adoption of IPDM practices enable sustainability of ecosystem which is extremely important in economic productivity in agriculture. It considers whole production system and always leaves a pest residue for the natural enemies to sustain.

Coconut is affected by a wide array of insects, mites, rodents and lethal / debilitating diseases. The IPDM tools for a united convergence for sustainable pest/ disease management tactics will be discussed hereunder. With the formation of Coconut Producer's Society and Federation throughout the coconut growing tracts of the country, community-mode in extension outreach of pest/ disease management options are wide open and many a time successfully accomplished through farmer-participatory approach.

Healthy Coconut Plantation

2. Approaches in Pest and Disease Management

2.1. Cultural Approaches: Simple adoption of good agricultural and agronomic practices will be handy for pest avoidance as prevention is always better than cure. Planting coconut seedlings with correct spacing and fully exposed to sun light *ad libidum* are the best agronomic practices to avoid infestation by rhinoceros beetle, red palm weevil and rodents. Shallow planting leads to heavy incidence by red palm weevil and pits of size 1 m^3 are recommended for seedling planting. Coconut seedlings planted in shallow pits show exposed bole region and proliferating roots that invite bole entry of red palm weevil. Never mulch seedlings with coconut leaves during the early stage of establishment. Poorly-drained soil is unsuitable for coconut planting and seedlings in water logged condition would invite skipper butterfly attack and root grub incidence. Timely crown cleaning reduces the damage caused by coreid bug and coconut eriophyid mite. Destruction of red palm weevil infested palms, beyond recovery reduces the floating weevil population quite considerably.

Avoiding injuries to palm and cutting petiole beyond 1.2 m from trunk is advised to ward off red palm weevil attack. Avoid succulence by excess application of nutrients. Farm hygiene and removal of breeding grounds of rhinoceros beetle is the foremost option in the management of rhinoceros beetle. Soil-test based nutrient application along with dolomite and in situ biomass recycling through raising cow pea in palm basin and incorporation during flowering are sound techniques to improve the palm health after invasion by coconut eriophyid mite and leaf eating caterpillars. Removal and destruction of heavily infested leaves are sound options in the management of black headed caterpillar and slug caterpillars. Summer ploughing exposes the white grubs for avian predators. Mulching of palm residues around the basin, raising green manure crops as well as provid-

ing summer irrigation improves the health of the palm significantly.

For a perennial crop like coconut, cultural practices form an important component of integrated disease management (IDM). Phytosanitation plays a vital role in the management of crown diseases viz., bud rot, leaf rot and grey leaf spot of coconut. Removal of the infected tissues eliminates or reduces the amount of inoculum facilitating the effective management of the disease by biological/chemical means. Moreover, rotten/fermented tissues in palms with leaf rot and bud rot diseases produce a spectrum of odorants that elicit stronger attraction in red palm weevil.

The attracted weevils lay eggs on the moist rotten tissues in the disease affected portions of the palm. These diseased tissues serve as the point of entry/ breeding site of the pest. In bud rot endemic areas, priority has to be given to the removal and destruction of severely affected or dead palms as they may serve as inoculum reservoirs of the pathogen. Removal of inoculum/ infected tissues help to bring down the possibility of recurrent infection and prevent greater losses incurred from the spread of the disease. Providing proper irrigation and drainage in the field plays a critical role in the incidence and spread of bud rot, stem bleeding and basal stem rot diseases.

Since wounds on the trunks predispose the palms to infection by stem bleeding pathogen, care should be taken not to injure the stem base while ploughing and avoid trash burning near the base of the palm. Isolation of diseased palms from healthy ones by digging a trench (60 cm deep and 30 cm wide) around the affected palm (1.2 m away from the base of the trunk) and avoiding flood irrigation or ploughing reduce/ check the spread of the basal stem rot disease. Application of farm yard manure, neem cake, recommended dose of nutrients and moisture conservation by coconut husk burial enhances the health of the palm and reduce the severity of disease in root (wilt) disease (RWD) affected palms.

Rhinoceros Beetle, Rhinoceros-affected Coconut Leaves, and Rhinoceros traps

2.2. Use of Mechanical Tools: Use of mechanical devices and direct involvement of mankind are grouped under this category which is quite compatible with all techniques. Collection of emerging adult beetle of white grubs during June-July and use of light traps in monitoring the pest reduces the incidence of white grub. Mechanical hooking of rhinoceros beetle is perhaps the best method of management that a marginal farmer can adopt. Banding the palm trunks using polythene sheets or metal bands avoids climbing of rodents to crown. Tying fertilizer gunny bags on the crown as well as baiting with traps are sound techniques in rodent management. Establishment of light traps could help both in monitoring and reducing the population of the slug caterpillar moths in endemic tracts of Andhra Pradesh and Kerala.

2.3. Biological Suppression: Biological pest suppression is the most ecologically sound and environmental-friendly approach that acts slowly with long-term effect. Some of the classical examples in coconut pest management come under this category. Application of an entomopathogenic green muscardine fungus, Metarhizium anisopliae on the breeding pits @ 5 x 10^{11} spores / m3 is an effective low cost farmer friendly technology in the sustainable management of rhinoceros beetle.

This has been successfully implemented though farmer participatory mode by the Institute. Oryctes rhinoceros nudivirus is utilized for bio-suppression of rhinoceros beetle. Release of 10 -12 virosed beetles/ha reduced rhinoceros beetle incidence. Placement of three filter paper sachets containing 12-15 Heterorhabditis indica-infected Galleria mellonella cadavers on the leaf axils after application of 0.002% imidacloprid sup-

pressed the grubs of red palm weevil. Augmentative release of stage-specific parasitoids viz., the larval parasitoids Goniozusnephantidis (Bethylidae) @ 20 parasitoids/palm, Braconbrevicornis (Braconidae) @ 30 parasitoids/palm, the pre-pupal parasitoid, Elasmusnephantidis (Elasmidae) @49%/100 prepupae, and the pupal parasitoid Brachymerianosatoi (Chalcididae) @32%/100 pupae at the appropriate time was found effective in the sustainable management of black headed caterpillar. This technology also has been validated in large area demonstrations by ICAR-CPCRI.

Application of talc based preparation of Hirsutellathompsonii @ 20 g / 1/ palm containing 1.6 x 10^8cfu with a frequency of three sprayings per year significantly reduced eriophyid mite population on coconut. Drenching aqua suspension of EPNs Steinernema carpocapsae in thc, interspaces of palms at 5-10 cm depth with a dosage of 40 - 50 lakh infective juveniles/5 liter of water suppressed white grub incidence. The application of EPN shall be repeated as and when needed based on the grub population. Coccinellid beetles, Chilocorus nigritus, Cryptognatha nodiceps, Pseudoscymnus anomalus, Pseudoscymnus dwipakalpa, Scymnus luteus, Rhyzobius spp. and Telsimianitida suppress the scales and mealy bug population by predation. Hence, chemical pesticides in management of these sucking pests have to be judiciously used.

Management of disease using bioagents is an ecofriendly and sustainable component of IDM in coconut. Use of antagonistic microbes with biocontrol potential has been proved to be an effective tool in the management of leaf rot, stem bleeding and basal stem rot diseases. Application of 10% solution of talc based formulation of Pseudomonas fluorescensl Bacillus subtilis/consortium of these microbes(50 g talc based formulation in 500 ml water) to the spindle leaf axils twice in a year can be adopted as a prophylactic measure during April-May and October-November in leaf rot disease endemic areas. Placement of Trichoderma coir pith cakes (2 nos.) in the inner most leaf axils protects the palms from bud rot. For stem bleeding affected palms, smearing of a paste of talc based formulation of Trichoderma harzianum (CPCRI TD 28) on bleeding patches along with the basin application of neem cake (5 kg) enriched with T harzianum per palm during September-October effectively manages the disease. Basin application of neem cake (5 kg) fortified with T harzianum (CPCRI TD 28) manages basal stem rot disease.

Chowghat Green Dwarf x West Coast Tall, More Resistant to Pest and Disease

2.4. Use of Botanicals: Botanicals constitute yet another biorational approach in coconut pest management. Since time immemorial, use of botanicals has been leading from the front in sustainable pest management in coconut. Incorporation of the common weed plant, Clerodendron infortunatum on the manure pits to induce larval-pupal abnormalities in feeding grubs is an easily adoptable practice against rhinoceros beetle. Filling up top most leaf axils with 250 g neem cake/ maroti cake / pongamia cake along with equal volume of sand in palms reduced rhinoceros beetle attack. Spraying 2% neem oil garlic mixture or azadirachtin 10,000 ppm @ 0.004% or root feeding

with neem formulations containing azadirachtin 50,000 ppm at 7.5 ml or azadirachtin 10,000 ppm at 10 ml with equal volume of water three times during March-April, October-November and December-January is recommended for the management of the coconut eriophyid mite. Placement of tablet-mode botanical cake on the leaf axils was found effective in the management of rhinoceros beetle. Spraying of azadirachtin 300 ppm (Nimbecidene) @ 0.0004% (13 ml / 1) reduced the coreid bug incidence at the highest level. Two rounds of azadirachtin spray on young 1-5 months old coconut bunches during May-June and September-October are quite essential for satisfactory control of coreid bug in the field.

2.5. Host plant resistance: The most effective, at the same-time a very difficult and time-consuming approach in perennial crop system, is the development of tolerant cultivars against biotic stresses. Kalpaharitha (a selection of Kulasekaram Tall) recorded the lowest mite incidence in the field and could be a preferred choice in endemic zones. Dwarf genotypes such as CGD, MGD,Gangabondam are relatively more susceptible to red palm weevil attack than Tall genotypes.

Disease resistant/tolerant variet

ies are the cheapest and effective means of disease management especially in a perennial crop which remains in the field for many years. Use of a resistant genotype reduces the cost involved in plant protection and is of utmost importance in the management of phytoplasmal diseases which are not cured by any known chemical/ biocontrol measures. Use of disease free quality seedling is recommended for planting in disease endemic areas as this will help in the better initial establishment. ICAR-CPCRI has released two resistant/tolerant varieties viz., Kalparaksha (selection from Malayan Green Dwarf), Kalpasree (selection from Chowghat Green Dwarf) and a hybrid Kalpasankara (Chowghat Green Dwarf X West Coast Tall) for RWD endemic tracts.

2.6. Behaviour modulation tactics: Volatile chemistry is the buzz word in innovative pest management approach and uses of semiochemicals has been very successful in monitoring as well as trap and kill strategy. Use of PVC pheromone traps `Oryctalure [ethyl 4 methyoctonoate]' and field delivery using nanomatrix @1 trap / ha is an innovative method in pest suppression. Avoid installation of traps in gardens with juvenile palms. Installation of pheromone traps with ferrugineol embedded on nanoporous matrix @ 1 trap / ha was found effective in mass trapping of weevils. Impregnation of kairomonal blends containing host-induced volatiles enhanced the weevil catches substantially. Timely servicing of traps with fresh food baits once in 6 days and avoiding placement of traps in gardens with juvenile palms or palms intercropped with tall intercrops (banana) are essential in successful adoption of the technology.

A farmer-participatory community approach would be the key

Rootwilt Disease affected Coconut Tree

factor in successful field realization. Pheromone lures to attract Opisinaarenosella moths are available in the market. It is dispensed in the field in sticky traps and a trap density of 40 traps/ ha is recommended along with parasitoid release for pest management. Olfactory conditioning of parasitoids using the volatiles from larval frass enhanced the host searching ability and swift recognition of the host, 0. arenosella by the parasitoid.

2.7. Agro-ecosystem based approach: The stimulo-deterrant approach rather push-pull strategy is emerging as an important pest management component in perennial cropping system. ICAR-CPCRI has developed a crop habitat diversification strategy in the management of rhinoceros beetle and red palm weevil through volatile confusion and disorientation of pest through diverse-cropping techniques. Habitat manipulation with crop diversity (nutmeg, rambutan, papaya, banana, glyricirdia, curry leaf, coral vine, and sunflower) along with coconut subdued Disease management needs in-

rhinoceros beetle attack to 53.2%.

Disease management needs in inter/mixed cropping system differ from those in pure stands. With the increase in crop diversity due to multi-species cultivation the incidence and intensity of diseases may increase or decrease. The intercrop should not serve as an alternate/ collateral host of the pathogens affecting coconut. Growing non host crops helps to check the spread of soil borne diseases like basal stem rot.

2.8. Chemical control: This is the most powerful technique that needs to be judiciously used only on a need based manner. Residual toxicity need to be studied before recommendation of a chemical pesticide. Application of imidacloprid 18.5 SL 0.02% (1 ml per 1 of water) or spinosad 2.5 SC 0.013% (5 ml per 1 of water) or indoxacarb 14.5 EC 0.04% (2.5 ml per 1 of water) was found effective in along with other crop management components for a cost effective productivity of the crop is essential in making the farmer more competitive to face the challenges of the changing agricultural scenario.

Preserved Grubs, Pupae and Rhinoceros Beetles and Preserved Grubs and Adult Red Palm Weevils for Research

the suppression of red palm weevil with no residue detectable for imidacloprid in nut meat, water and leaves. Drenching the root zone with chlorpyrifos 20EC @ 2.5m1/lit or imidacloprid @ 240 g ai /ha or bifenthrin @ 4.0 kg ai/ha during May-June and September-October is recommended for management of white grubs.Spraying lambda cyhalothrin @ 1m1/1 on the pollinated bunches was found effective in the management of coreid bug. In coconut, application of 10 g Bromadiolone (0.005%) blocks two times at an interval of 12 days on the crown of one palm out of every five palms is recommended for effective control of rat. This method is highly cost-effective. If the damage is restricted to certain palms, only such palms require baiting.

Use of plant protection chemicals in disease management gained momentum with the discovery and development of Bordeaux mixture by PA Millardet. The introduction of fungicides revolutionized the entire concept of disease management and became the most widely adopted and accepted component of IDM. Crown application of 300 ml of fungicidal solution containing 2 ml of hexaconazole 5 EC in the cavity around the base of the spindle is recommended as prophylactic (April-May and October-November) and curative treatment in disease endemic areas. Crown cleaning and application of Bordeaux mixture (1%) to palms in disease endemic areas before the onset of monsoon preferably during the first week of June protect the palm from bud rot disease. Bordeaux paste (10%) is recommended for the curative treatment of bud rot affected palms. Root feeding of hexaconazole SEC 2% (100 ml solution per palm) and soil drenching with hexaconazole 5EC @ 0.2% or Bordeaux mixture @ 1% (40 1 solution per palm) at quarterly intervals are recommended for the management of basal stem rot disease.

2.9. Legislative mode: The most needed one but the least emphasized tool in pest and disease management is the legislative component. Sustained surveillance, scouting and sensitization programme have already been made in the look out of the invasive pest, coconut leaf beetle, Brontispalongissima which has not so far entered our country due to strict quarantine programme. However, this needs to be further strengthened with the formation of an incursion management team for tackling the disaster upon accidental entry. The diseases prevalent in other countries viz., cadang-cadang, lethal yellowing and foliar decay virus are the major biosecurity threats to coconut sector in India. Domestic quarantine stations with diagnostic labs have to be equipped to prevent the spread of RWD to non endemic areas. The upsurge in the report of new diseases on coconut in recent years from other coconut growing countries warrants the strengthening of the disease surveillance, diagnostics and management techniques.

3. Conclusion

Judicious integration of all aforesaid techniques in a need based manner with sustained scouting and surveillance are key factors accomplishing plant health management for enhancing productivity in coconut. A social outreach programme through these tools would be realistic for the sustainable coconut production which has redefined its position through product diversification and creating demand among public. Integration of IPDM practices along with other crop management components for a cost effective productivity of the crop is essential in making the farmer more competitive to face the challenges of the changing agricultural scenario.

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HIGHLIGHTS OF 53RD APCC SESSION/MINISTERIAL MEETING IN TARAWA, KIRIBATI

Deepthi Nair[1]

A PCC Session/Ministerial Meeting is the highest decision making body of the Community and is held annually to discuss, deliberate and take policy decisions on the activities to be undertaken by the Community for the sustained development of the global coconut sector. The countries are represented at the Session by the Honorable Ministers of Agriculture / Trade / Commerce, Plenipotentiary Delegates authorised by the National Governments and senior officials from the concerned Ministries.

Honorable President of Kiribati His Excellency Taneti Maamau Graced the Inaugural Ceremony of the 53rd APCC Session/Ministerial Meeting

The 53rd APCC Session/ Ministerial Meeting was hosted by the Government of Kiribati who is the Chairman of APCC during the CY 2017. The Session was organised at the House of Parliament in Tarawa, the capital city of Kiribati during 24-28 October 2017. The hosting facilities were extended by the Government of Kiribati through the Ministry of Commerce, Industry and Cooperatives. The Kiribati Session was graced with the participation of Ministers from member countries which included Hon. Viam Pillay, Associate Minister of Agriculture from the Government of Fiji, Hon. Henry Ame MP, Vice Minister for Agriculture and Livestock from the Government of Papua New Guinea, Hon. Lopao'o Natanielu Mua, Minister for Agriculture and Fisheries from the Government of Samoa and Hon. William Bradford Marau, Minister of Commerce, Industry, Labour and Immigration from the Government of Solomon Islands. Hon. Jejwarwick Anton, Vice Speaker of Parliament, Republic of the Marshall Islands led the delegation from Marshall Islands. The Plenipotentiary Delegates from 16 member countries participated in the Session; the countries of Federated States of Micronesia and Vanuatu were not represented.

Plenipotentiary Delegates and Distiguished Guests during the Inaugural Session

Comments and Statements by Plenipotentiary Delegates of 53rd APCC Session/ MInsterial Meeting

The Minister for Natural Resources from the Government of Tuvalu, Hon. Puakena Boreham Pasuna, also participated in the Session in Observer status. Other observer organisations included International Fund for Agricultural Development (IFAD), The Pacific Community (SPC), Centre for Agriculture and Bioscience International (CABI), Centro de Investigaci'on Cienti'fica de Yucatan (CICY), Caribbean Community (CARICOM) represented by the Caribbean Agricultural Research and Development Institute (CARDI) and the Melanesian Spearhead Group (MSG). A total of 72 delegates participated in the Session. The country of Kiribati opened its rich Pacific hospitality to the delegates and observers from member countries and turned the APCC Session into an event, whose memories will last forever in the minds of all who participated.

Official Opening Ceremony

The inaugural program was graced by the presence of the Honorable President of Kiribati His Excellency Taneti Maamau who inaugurated the Session in the presence of the visiting Ministers, dignitaries and plenipotentiary delegates from the member countries. Hon. Atarake Nataara, Minister of Commerce, Industry and Cooperatives and Hon. Alexander Teabo, Minister of Environment, Lands and Agricultural Development from the Government of Kiribati facilitated the inaugural program with the support of Mr. Uron N. Salum, Executive Director of APCC.

H.E. Maamau in his inaugural address expressed that Kiribati was honored to have got the opportunity to host the APCC Session and the theme has been set as *"Tree of Life : Nurturing and Promoting Coconut for Inclusive Economic Growth"* since coconut is the cash crop of Kiribati. The Hon. President gave a brief statement on the general coconut scenario in the island country and the various activities planned under the coconut sector development strategy of the Government to increase production, invite investment and promote value added products of coconut. He explained that increase in income in the coconut sector will provide livelihood security and communities and women groups are involved in coconut sector development. He stressed on the impact of climate change on coconut production and urged the member countries to come together and collaborate in activities for the benefit of the coconut farmers across the globe. He stressed on the need to promote the nutritional and health attributes of coconut and its products in order to establish the goodness of coconut.

APCC Plaques of Appreciation were presented to His Excellency the President of Kiribati and the Honorable Ministers in attendance at the Session. APCC Plaques of Recognition were presented to the awardees from the coconut sector and industry in Kiribati.

Session/Ministerial Meeting

Hon. Atarake Nataara, Minister of Commerce, Industry and Cooperatives and Hon. Alexander

Hon. Atarake Nataara (Left), Minister, Ministry of Commerce, Industry and Cooperatives, Kiribarti and APCC Chairman Chairing the Proceedings of the Session accompanied by Mr. Uron Salum, APCC Executive Director.

Teabo, Minister of Environment, Lands and Agricultural Development from the Government of Kiribati chaired the proceedings of the Session. The Session started with the Ministerial Meeting on two specific agenda items which was followed by the presentation and discussions on the other Session Agenda items.

Historic Decision for the Community to go International

The House of Parliament in Tarawa witnessed the coconut community unanimously decide to move into an international organisation. The decision to upgrade the Asian and Pacific Coconut Community from a regional intergovernmental organisation to an international organisation was taken by the Plenipotentiary Delegates from the member countries. The proposal for APCC to go international was presented by the Government of India during the 51st APCC Session in India in 2015 which was further discussed by member countries in the succeeding APCC Session in Jakarta in 2016. Following the unanimous endorsement of the decision to go international, the Plenipotentiary delegates signed a resolution on the decision which will be sent to the United Nations for final endorsement of the international status.

Tarawa Accord – Commitment to stand together

The Kiribati Session also witnessed the declaration of all member countries to stand together and proactively promote the healthy status of edible products of coconut. The Tarawa Accord was signed by the delegates which declared the commitment of all member countries to affirm, support and effectively promote the health and nutritional attributes of coconut products. The member countries committed to undertake policy decisions and programs to promote the health attributes of coconut products and collaborate in priority clinical research to establish beneficial effects of coconut products on human health. The member countries also committed to aggressively promote and affirm the healthy status of coconut products in international fora, specifically the WHO and FAO. The countries further committed to ensure the highest level of quality in coconut products.

Signing the Tarawa Accord by the Delegates

Country Papers – Avenue for sharing and cross fertilisation of ideas

Country paper presentation by member countries gave a brief update on the policies and programs for coconut development undertaken by the National Governments including the legislations to promote the development of the sector. The delegates presented the status of coconut production, processing and export in their countries. Updates on the coconut replanting, new planting and rehabilitation programs implemen-ted were presented. The status of the research and development activities in the research institutions and the policies and programs implemented in the country to enhance farm productivity and increase the farmer's income were also shared with the member country delegates. The delegates further briefed on the constraints faced by the sector and the suggested the road map for the way forward for the coconut sector. The country papers helped in understanding the developmental work undertaken by countries and identify the replicable models for customised implementation in other countries. They helped in exchange of ideas and technology and paved the way for possible collaborations between member countries. Developmental activit-ies in the coconut sector in big producing countries like India, Indonesia, Philippines and SriLanka provided insights for other member countries on the way ahead to ensure sustained coconut sector development.

Collaboration for Capacity Building and Skill Develop-ment

In the wake of the issue of scarcity of skilled manpower faced by all coconut growing countries, the proposed project for International Certificate Course on Coconut Plantation Management offered by the Coconut Research Institute was welcomed and endorsed by the Session for execution with a formal MOU signed between APCC and CRI. The Session also fully endorsed the proposal of the Secretariat to share the cost of training for the first batch of trainees with a view to encourage

A View of the Plenary Session

capacity building. Skilled manpower will increase the efficiency of plantation management and processing.

Collaboration for Biosecurity Planning

The concept and need for biosecurity planning in the wake of climate change and the increasing incidence of pests and diseases was presented by Dr. A. Sivapragasam who is the Regional Director, CABI South East Asia Regional Centre. The project proposal for "A Regional Approach to Biosecurity for Coconut protection in the Asia Pacific Region" was endorsed by the Session to be jointly undertaken by APCC and CABI after execution of MOU with CABI. The Session also advised for APCC and CABI to jointly seek donor funding for the project.

Collaboration between APCC and Bioversity International in relation to the International Coconut Genetic Resources Network (COGENT)

The Session also endorsed the support for the proposed collaboration between APCC and Bioversity International for COGENT Coor-dination taking into consideration the importance for conservation, preservation and utilization of germplasm. Dr. Lalith Perera, Chairman of COGENT also informed the Session that a decision on the operationalization of COGENT would be taken in the Steering Committee of COGENT scheduled for 31st October to 4th November 2017. The Session also advised APCC Secretariat to conclude the proposed MOU with Bioversity International and CIRAD on technical cooperation.

Collaboration with CICY (Centro de Investigaci'on Cienti'fica de Yucatan) for Research Collaboration and Technology Transfer

Taking into consideration the urgent need for rejuvenation of senile gardens and rapid multiplication methods for production of quality planting material and based on the recommendations of the International symposium on coconut Tissue Culture, the Session endorsed the MOU signed between CICY and APCC and recommended for APCC facilitation for one-on-one dialogue between CICY and the interested APCC countries, respective institutions, industry and private sector organizations. Dr. Carlos Oropeza presented the work on somatic embryogenesis undertaken by CICY to the Session.

50th Anniversary and Golden Jubilee of APCC in September 2019

The Session decided to commemorate the 50th Anniversary of APCC and the launch of the International Coconut Community in Philippines in 2019

Additional Programs and Forums

The Session approved the 3 additional programs proposed by the APCC Secretariat: International Coconut Tissue Culture Forum, Interna-tional Coconut IPM Network and the International Coconut Oil Forum. It was also decided to organise International Sympo-sium on Coconut Tissue Culture (every 2-3 years); International Symposium on Coconut IPM (every 2-3 years); and the International Conference on Coconut Oil (every 2 years). The Session also advised the Secretariat to pursue cohosting arrangements with FAO, APCC member countries and member country institutions as well as industry and private sector stakeholders.

APCC COCOTECH Conference

The Session endorsed the Report and Recommendations of the 47th APCC COCOTECH Conference and further approved

Observer Organization Representatives (From Left to Right), Mrs. Karen Mapusua—Pacific Community, Mr. Sakiusa Tubuna—IFAD, Dr. Carlos M. Oropeza Salin—CICY, Dr. Cyril Robertsa—CARDI, Dr. Siva Pragasam—CABI, and Mr. Henry Sanday—MSG.

The following theme "Sustainable Coconut Development through Climate Smart Agriculture" for the 48th APCC COCOTECH Conference.

Observer Statement form Government of Tuvalu

Hon. Puakena Boreham Pasuna, Minister for Natural Resources, Government of Tuvalu presented a brief on the coconut sector in Tuvalu and their interest in becoming a member of APCC. Tuvalu, an island nation of 9 coral islands with total land mass of 26 square kilometres and a population of 11,097, has about 38% of its land mass covered with forest, constituted mainly with coconut palms. Copra was the only export commodity and the other major domestic products from coconut included coconut oil, handicrafts, building materials, food, drink, alcohol etc. The country faces a lot of challenges like lack of data, lack of commitment at all levels of the industry, limited resources, scarcity of land, isolation to main markets and the crisis due to climate change and non-communicable diseases. The developmental aspirations for the coconut sector concentrates on the development and revival of the coconut industry through the establishment of a good and sound database; develop a Coconut Development Policy (encompassing replanting initiatives, improved varieties, improved technology in cultivation and processing, product diversification and promotion of small and medium enterprises); and establishing and stepping up engagements with regional and international development partners to maximize the economic and social benefits of the country from the coconut industry. Getting membership of APCC was part of this initiative.

Pacific Community (SPC)

Mrs. Karen Mapusua**,** Team Leader, Coconut Industry Development for the Pacific (CIDP) Programme, on behalf of SPC detailed on the 4 million Euro EU ACP programme covering 14 Pacific ACP states and Timor Leste. She explained the main results of CIDP and the pilot sector projects in Samoa. She also briefed on the Darwin Initiative Project on the Upgrading and strengthening of the new South Pacific International Coconut Gene bank, the initiatives in coconut rhinoceros beetle management, ACIAR supported embryo culture trainings and the stakeholder's workshops. She stated that SPC looks forward to working with APCC through the proposed MOU to better respond to the needs of the Pacific islands**.**

International Fund for Agricultural Development (IFAD)

Mr. Sakiusa Tubuna, Sub Regional Coordinator, IFAD, Suva, Fiji presented the activities on behalf of IFAD, a membership organization in which 13 island countries and Papua New Guinea are currently members. He briefly presented the Mission and Goal of IFAD and the mechanism of functioning through grants, loans, project/program support, financing agreements, technical assistance and supervision and implementation support. He explained the indicative funding during the period 2013-18, the key success factors and the lessons learned. IFAD has supported coconut sector development in Fiji in through the coconut sugar and virgin oil in Cicia, the Tonga Rural Innovation Project (TRIP), the Kiribati Outer Island Food and Water Project, Rural Development Project in Solomon Islands and the Samoan Value Chain Study. The potential areas of IFAD involvement include partnership with other partners, work with other partners addressing value chain constraints, addressing productivity and leveraging more funding ie Green Climate Fund (GCF). The targeted areas are notably the Northern Pacific which includes Republic of Marshall Islands, Palau, Federated States of Micronesia, Tuvalu and Kiribati.

Melanesian Spearhead Group (MSG)

Mr. Henry Sanday, Trade and Investment Advisor presented the

activities of MSG, a Melanesian Sub Regional Inter Governmental organization established in 1988 with Fiji, Papua New Guinea, Solomon Islands, Vanuatu and FLNKS of New Caledonia as members and Indonesia as associate member. He explained the MSG 2038 Prosperity for all Plan working towards political stability, economic prosperity, social equity and inclusivity and sustainable development. The MSG Trade Agreement(MSGTA), Melanesian Free Trade Agreement (MFTA) and the MSG Private Sector Development Strategy (PSDS) with priority on rural/ informal economies, inclusivity and climate resilience are aimed at economic prosperity.

Coconut currently does not feature in MSG work, but is included in the MSGTA/MFTA, MSG PSDS and the MSG Market Intelligence Study. Mr. Sanday gave examples of case studies with the Solomon's Islands women at work, Trading in Vanuatu through cooperatives, Value addition for exports through the health and beauty products and the tourism enterprise in Fiji and the coconut product diversification in Papua New Guinea. He expressed the desire to enhance MSG-APCC linkages and work for better collaboration.

Caribbean Community (CARICOM) and Caribbean Agricultural Research & Development Institute (CARDI)

Senior Official Meeting

Field Visit to Kiribati Coconut Development Limited

Dr. Cyril Roberts, Biotechnologist from CARDI, Trinidad & Tobago gave a brief presentation on the Coconut industry development for the Caribbean, executed by ITC under contract with EU and CARDI being the regional implementing partner under Agreement with ITC. He explained the background of the project , the needs of stakeholders, issues to be addressed in the project, objectives of the project and the result of the project. The project aims at improvement in business capacity, coconut production/productivity, quality, market opportunities and risk management for small scale and artisanal enterprises.

Field Visit in Tarawa

The delegates were taken on a field visit to the Kiribati Coconut Development Limited (KCDL) which manufactures coconut oil, virgin coconut oil and soaps, Kiribati Fish Limited (KFL), Umwanibong National Cultural Centre and Museum, Agriculture and Livestock Division Vegetable Project with Taiwan support and the Agricultural Nursery Yard. The delegates also had interactions with the officials of the Agriculture and livestock Division , industry and private sector.

Stakeholder Discussion

The Hon. Ministers and the senior officials of the Ministry of Commerce, Industry and Cooperatives and Ministry of Environment, Lands and Agricultural Development of the Government of Kiribati had side meetings with the Plenipotentiary Delegates and officials from the major coconut growing countries of India, Philippines and Sri Lanka facilitated by APCC. Discussions were held on possible collaborations with the countries in coconut breeding, organic cultivation, intercrop-ping, husk and coir processing and utilisation of coir pith etc. The big countries offered their support and cooperation in technical assistance for developing the coconut sector in Kiribati.

[1] *Assistant Director of Asian and Pacific Coconut Community.*

Asian and Pacific Coconut Community

TARAWA ACCORD

Promote the Health and Nutritional Attributes of Coconut Products

We, the Ministers and the Plenipotentiary Delegates of the 53rd APCC Session/ Ministerial Meeting representing the member countries of the Asian and Pacific Coconut Community namely;

The Federated States of Micronesia, Fiji, India, Indonesia, Kiribati, Malaysia, Marshall Islands, Papua New Guinea, Philippines, Samoa, Solomon Islands, Sri Lanka, Thailand, Tonga, Vanuatu and Vietnam and the associated members of Jamaica and Kenya;

Established in 1969 under the auspices of the United Nations Economic and Social Commission for Asia and the Pacific (UN-ESCAP) as the first intergovernmental commodity-based organisation for Coconut;
Occupying 12 million hectares of land area under coconut, with an annual production of 10 million MT in copra equivalent accounting for 85% of the world coconut production that directly affects the socio-economic lives of more than 150 million of the world's men, women and children; and

- Recognizing that the Coconut is grown in over 90 countries and is endowed with multifaceted health and nutritional attributes making it highly beneficial for human consumption to achieve overall health, nourishment and wellness for people.

- Recognizing that many people in the world lack this important knowledge, therefore the urgency to effectively inform, educate, promote and conduct continuous awareness of the health and nutritional benefits of Coconut, Coconut Oil and other healthy products of coconut.

- Recognizing that there is need for further conclusive studies that would provide uncontestible scientific evidence as absolute proof of the health and nutritional benefits of Coconut, Coconut Oil and other healthy products of coconut to assure consumers and effectively counter the negative propaganda of all opposition to Coconut and its products.

WE HEREBY DECLARE TO AFFIRM, SUPPORT AND EFFECTIVELY PROMOTE THE HEALTH AND NUTRITIONAL BENEFITS OF COCONUT, COCONUT OIL AND ALL HEALTHY PRODUCTS OF COCONUT AND THEIR USES WITHIN OUR RESPECTIVE COUNTRIES AND INTERNATIONALLY.

Pursuant to this Declaration, we commit, with emphasis, to:

- Undertake within relevant national policies and programs to effectively create awareness and promote the health and nutritional attributes with uses of Coconut, Coconut Oil and all healthy products of Coconut.
- Undertake within the respective national capacity to conduct priority clinical research in-country and to participate in and collaborate with international study projects relating to the uses of Coconut, Coconut Oil and other products of Coconut and its effect on human health and nourishment.
- Ensure that member countries who are state members of the United Nations and its related organizations, specifically the WHO and FAO; to maximize opportunities during assemblies, gatherings and international fora to aggressively promote, make official statements, country presentations; and
- through the respective diplomatic missions and envoys endeavor to affirm, pronounce and promote the healthy status of Coconut, Coconut Oil and all healthy products of Coconut; and to raise serious objections, in the strongest possible terms, against the negative propaganda by opposing interest groups against the healthy status of coconut products.
- Ensure that the highest level of quality standards are observed and adhered to at all times in the processing of food grade products of coconut and other healthy products to meet full consumer acceptance.

The member countries hereby commit to initiate such programs or actions consistent with their government policies to implement this Declaration.

APCC TARAWA ACCORD 2017

Signed under the hand of the Ministers and the Plenipotentiary Delegates at the 53rd APCC Session/Ministerial Meeting held in the Parliament House at Tarawa, the capital of the Republic of Kiribati on Tuesday, 24th October 2017.

1. HON. VIAM PILLAY
Associate Minister of Agriculture
Fiji

2. DR. B.N.S. MURTHY
Chairman, Coconut Development Board
Ministry of Agriculture & Farmers Welfare
India

3. MRS. FLORA SUSAN NONGSINA
Ministry of Trade
Republic of Indonesia

4. DR. MILLICENT M. WALLACE
Coconut Industry Board
Ministry of Agriculture
Jamaica

5. MR. RAYMOND KAHINDI
Ministry of Agriculture
Livestock & Fisheries
Kenya

6. HON. ATARAKE NATAARA
Minister of Commerce,
Industry & Cooperatives
Republic of Kiribati

7. MR. BADARUDDIN BIN MOHD KASSIM
Deputy Under Secretary,
Ministry of Agriculture
& Agro-based Industry
Malaysia

8. HON. JEJWARICK ANTON
Vice Speaker of Parliament
National Parliament
Republic of the Marshall Islands

9. HON. HENRY AME MP
Vice Minister of Agriculture & Livestock
Papua New Guinea

10. MR. ROEL M. ROSALES
Deputy Administrator
Philippine Coconut Authority
Republic of the Philippines

11. HON. LOPAO'O NATANIELU MUA
Minister of Agriculture & Fisheries
Samoa

12. HON. WILLIAM BRADFORD MARAU
Minister of Commerce, Industry
Labor and Immigration
Solomon Islands

13. MR. J.A. RANJITH
Secretary
Ministry of Plantation Industries
Republic of Sri Lanka

14. MRS. SUPATTRA LERTWATANAKIAT
Horticulture Research Institute
Ministry of Agriculture & Cooperatives
Thailand

15. MR. TEVITA FAKA'OSI
Ministry of Agriculture, Food
Forestry & Fisheries,
Kingdom of Tonga

16. MR. CAO BA DANG KHOA
Deputy General Secretary,
Vietnam Coconut Association
Ministry of Industry and Trade
Vietnam

TALES OF COCONUT COUNTRIES AND ISLANDS AROUND THE WORLD

M. Shareefa, Regi J. Thomas, A. Josepthrajkumar[1]

The coconut palm (*Cocos nucifera* Linn) is a member of the family Arecaceae and is of great social and economic importance for millions of people in the tropics and subtropics. The palm not only supplies food, drink, shelter, but also provides raw materials for a number of important industries. Each part of the coconut palm is useful to man in one way or another. Therefore the palm is looked upon with reverence and affection by the inhabitants of the coconut producing countries. Coconut tree is given eulogistic epithets such as '*Kalpa vriksha'* (Tree of heaven), the consols of the East, mankind's greatest provider in the tropics, tree of life, tree of abundance, tree of plenty etc.

The name Cocos probably derives from a Portuguese word meaning monkey, perhaps because its nut, bearing three germinating pores, resembles a monkey face. Its species name derives from Latin, meaning nut-bearing. In the earliest recorded description of the coconut palm, given by Cosmos of Alexandria in his *Topographia Christiana* written during 545 A.D., there is a reference to the 'Argell Tree' and its fruit the great nut of India. Marco Polo gave the name, nux indica, in 1280 when he was in Sumartra.

Later, the Arabs called the coconut 'jawz hindī'. Both names translate to "Indian nut" and when they arrived in England, they retained the "coco" name and "nut" was added. Almost all names of coconut in Indian languages are related, e. g., nariyal (Hindi), nariyel (Urdu), narial (Punjabi), nariyel (Gujarati), naral (Marathi), narokel (Bengali), narikelamu (Telugu), also nargil (Mongolian), tengai in Tamil and nalikeram / Thengu in malayalam.

Kerala, India

Certain places even countries are known by coconut because of coconut cultivation or due to existence of coconut palms in these regions.

Kerala

The word 'Keralam' is derived from the Sanskrit word 'Kera' which means coconut and the Dravidian word 'Alam' which means place or land. A popular belief about coconut is that it represents *Deva vriksha* or 'tree of heaven' brought down by Lord Parasurama for the prosperity of the people of Malabar Coast. This strip of land is known as Kerala which literally means the land of coconut.

In Kerala approximately 3.5 million family's livelihood is coconut. Coconut is an integral part of the Kerala culture. From food to religious ceremonies, the coconut finds its mention in every place in the state. They also feature in the local cuisine of the state. Coconut trees form a crucial part of the lifestyle, economy and geography of Kerala. Coconut trees in Kerala contribute a lot to overall economy in India.

Anju thengu

Anchuthengu, formerly known as Anjengo, is a coastal town near Kadakkavoor in Thiruvananthapuram District of Kerala. This old Portuguese settlement lies between Kollam and Thiruvananthapuram. Literally the word 'Anjuthengu' means 'five coconut palms.' The whole land is cultivated with coconut trees. The place possesses great archeological and historical importance. In 17th century, the English East India Company selected Anjengo to set up their first trade settlement in Kerala. Queen of Attingal granted the place to the British for trading. They established a factory and a fort here with the permission of the queen. Many ancient churches, an old light house, a 100 year old convent and school, tombs of Dutch

and British and the Anjengo Fort are the major points of attraction here. The churches are built in accordance with the principles of the Portuguese architectural style. The fort played an important role in the war of Mysore in 18th century.

Ayiram thengu

Ayiram thengu is coastal area located in Kollam district of Kerala. The meaning of "Ayiram thengu" in Malayalam is thousand coconut palms.

Thengapattinam

Thengapattinam is a beautiful town located on the shores of Arabian Sea in the southern part of Kanyakumari district in Tamil Nadu. Thengapattanam is surrounded by natural boundaries on all sides - the Arabian Sea, the Kuzhithurai River and a Mountain ridge. And then, there is the star attraction, the estuary, where the river joins the sea.Coconut trees are found abundant here, and the place gets its name from coconut trees. 'Thenga' means coconut in Tamil and 'Patanam' means town. Thengapattanam - as the name suggests, is replete with coconut trees, was an important town during the days of Chera Kings, when trade relations existed with the Middle East and the Arab world.

Chilappathikaram, the Tamil epic refers thengapattanam as the capital of "thenga nadu" – one of the 48 countries of lemuria, otherwise known as 'kumari kandam', where the Dravidian civilizations (known as the 'cradle of civilizations') flourished. The world renowned historical research traveler 'dalami' refers this place as a 'harbour town' in his book written in AD 100. It is believed that Karunan Thadangal, the king of 'thenga nadu' ruled from Thengapattanam.

Tengapattinam (Tamilnadu)

Coconut Island (Hawaii Island)

Coconut Island (Hawaii Island)

Coconut Island (Mokuola) is little island is located in Hilo Bay and can be accessed from Liliuokalani Gardens via a pedestrian footbridge. Its Hawaiian name is Mokuola (meaning "island of life" or "healing") since it was site of an ancient temple dedicated to healing, but today it is more commonly known as Coconut Island. The island is owned by the state and is the facility for the Hawaii Institute of Marine Biology, part of the University of Hawaii. It is the only laboratory built on a coral reef.

Coconut Island (Poruma Island)

Coconut Island (Poruma Island, Puruma in the local language) is an island 130km northeast of Thursday Island, Queensland, Australia in the Great North East Channel near Cumberland Passage, Torres Strait. This island is one of the Torres Strait Islands. The population of the island is about 180 inhabitants. The ancestors of Coconut Island built their houses out of grass, coconut leaves and trees that floated down from the Fly River jungles of Papua New Guinea.

East Side (Coconut Coast), Kauai

Kauai's East Side is sometimes referred to as the Coconut Coast for the groves of coconut palms

that grow in its resort areas. The most populated district on the island, about 16,000 of the island's 62,000 residents reside in the Wailua/Kapaa area.

Coconut Grove

Coconut Grove is the oldest continuously inhabited neighborhood of Miami, Florida in Miami-Dade County, United States. The neighborhood is roughly bound by North Prospect Drive to the south, LeJeune Road to the west, South Dixie Highway and Rickenbacker Causeway to the north, and Biscayne Bay to the east. The neighborhood's name has been sometimes spelled "Cocoanut Grove" but the definitive spelling "Coconut Grove" was established when the city was incorporated in 1919.The fate of Coconut Grove, which is today home to Miami's City Hall, was largely linked to the U.S. Navy, Coast Guard and Pan American World Airways.

Coconut Creek

Coconut Creek is a city in Broward County, Florida (United States), nestled between Miami-Dade and Palm Beach counties. It is nicknamed Butterfly Capital of the World, because it is home to the world's largest butterfly aviary, Butterfly World, with over 80 species and 5,000 individual butterflies. The city took its name from the coconut trees that were planted in the area by early developers. Robert E. Bateman, one of the developers, named Coconut Creek after combining the names of Miami-Dade County's village of Indian Creek and the Miami neighborhood of Coconut Grove.

The city is a well-planned community with a unique environmental consciousness touting an abundance of trees, waterways, attractive landscaped roads, beautiful parks, and butterfly gardens throughout the neighborhoods. This is due to the city's progressive planning approach to creating a unique life-style for residents and businesses. Coconut Creek is the first in the state of Florida and eleventh in the country to be certified as a "Community Wildlife Habitat".

Coconut Groove

Cocos Island

Cocos Island

Cocos Island (Spanish: Isla del Coco) is an uninhabited island (except for a permanent ranger station) located off the shore of Costa Rica. It is one of 13 districts of Puntarenas Canton of the province of Puntarenas. It is one of the National Parks of Costa Rica. It is located in the Pacific Ocean, approximately 550 km from the Pacific shore of Costa Rica. With an area of approximately 23.85 km² and a perimeter of around 23.3 km, this island is more or less rectangular in shape. Cocos Island was declared a Costa Rican National Park by means of Executive Decree in 1978. Cocos Island National Park was designated a World Heritage Site by UNESCO in 1997. In 2002, the World Heritage Site designation was extended to include an expanded marine zone of 1,997 km². In addition, it is included in the list of "Wetlands of International Importance".

Cocos Island was short-listed as a candidate to be one of the New Seven Wonders of Nature by the New Seven Wonders of the World Foundation. As of June 2009, it is ranking second in the islands category. The famous

oceanographer Jacques Cousteau visited the island several times and in 1994 called it "the most beautiful island in the world". Cocos Island is home to dense and exuberant tropical moist forests. It is the only oceanic island in the eastern Pacific region with such rain forests and their characteristic types of flora and fauna. Purple Coral Tree (*Erythrina fusca*), Coconut Palm (*Cocos nucifera*), and Pond-apple (*Annona glabra*) are the predominant trees, with an understory of ferns, shrubs of the Rubiaceae and Solanaceae families, sedges and grasses, and herbaceous plants of the Leguminosae and Malvaceae families.

Coconut Keeling Island

The general vegetation of Cocos Island has greatly changed since the island was first named and described by Europeans. Captain Wafer, during his visit in 1685 described the extensive coconut groves extending inland into the interior of the island. It is very unlikely that these groves developed naturally, and it seems evident that pre-European man must once have cleared considerable areas in the ravine bottoms and interior plateaus and ridges, utilizing the clearings for coconut plantations of substantial extent. It has been posited that these plantations were used to provide fresh liquid and food for pre-Columbian voyages (balsa rafts using *guara* navigation) between Guatemala and northwestern South America. After the Spanish conquest and its consequences, these voyages ended and the tropical jungle recovered the land that had been laboriously cleared by early human hands.

Cocos (Keeling) Islands

The Territory of the Cocos (Keeling) Islands**,** also called Cocos Islands and Keeling Islands, is a territory of Australia, located in the Indian Ocean, southwest of Christmas Island and approximately midway between Australia and Sri Lanka. Cocos (Keeling) Island is located on almost exactly the opposite side of the globe from Cocos Island, Costa Rica.

The territory consists of two atolls and 27 coral islands, of which two, West Island and Home Island, are inhabited with a total population of approximately 600. The Cocos (Keeling) Islands consist of two flat, low-lying coral atolls with an area of 14.2 square kilometres, 26 kilometres of coastline, a highest elevation of 5 metres (16 ft) and thickly covered with coconut palms and other vegetation. The climate is pleasant, moderated by the south-east trade winds for about nine months of the year and with moderate rainfall.

Coco Islands

Coco Islands are a pair of strategically important islands located in the eastern Indian Ocean, politically administered by Union of Myanmar under Yangon Region. They are allegedly leased to the People's Republic of China since 1994. Geographically, they are a part of the Andaman Islands archipelago and separated from the North Andaman Island (India) by the 20 kilometres wide Coco Channel. The Bay of Bengal lies to the west and the Andaman Sea to the east of the islands. The Burmese mainland is 300 kilometres to the north.

The Coco Islands consist of the main Great Coco Island and the smaller Little Coco Island, separated by the Alexandra Channel. Table Island, a third small island located near the Great Coco Island, previously housed a lighthouse but is presently uninhabited. They are located on an ancient trade route between India, Burma and Southeast Asia, and there were numerous visits by traders, seafarers and pirates. In 1858, a large prison was built at Port Blair on South Andaman Island, mainly to house the thousands of 'mutineers' sent there after the 1857 Indian rebellion, and the Coco Islands were used as a source of food for the struggling penal colony, mainly by providing coconuts.

There are several myths and beliefs on coconut indicating the importance of coconut in everyday life. Even, until the early 1900's, a whole coconut was the accepted form of currency in the Nicobar Islands, just north of Sumatra in the Indian Ocean. In the South Pacific, pieces of coconut shell carved into coin-like spheres served as currency. There is a saying that "There are as many uses for the coconut as there are days in the year."

[1]*The authors are senior scientists at the Central Plantation Crops Research Institute, Kasaragod, Kerala, India*

An Interview with Mr. Kieatisak Theppandungporn, Managing Director of Theppandungporn Coconut Co Ltd. (TCC), Thailand by Muhartoyo[1] and Wilaiwan Twishsri[2]

Mr. Kieatisak Theppandungporn is Managing Director of Theppandungporn Coconut Co Ltd. (TCC), the the leading Thai global manufacturer and exporter of edible coconut products. *Mr. Muhartoyo, Managing Editor of Cocoinfo International and Mrs. Wilaian Twishsri, Senior Scientist at Thailand Horticultural Research Institute had an opportunity to interview Mr. Aphisak Theppadungporn, below is the excerpt of the interview .*

Cocoinfo International (CI): Mr. Theppandungporn, your company, TCC, is currently Thai global manufacturer and exporter of coconut products, could you inform us briefly about the history of your company?

The present growth of Theppadungporn Coconut Co., Ltd. in the food processing industry began over 50 years ago in 1946 when Mr. Ampol and Mrs. Jiraporn Theppadungporn, an orchard farmer couple in Thonburi, decided to enter the coconut business by retail and wholesale coconut. After the 2nd World War, the couple expanded their first business premise that was a two shop-house building at Si Yaek Mahanak by the Padung Krung Kasem canal to a new location on Maharaj Road close to Chao Phraya river. This new establishment was named "Udom Coconut Limited Partnership". After his long-term experiences in this agricultural business, Mr. Ampol Theppadungporn realized that agro-industry especially food processing would be the needs of the country and the world in future. And this was the beginning of our "Theppadungporn Coconut Co., Ltd."

The present "Theppadungporn Coconut Company Limited (TCC)" began in 1976, as Udom Coconut Ltd. Part. Transformed her business from selling agricultural produces into food processing by establishing a food processing plant with the support from the Board of Investment of Thailand (BOI) on Phuttamonthon 4 Road, Sampran, Nakhon Pathom on the area of 28 rai. Ready-to-use pasteurized and sterilized coconut milk packed in plastic bags and tin can, as well as coconut milk powder were among the very first products of the company.

Dehusked coconuts ready for processing

(CI): How many of factories are operating under Theppandungporn Group and what are their product lines?

Currently three factories are operating under Theppandungporn Group. The first factory is Chaokoh Factory founded in 1976. The factory is known among our customers and clients as "Chaokoh factory". "Chaokoh" means "Islander" which intentionally implies for a resident of Samui Island in the south of Thailand that has long time known as the main coconut grower in the country. "Chaokoh" is therefore used as the brand name mainly for all of our products that are related to coconut.The factory also produces canned fruits and vegetables products under the brand names of "Chaokoh" and "Yoddoi". "Yoddoi" means top of the mountain which implies the mountainous area in the north of

Some Chaokoh's Coconut Products during Agricultural Produce Exhibition in Bangkok

Thailand where good quality fruits and vegetables are grown.

Ampol Food Processing factory (APF) is 2nd factory of the Theppadungporn Group which was founded in 1986 as a result of Theppadungporn Group's rapid growth and demand for venturing in new businesses based on farm produces. The factory that was named after the founder of Theppadungporn Group. The product lines of Ampol Food includes: UHT coconut milk in retail size, Frozen and Chilled fruits and vegetables, UHT beverages, Cupped desserts, and Health Products.

The Mae Ploy factory is the 3rd factory in the Theppadungporn Group, "Mae Ploy" is the name of the leading character in the Thai famous novel written by one of the Thai most famous noble man, Mr. Kukrit Pramote. Mae Ploy was a Thai lady who had been well trained for the housewife duties from the Royal Court of King Rama V. For Thais, "Mae Ploy" represented authenticity and uniqueness of a Thai family lady who tried to conserve our good Thai cultures during the westernization period. "Mae Ploy" is therefore used as a brand name for our Thai and oriental style chili paste, sauces, curries and condiments, which are produced at this factory. The brand "Mae Ploy" is also used for canned coconut milk that contains 20% fat that is suitable for preparing Thai-style curries, which is produced at the Chaokoh factory.

CI: Where do you source your raw material?

We import a lot of raw materials from Indonesia as well as from Vietnam and Myanmar.

CI: Does the raw material availability match with production capacity?

For VCO, currently we produce only 1/5 of the installed capacity. For coconut milk, we continue to import raw materials because domestic supply is not enough. It is good to know that the government has started to encourage people for new planting and replanting coconuts, we hope the coconut production would increase in 8-10 years.

CI: Do you have any problem in sourcing raw materials?

Chaokoh Virgin Coconut Oil

Since the insect pest outbreak, importing coconut is strictly checked by the Plant Quarantine Act authority to make sure that it is in compliance with the existing quarantine protocol and standard. This year we had unexpected experience when one of our ships was denied from unloading its coconuts because of the slight change in quarantine protocol that we were not aware of. At that time it took us way longer to have custom clearance for our imported coconuts. Having gone through this incident, we realized that we should always make ourselves updated and understand the government announcement and protocol.

CI: Which product is the main profit generator?

Coconut milk is the main source of profits because we produce and export a lot of coconut milk in various forms and packaging. However, based on our daily coconut milk processing we found that we will gain more profit and minimize processing cost when we also produce virgin coconut oil (VCO). Our experience proves that we got the great profit although we sold it with the same price as other VCO brands.

CI: How you do the market for VCO?

We are lucky since we have loyal customers who trust in our product quality. It probably paves the way for our VCO market. We also provides encouragement to our customers who are still reluctant in consuming VCO by providing the cook book with coconut-based recipes so they can easily follow prepare their foods using our products e.g. how to prepare salad dressing using VCO.

CI: Participating in International trade fairs is one of marketing strategy?

Yes it is. This is our opportunity to showcase our products and meet buyers. Through this event we can introduce our new product as well as get order in advance.

Chaokoh's Nata de Coco in Syrup

CI: Could you share some of experiences in which people become impressed with your products?

I *tell you 3 cases of our VCO customers. The first one is the mother of a Managing Director of a company in Japan, who suffered from Alzheimer. After consuming VCO for sometimes, she could touch and press her son's arm. Afterward the Managing Director always tells his staff members and his colleagues about the benefits of coconut oil. The second one in Korea, a Managing Director puts a bottle of VCO on his desk. He usually opens and lets people test the VCO. After 4 years, he found the quality of the VCO was still good. So our VCO exported to Korea, is now guaranteed to have shelf-life of 3 years. Third, one of my friends is an athletic athlete. He applies VCO for his narrow legs corner after run. He told me that it has a good effect as it makes him never have red skin again. He then shares his experience on using VCO to other sport players and runners.*

CI : Is there any obstacle in VCO marketing? Could you let us know your export markets?

With many health benefits of VCO we found that the shelf positioning was not clear whether it should be placed in cosmetic shelf, medicinal shelf or cooking material shelf. This has made our customers confused. We think VCO should be packed in different type of packaging. Our oversea markets are Europe, USA and Australia.

CI: Recently American Heart Association (AHA) released Presidential Advisory on Lowering Saturated Fat intake which discredits Coconut oil. Do you think coconut processing industries can provide financial support to the clinical trial to get more convincing evidence to counter negative campaign against coconut products, especially coconut oil?

Certainly. But not only our company, association or group of edible coconut industries, and medical practitioners should also make concerted efforts to support clinical trials. The successful clinical trials will make coconut stakeholders have stronger scientific evidence-based claims for the health benefits of coconut products.

(CI): In order the food products to be widely accepted in the global market, they must be processed following quality standards. What quality standards are applied to your factories?

That's true, therefore Theppandungporn has secured many food standard certificates such as Halal, ISO 14001, ISO 9001, ISO 50001, GMP, TLS 8001-2010, CARBON FOOTPRINT, HACCP, Green Industry, BRC. These certificate confirm our commitment to produce quality products which are acceptable to the global community.

(CI): Thank you very much Mr. Mr. Kieatisak Theppadungporn for sharing about your coconut processing industry with our valued readers. We wish you every success in your coconut business and that your company becomes more productive and profitable in years to come.

REPLICABLE MODELS FOR SUSTAINED COCONUT DEVELOPMENT

Deepthi Nair[1]

The policies and programs for sustainable development of coconut implemented by the National Governments in coconut growing countries have contributed to the advances made in the sector, especially during the last decade. This has resulted in the emergence of coconut as a "Sunrise industry". The policies and programs mostly concentrate on crop improvement through productivity enhancement, promotion of processing and product diversification and finally marketing and export promotion. The annual APCC Sessions have country presentations by the Plenipotentiary Delegates of member countries who give a brief update on the policies and programs for coconut sector development; technology and statistics on coconut cultivation, processing and marketing; challenges, opportunities and constraints faced; programs for replanting and rejuvenation; and the plan for the way forward. The country papers thus provide an opportunity for cross fertilisation of ideas and technology, creating awareness on successful replicable models and initiating the thought process for bilateral collaborations. This article is an attempt to take the readers for a journey through the programs and policies for sustained coconut sector development in India, Philippines and Indonesia.

INDIA

India stands first in production and productivity of coconut among APCC member countries. The production of coconut is to the tune of 22237.99 million nuts annually from an area of 2.096 million hectares. The productivity of coconut at national level for 2016-17 is 10,611 nuts per hectare. The southern peninsular region of India comprising of the four states of Kerala, Tamil Nadu, Karnataka, and Andhra Pradesh accounted for 89 percent of the coconut area and 91 percent of the coconut production in the country. It is estimated that there are 5 million coconut holdings and 12 million farmers in the country covering 17 states and 3 Union Territories. The crop contributes around US$ 3788 M to the country's GDP and earns export revenue of around US$ 661 M. The country has around 15,000 coir based industries which provides employment to nearly 0.6 million workers of which 80 per cent are women folk.

As in most of the coconut growing countries, coconut is predominantly a small holders crop in India with about 98% coconut holdings owned by small and marginal farmers. The various policies and programs for coconut sector development has been tailor made to serve the small holder coconut farmers. The major features of the coconut sector in India which have contributed to the enhanced production and productivity could be enumerated as follows :

Strong Research Base

Continuous crop improvement is vital for the development of any commodity and for this research turns pivotal. India is blessed with a good network of organizations for conducting research in coconut viz., Indian Council of Agricultural Research, Central Plantation Crops Research Institute (CPCRI) which is the oldest coconut research institute with over 100 years of research experience; International Coconut Gene Bank for South Asia (ICG-SA) established in 1998 with a rich collection of elite coconut germplasm; Central Coir Research Institute for research on coir; All India Coordinated Research Project on Palms which undertakes coconut research in different agroclimatic zones; and State Agricultural Universities and State Research Centres doing research on different aspects of crop husbandry and crop management. Research on coconut processing and packaging is undertaken by

Central Plantation Crops ResearchInstitute in Kasaragod, Kerala, India

national institutes like Central Food Technological Research Institute, Indian Institute of Sciences, Indian Institute of Chemical Technology, National Institute of Nutrition, Defence Food Research Laboratory, Indian Institute of Packaging, Indian Institute of Petroleum and many state level research centres.

Germplasm conservation at CPCRI is to the tune of 398 accessions of coconut of which 266 are indigenous and 132 are exotic. A total of 36 high yielding coconut varieties have been released of which 16 are hybrids.

Coconut Farmers Participating in a Coconut Extension Program

Strong Extension

India has two commodity Boards established under the Government of India who take the lead role in the sustained development of the coconut sector. Coconut Development Board (CDB) functioning under the Ministry of Agriculture and Farmers Welfare and Coir Board functioning under the Ministry of Micro, Small and Medium Entreprises are mandated for the conceptualisation, planning and implementation of programs for the development of coconut and coir products. A concentrated commodity based approach for the development of the sector has made way for the efficient progress achieved in production and marketing of coconut and coir products. India is the major producer of coir and coir related products and has a strong position in the export market followed by Sri Lanka.

Specific schemes for improving coconut cultivation

Specially packaged schemes are in place which are implemented by CDB with specific objectives for improving coconut cultivation and processing. Coir Board has separate schemes for the promotion of coir and related products.

1. Policies to enhance production and productivity: The policies that have been introduced in order to promote farm productivity have been inclusive to ensure increase in production and productivity.

a. Production and distribution of quality planting material is the most crucial step towards development of a sustained coconut sector. This is addressed through the establish -ment of Demonstration cum Seed Production (DSP) Farms in different parts of the country to create infrastructure facilities for production of quality planting materials and demonstrate and educate the farmers and other stakeholders on scientific coconut cultivation and processing. The Seedling Production Program is also strengthened through the establishment of Regional Coconut Nurseries in Government sector, Nucleus Coconut Seed Garden and Coconut Nurseries in private sector. CDB has 10 DSP farms which supply around 2 million seedlings every year, apart from the seedlings supplied by the central and state research institutes, state agricultural universities and approved nurseries which together may come up to 3.5 million seedlings.

b. Expansion of area under coconut into new areas, especially non traditional areas, is achieved through specialised schemes for area expansion which provide adequate technical and financial support to farmers to take up coconut cultivation on scientific lines in potential areas.

c. Improvement in production and productivity through an integrated approach is promoted thereby increasing the net income from unit holdings. This is achieved through the following schemes : Laying out of Demonstration Plots, establishing Organic Manure Units by providing incentives, Scientific integrated management practices including coconut based farming systems and establishing farmer participatory demonstration plots in farmer's field. Demonstration of technology in farmers field is found to motivate farmers and increase adoption of improved technologies for cultivation. Commu -nity based approach for plant protection has proved effective in controlling and managing pests and diseases

d. Scheme for replanting and rejuvenation of traditional coconut gardens was initiated in the major coconut growing state of Kerala in 2009 subsequent to the APCC PNG Declaration to accelerate re-

replanting programmes in member countries. Kerala had the longest history of coconut cultivation and one third of palm population was old, senile and gripped by a lethal disease called root wilt. The main objective of the scheme was to enhance the productivity and production of coconut by removal of disease advanced, old and senile palms, replanting with quality seedlings and rejuvenating the remaining palms with proper management. Compensation was given to farmers for cutting and removal, replanting and rejuvenation. The scheme which is still ongoing in Kerala was further extended to 8 coconut growing states and 2 union territories from 2015-16 onwards. So far more than 3.5 million palms have been cut and removed under the scheme and nearly 0.31 million ha were rejuvenated.

2. Policies to promote technology development and demonstration: The Government of India had approved the scheme "Technology Mission On Coconut" (TMOC) to promote technology development, process -ing and product diversification in 2002. The major programmes under TMOC include :

a. Development of technologies for the management of insect pest and disease affected gardens and innovative technologies for processing and product diversification. Clinical Studies to establish the medicinal and nutraceutical propoerties of coconut products is also undertaken. All research projects are sponsored through reputed institutions in the specific area of technology development.
b. Demonstration and promotion of these technologies for adoption is undertaken. Support is also extended to entrepreneurs and other stakeholders who are interested in adoption of the technology and establish processing units utilising the technology.
c. Market Research and Promotion : Market Research is undertaken through reputed institutions on the supply demand situation of coconut products, consumer acceptance studies etc. CDB undertakes generic promotion of coconut products and extends support to processing firms for brand promotion. Participation in exhibitions and trade fairs is also supported.

Technical and financial support (25% back end subsidy) extended through TMOC has resulted in the establishment of over 439 processing units in the country with a total annual installed capacity of 2.628 billion nuts and thus increased the processing capacity of the sector in a large way. Inspite of recording the highest production and productivity of coconut, India has a long way to go in the field of processing and product diversification of coconut products in comparison to the other major producers like Philippines and Indonesia.

The large scale consumption of coconut in the form of fresh coconut for daily use coupled with consumption of tender coconut leaves less proportion of coconut for the processing industry. It is estimated by the Board that 45% of the production is used as raw coconuts, 16% as tender coconut and the remaining 39% goes in for production of copra. Out of the raw coconuts, 70% goes for fresh domestic consumption and 30% goes in as raw material in the industry for the production of desiccated coconut (50%), virgin coconut oil (10%), coconut milk/ cream (2%), frozen grated/ dry coconut etc. Out of the copra produced, 23% is consumed directly for various edible purposes and 77% goes for milling copra used for production of coconut oil which is used as edible oil (40%), toileteries (40%) and other varied uses.

3. Coconut Palm Insurance Scheme (CPIS): Insurance coverage is extended to coconut crop, thereby providing risk coverage to the farmers in case of casualities due to climate, natural calamities etc. Under the scheme all healthy bearing palms in the age group from 4 years to 60 years are eligible to get insurance coverage against natural perils leading to death / unproductive palms. In order to motivate the farmers and to ensure that the system of insuring the crop is undertaken, 50% of the insurance premium is borne by CDB and balance is shared between the State Government and farmers @ 25% each. Insurance coverage has also been extended to palm climbers.

4. Market Promotion and Statistics: The scheme includes market information and intelligence services; collection and documentation of statistical data on coconut production and marketing; and conduct of surveys and evaluation studies. Market promotion activities are also undertaken and modernisation of coconut processing through the introduction of improved copra dryers or processing equipment is supported.

5. Export Promotion : CDB has also been designated as the Export Promotion Council for promoting export of various products of coconut other than coir since 2009. This has contributed to a perceptible improvement in the export of coconut products. There are around 2974 registered coconut exporters under the Board and though India has a large domestic consumer market, coconut and major coconut products like coconut oil, desiccated coconut, copra, coconut shell charcoal, coir and coir products are exported to USA, UK, Canada, China, Germany, Japan, France, Netherlands, Brazil, Mexico, Bangladesh, Nepal, Vietnam, Hongkong, Indonesia, Malaysia, Ireland, Mauritius, Sri Lanka, Korea, Russia, Middle East

Exhibition Booth of Coconut Development Board

countries like Iran, Saudi Arabia, Qatar, UAE, Kuwait, Oman, and African Countries. The export values have increased from USD 261.73 million in 2009-10 to USD 661 million in 2016-17. The exporters are extended support through market information and market intelligence; promotion of participation in international trade fairs; organisation of seminars, conferences and buyer seller meets; and providing professional advice on technology, quality standards, product development, packaging etc.

6. Information and Information Technology: Information on various aspects of coconut cultivation and industry is disseminated through various media and publications. Skill Development training programmes are also organised to impart skill and knowledge to farmers, skill for palm climbers and neera technicians, unemployed youth and rural women in various fields related to coconut cultivation and processing. Participation in exhibitions and fairs is undertaken to promote coconut and its products.

D. Three Tier Farmer Producer Organisations: CDB started a novel extension approach / strategy to organize farmers by formation of three tier Farmer Producer Organization (FPO) with Coconut Producer Societies (CPS) at primary level and integrate them to form Coconut Producer Federation (CPF) at intermediate level and Coconut Producer Company (CPC) at apex level. A Coconut Producer Society (CPS) consists of around 50 farmers and 5000 coconut palms and 20 such societies form federations and 10 Federations form a company. Thus a company which is formed by 10,000 farmers will be producing around 80 million coconuts from their jurisdiction. The main role of the Company is to establish processing unit for production of value added products from coconut procured from the member farmers. There are at present 9463 CPS, 733 CPF and 67 CPCs functioning in the country. The FPOs have emerged the epicentre of activities having initiated decentralised quality seedling production; production and supply of agricultural inputs; community based adoption on integrated nutrient management and integrated pest management; and production and marketing of value added products of coconut. The FPOs are identified as implementing agencies for various Government schemes and have been instrumental in ensuring that the farmer beneficiary is the real end user of the different schemes of the Government.

E. International Centre of Excellence for Coconut: The establishment of an International Centre of Excellence for Coconut was proposed by the Government of India during the 51st APCC session in 2015 in Kochi, India and also offered to be the host nation providing necessary land, infrastructure and facilities. It is proposed for the Centre to be developed as a hub of technology related to coconut cultivation and processing, repository of scientific studies on coconut undertaken across the globe, an institute for training and capacity building programs, facilitate research colla -boration and technology transfer between international institutes, knowledge centre on coconut germplasm and genetic resources etc.

F. Government Policies Related to Coconut Trade and Market

Domestic Market : Government of India extends a positive environment for the trade of coconut products and also ensures remunerative price for coconut and copra by declaring Minimum Support Price (MSP) for coconut and copra every year. In the event of price fall below MSP, Government intervenes in the market and purchase the copra at the pre-announced price through designated agencies, thereby ensuring reasonable price to the coconut farmers. The Government of India implemented Goods and Services Tax (GST) applied on various coconut products ranges from 0 to 28 % with the slabs of 5, 12 and 18% . Coconut hookah and hair cream are the only two products attract the maximum of 28 % GST.

Export and Import : Import tariff is introduced to discourage import and protect domestic industry. The Basic Customs Duty for various coconut products are in the range between 10 % and 150 % (only for coconut milk powder and coconut water powder). Coconut oil import draws an import duty of 12.5 % and virgin coconut oil draws 20 %. Other vegetable edible oils like soyabean oil, groundnut oil, olive oil, palm oil, mustard oil, sunflower oil etc also attract duties ranging from 12.5 % to 25 % on import.

Challenges faced

Each country has its own challenges and they need to be addressed taking into account the agroclimatic situation, farming system and governance and policy decisions in the country.

Though India recorded the highest production and productivity of coconut, the processing sector is still in the toddler stage. Developing the processing sector of coconut with "state of th e art" technology and highest product quality is a priority area to be addressed. Replanting and rejuvenation of the senile palms is another challenge since about 20% of the coconut area is senile and needs replanting. Adding to this issue is the shortage in availability of planting material; against the annual requirement of 10 million seedlings, the present supply is only 3.5 million seedlings which needs to be addressed on a war footing basis intensifying research on mass multiplication technologies. More of hybrids and high yielding varieties with stress and drought tolerance need to be planted. There is need to make coconut a more remunerative crop by enlarging the scale and size of operations and reducing production costs giving more thrust on irrigation, drought management and soil and moisture conservation. Aggregation of farmers into Farmer Producer Organisations as a platform of empowerment would have to be continued. India also faces the common issues in all coconut growing countries like rapid urbanisation, climate change, cyclones, droughts due to insufficient monsoon, pest and disease incidence, wide fluctuations in coconut prices etc.

Coconut Nursery to Support Replanting Program

Conclusion

Indian Coconut sector is striving hard to grow further for the benefit of millions who depend on coconut for their livelihoods. Programs and policies are aimed at sustained development of the sector with emphasis on quality. The country is aiming at sustaining the premier status enjoyed at global level in production and productivity and also in the process of increasing its contribution to coconut processing, product diversification and exports.

PHILIPPINES

The Coconut Industry is one of the main economic sectors of the Philippines. It contributes a large share to total national output and at the same time, is a main provider of jobs in the country. There are also multiple manufacturing and service enterprises that rely heavily on the coconut industry as source of raw materials and manufacturing inputs. From its inception, the current government has been very clear that one of its main objectives is to help improve the economic welfare of millions of coconut farmers. Development efforts and socio-economic policies are geared towards ensuring a balance between the farming sector and the manufacturing sectors of the coconut industry. There are around 3216 registered traders and manufacturers of coconut products in the country.

Green Manure Cover Crops

Coconut Production

Philippines stands second in area under coconut behind Indonesia and third in production of coconut behind India and Indonesia. The total area under coconut is 3.57 million hectares which is estimated to be around 36% of the total agricultural land in the country. The major coconut producing regions are Calabarzon, Bicol region, Zamboanga Peninsula and Davao region. The total number of bearing palms in the country is estimated to be around 338.7 million. Of the total palm population, around 30.4% are below 10 years age and 62.3% fall in the category 10-60

years of age. The palms above 60 years of age is only around 7.3%. A production downturn was noticed in 2016 resulting from the prolonged El Nino induced dry spell in key production areas but coconut production is expected to recover in 2017 to 3.379 million MT. The estimated productivity in 2017 is around 0.948 tons per hectare.

Coconut Intercropping

Export

Philippines is the leading exporter of coconut products across the globe. Coconut and its value added products constitute the top agricultural export product in the Philippines and the export values were at USD FOB 2.12 billion and USD FOB 1.27 billion in 2014 and 2015 respectively. As a consequence of El Nino, exports in 2016 dropped by about 13.5% from the earlier year. Forecast however, indicate that exports will recover by at least 7%. Coconut oil exports have actually increased over 70% year on year in the first five months of the 2017. The major export commodities include: fresh coconut, copra, coconut oil, desiccated coconut, coconut milk/cream, virgin coconut oil, oleo chemicals, nata de coco, coconut water, coconut sugar, coconut flour, charcoal, activated carbon, coir fibre and copra meal. Increased demand of coconut coir, peat and activated carbon are anticipated. Export is under-taken mainly to Europe, USA, Asian countries and Australia. Notwithstanding the impact of El Niño, revenue from exports was higher for 2016 and is expected to improve further in 2017 driven by higher volumes and prices. Moreover, local consumption of coconut products rose by 3.7% from the prior year. Favorable forecast for sustained growth in domestic demand is also seen in 2017.

Programs on replanting/new planting, rehabilitation and enhancing farm productivity

Low productivity continues to be one of the biggest challenges facing the coconut agricultural sector. Prevalent poverty of coconut farmers persists. To ensure the sustained and reliable productivity of the industry, programs on replanting, fertilization, farmers' welfare and development are being pursued. Expansion to new areas, increasing yield through agronomic interventions, greater support for value adding programs including entrepreneurship and increasing land use efficiency through intensification and diversification are major strategies of growth and development.

Replanting and New Planting of Coconut

Programs for replanting and new planting of coconut are being implemented. It includes the Accelerated Coconut Planting and Replanting Program and the Yolanda Rehabilitation and Recovery Program. An area of 99,398 hectares has been replanted during 2015-2017 till date. The area newly planted with coconut during the perios is around 178,917 hectares.

Intercropping and livestock integration

Programs on intercropping and livestock integration is also undertaken to improve the profitability of the coconut plantations and thereby enhance the income of coconut farmers. Intercropping is usually undertaken with banana, cacao, coffee and

Coconut Replanting in Philippines

corn while livestock integration includes cattle, carabao and goat. During the year 2016 and 2017, an area of 4,098 hectares has been intercropped with banana, 5,947 hectares with cacao, 1,060 hectares with coffee and 2,121 hectares with corn. It is planned to undertake intercropping in an area of 5,500 hectares during 2018, mainly with cacao and coffee.

Coconut Rehabilitation by Fertilization

Programs are also implemented for rehabilitation of the existing coconut plantations by fertilization with an objective to increase coconut production by 25-50%. The use of agricultural grade salt and combination of salt and coir based organic fertiliser is encouraged. An area was 142,211 hectares was rehabilitated during the years 2016 and 2017.

Community Household level processing – KAANIB Enterprise Development Project

Programs are in place for promoting processing of coconut and undertaking establishment of processing units at community household level. During the last three years (2015-2017 till date), a total of 209 community household level units for coconut processing were established. The units undertake production of mainly virgin coconut oil, coconut sugar, coir and coir based products etc.

KAANIB Coco Hub Development Project

The establishment of coconut agro hubs through clustered participation of both farmer-organized and private sector-led community-based operations is an area of innovation that will lead to the revitalization of the industry. The objective of the project is to The major coconut hub projects include the Mindanao Integrtaed Rural and Development Multi-purpose Cooperative,

Pest Control Laboratory

Sweet Harvest Multi-purpose Cooperative, Lamac Multi-purpose Cooperative, A&M Multi-purpose Cooperative, Local Government Unit of Alabat, Costales Nature Farms, Sorosoro Ibaba Multi-purpose and Cooperative Coconut Enterprise Development Centre which together involve an investment of 1.926 million dollars. The major products are coconut sugar, coconut oil and coir.

Integrated Pest Management Initiatives for scale insect

Philippines encountered a major issue of incidenece of attack by coconut scale insect which caused wide spraed damage to coconut plantations drastically destroying the palms in the affected areas. A Coconut Scale Insect Emergency Action Program (CSIEAP) was initiated with the objective to control or reduce the scale population, prevent the spread of infestation, rehabilitate damaged trees and provide livelihood support. A protocol for the integrated pest management was developed under which the major control activities were harvesting and leaf pruning, trunk injection of systemic insecticide, spraying of organic pesticides, release of bio-control agents, fertilization and intercropping and establishment of quarantine check points.

Coconut Research and Development

The major reserach and development activities include varietal improvement, embryo cultured Macapuno production, Non food and food development, biotechnology initiatives (including somatic embryogenesis), integrated pest management and fertility management. The coconut hybridization program and the establishment of seed farms as sources of quality planting materials in highly suitable coconut growing areas are included as priority programs starting this year. Allocation of substantial funds for research and development has been made to address issues on productivity, climate change and integrated pest management among others.

Market Development Services

Assurance of greater market prospects through trade promotions, product innovation and standardization are also considered priority concerns of the government. Cocoweek organised every year has emerged as a major avenue for market development and market promotion.

US Roadshow :

This year, the tired issue of saturated fats as the chief culprit for

Philippine Delegation during the Roadshow in the U.S.

cardiovascular disease has again been revived by the American Heart Association (AHA). Coconut oil has been singled out by AHA, as it did in the late 1980s.The Philippines has taken the initiative to rally the Asian and Pacific Coconut Community (APCC) and the private sector in opposing this smear campaign against coconut oil, pointing out that it is based on flawed research which endangers the economies of the major coconut producing countries as well as the livelihoods of millions of coconut farmers throughout the world.
In partnership with the Department of Trade and Industry (DTI), a Coconut Road show and Outbound Business Matching Mission was sent to the US in September 2017 to conduct a press relation, market intelligence and promotion campaign for coconut oil and other coconut products.

INDONESIA

Indonesia is the country with the largest area under coconut and with the highest potentail for coconut development. The area occupied by coconut plantations is estimated at about 3.54 million hectares in 2017. Almost 99% of these holdings belong to smallholder coconut farmers. A slight decrease in coconut area by 0.61% is noticed in comparison to the previous year. During the period 2012 – 2016, coconut plantation area decreased by 215,000 hectares recording an average reduction of 50,000 hectares per year. Out of the total plantation area, almost 440,000 hectares are senile. There are around 5.09 million households engaged in coconut cultivation.

Coconut production

The estimated total coconut production in 2017 is 2.871 million ton copra equivalent or equal to 14.3 billion nuts. The top five provinces that are centres of coconut are Riau, East Java, North Sulawesi, Central Java and Central Sulawesi. Riau Province is still the biggest producer in terms of area and production with the share of 14.5% and 14.7% respectively. Indonesia's coconut productivity is relatively low, around 1.1 tons copra per hectare per year.

Programs to increase the production and productivity of coconut

In order to increase production and productivity, Ministry of Agriculture has developed programs such as replanting, new planting and intensification, improving the quality of crops and varieties, encourage farmers to intercropping, particularly in 1.7 million hectare cocoa area using certified

Coconut Harvest

good quality seeds, develop coconut seed with conventional method and tissue culture, encourage cooperation between coconut development on the farm side and coconut processing industry. Focus is also given on empowerment of snall holders economic groups. Intercropping with paddy, corn and soyabean is undertaken in coconut gardens.

Coconut development policies focus on establishment of high yielding coconut seed garden for seedling production of high yielding varieties, establishment of high yielding block and selection of high yielding tress for local coconut, development of coconut specific area especially on
the eastern part of Indonesia by
creating program and activities that put attention to enhancing: better cultivation, utilization of technology, processing to value added products, better access to market and empowerment of farmers through Smallholders Economic Institution. Furthermore, Ministry of Industry provides incentives in purchasing production machinery to support small and medium enterprises in coconut industry by 25 – 30% from total price. The National Coconut Specific Area is located across 18 provinces and 39 regions of the country.

Research and Development programs

In research and development, Indonesia Palm Crops Research Institute (IPCRI) has research program for the development of new varieties of coconut hybrids to produce more nuts and nira. IPCRI develops high yielding coconut seed to supply coconut seed garden and also provide seeds to support replanting program. Utilization of superior high yield varieties can increase productivity potentially up to 3.5 tons copra per hectare. The Khina series and the Selayar tall coconut variety are examples.

The Proceedings of Coconut New Variety Release Organized by the Ministry of Agriculture

Indonesia Agency for Agricultural Research and Development held a proceeding on new superior variety release of plantation crops in April 2017. The release for Bido coconut variety from Morotai is part of the proceeding held by IPCRI in cooperation with the Agriculture Office of Morotai Regency, North Maluku Province. The Bido coconut is type of fast bearing coconut originated from Bido Village. This superior variety can produce almost 16,400 nuts per hectare or about 133 nuts per tree. The advantage of this coconut is that the stem grows slowly with large fruit size. This type of coconut begins flowering at the age of two years and can be harvested at the age of three years. The shape of the fruit is like a large egg, with copra oil content up to 54%. Another new variety is Lampanah coconut variety developed in collaboration between IPCRI and the Office of Plantation Crops of Aceh Province.

Export

The export of coconut and coconut-based products decreased 3.5% in 2016 comparing with previous year and the export performance showed a declining trend since 2014. The traditional export products are coconut oil, desiccated coconut, copra meal, activated carbon and fresh coconuts. Coconut oil ranks first, followed by desiccated coconut and fresh coconut. Valued about USD 1.18 billion and a volume of around 1.5 million tons, export of coconut products contributed 0.9% of the total non-oil and gas export in 2016. Main export destinations are China, United States, Malaysia, Netherland and South Korea.

Promotional activities

Various promotional programs have been organised contributing to the development of the coconut sector in the country in 2017 which included National Meeting on Coconut Shell Charcoal Based Industry, Conference on Coconut Husk Based Industry, Nata de Coco Industry Meeting and the celebration of World Coconut Day in Tembilahan, Riau Province. Indonesia also hosted the 52nd APCC Session/Ministerial Meeting and the 47th APCC COCOTECH Conference and Exhibition in 2016.

(Source: Country Paper and presentation at 53rd APCC Session/Ministerial Meeting in Kiribati of India, Indonesia and the Philippines and APCC Statistical data)

[1]*Assistant Director of Asian and Pacific Coconut Community.*

EXPERTS' FINDINGS ON THE HEALTH BENEFITS OF COCONUT WATER

Prof. Rabindarjeet Singh
Director, Sport Science Unit,
University Science Malaysia

A study on the effectiveness of fresh young coconut water (Malayan Tall Coconut Variety) for whole body rehydration, following exercise-induced dehydration shows that although plasma glucose was high when coconut water was ingested, it was significantly higher with CEB (Carbohydrate-Electrolyte Beverage) due to its higher glucose content. With coconut water having similar rehydration index with same trend for per cent rehydration and restoration of plasma volume with the CEB, it can be concluded that coconut water could be used for whole body rehydration after exercise-induced dehydration. In addition, consumption of coconut water caused less nausea, fullness and no stomach upset and it is also easier to consume larger amount of coconut water when compared with carbohydrate-electrolyte beverage or a sports drink.

(Source: Prof. Rabindarjeet Singh, 2009. Coconut Water: A Rehydrating Drink after Exercise *Cocoinfo International*, 16 (1): 19-20, and in Proceedings, Malaysia National Coconut Conference 2009, Perak, Malaysia)

DR. D.P. Athukorale
Cardiologist, Pharmacologist,
Academician, Colombo
Sri Lanka

Green Coconut has much water and is rich in proteins, minerals, vitamins, calcium, phosphores, iron, iodine, chlorine, sulphur, potassium, carbohydrates and vitamins, B1, B2, B5 and magnesium. The water also helps the hydration of the body. The green coconut has a ratio of amino acids arginine, alanine, cisteína (essential) and serina, greater than those found in cow's milk. It is perfect and natural isotonic to restitute energies in the human body.

Tender coconut water has been used in other areas of the world where intravenous solutions cannot be obtained. Japanese have used tender coconut water (T.C.W.) intravenously in Sumatra, Indonesia in World War I. Pradera et. al. have used intravenous T.C.W. for pediatric patients in Havana, Cuba without any serious reactions

(Source: Dr. D.P. Athukorale 2008. Tender Coconut Water – Its Health Benefits *Cocoinfo International*, 15 July: 14-16)

Dr. Bruce Fife
Certified Nutritionist and Doctor
of Naturopathic Medicine, USA

One of the secrets to coconut water's success as a rehydration fluid is its mineral or electrolyte content. Coconut water contains the same major electrolytes as those in human body fluids. It has proven to be a superior rehydration fluid when taken both intravenously and orally.

Today coconut water is used worldwide as a home treatment for dehydration-related diseases such as cholera and influenza. Death rates from cholera are high. Death, however, is not caused by the infection itself, but by dehydration resulting from the loss of body fluids. Giving cholera patients adequate amounts of coconut water results in a remarkable 97 percent recovery rate.

(Source: Fife, Bruce *Healthy Ways Newsletter, Vol. 4 No.4)*

Dr. (Mrs.) E.R.H.S.S. Ediriweera
Senior Lecturer, Department of
Nidana Chikithsa, Institute of Indegenous Medicine, University of Colombo, Rajagiriya, Sri Lanka

- Young coconut water could be drunk to alleviate the burning sensation during micturition
- Young coconut water, breast milk, treacle of *Saccharum officinarum* (F.Graminae) and sugar are mixed together and given for hiccough
- Leaves of *Dregia volubilis* (F. Asclepiadaceae) are to be pounded and mixed with tender nut water. The juice is extracted and given in treatment of poisoning of *Nerium indicum* (F. Apocyanaceae)
- Water of young king coconut (before flesh is formed inside) is given for fever and it can be consumed as a diuretic in dysuria.
- A King coconut is to be opened by slicing off the top.30 gms of powdered fruits (without seeds), of *Terminalia chebula* (F.Combretaceae) are added to the King coconut water inside and stirred. Sliced top is then replaced (as a cover) and kept outdoors in the dew overnight. Following morning, the mixture inside is to be filtered and drunk as a purgative. This is called El Vireka by Sri Lankan traditional physicians. The number of bowel motions will increase as the person continues to drink cold water from time to time during the morning. He should not consume hot or warm food and liquids. This is good for purifying blood and cooling the body.

EXPERTS' FINDINGS ON THE HEALTH BENEFITS OF COCONUT WATER

Vermen M. Verallo-Rowel, M.D.
Award-winning, American Fellow Dermatologist and Medical Researcher based at the Makati Medical Center, Metro Manila Philippines

- Coconut water contains growth factors that function much like a culture broth and that get used up in the process of growth of the meat.
- Whether in human beings or in plants, growth factors are produced to regulate growth. These chemicals are very potent. Even tiny amounts produce major growth effects. These plant growth factors have bewitching, Merlin-the-Magician-like names: *gibberelin, auxin*, and *cytokinin*. Each promote growth.
- One of most studied of the *cytokinins* is *kinetin* which is also found especially abundant in coconut water.
- Because of its size, the growth factors in the coconut are abundant compared to other nuts in plant kingdom. They are kept in a stable environment (the coconut itself), continue to be active, and withstand the rigors of heat and storage – perhaps because throughout its life the coconut is exposed to the sun and the elements at 30 meters or more above the ground.
- Kinetin, one of the coconut's growth factors, has been shown to retard the aging of fruit flies and of human cells in culture, and finally, of people using a cream containing kinetin.

(Source: Verallo-Rowell, V.M. 2005. *RX: Coconuts! (The Perfect Health Nut). Bookman, Inc, Manila, Philippines)*

Dr. Eufemio Macalalag
Director of Urology, the Chinese General Hospital, Metro Manila, Philippines

- Dr. Macalalag has proven the effectivity of administering coconut water in treating renal disorders and in reducing or dissolving all kinds of kidney stones. The process involved the endoscopic procedure of multiple urethral stenting (MUS) or tubatuin (MUS-T), inserting two to twelve urethral catheters into the kidney ureter and irrigating it with coconut water from seven to nine-month old coconuts or buko nectar concentrate powder (BNCP) for a period of 3-19 days. Daily "bukolysis" and renoclysis with BNCP efffects approximately 10 percent reduction in the size of all types of stones treated.
- Dr. Macalalag said that the water from one mature coconut consumed daily, which is equivalent to about two full glasses per nut, could almost guarantee that the formation of stones in the urinary tract would be prevented. Dr. Macalalag asserted that the biggest plus factor in "bukolysis" is its capacity to dissolve kidney stones and arrest their growth.

Coconut Water for Health and Healing

This book describes the many health benefits of this remarkable beverage. It includes a fascinating account of how coconut water has been used as an emergency IV fluid around the world and why it is becoming one of the most popular sports rehydration drinks today.

Coconut water isn't just for rehydration, however. Studies show it provides numerous health benefits, some of which are the following: dissolving kidney stones, protecting against cancer, balancing blood sugar, providing ionic trace minerals, improving digestion, feeding friendly gut bacteria, relieving constipation, reducing risk of heat disease, improving blood circulation, lowering high blood pressure, helping prevent atherosclerosis, possessing anti-aging properties, and enhancing immune function.

Coconut water tastes delicious straight from the coconut, but can also serve as the base for a variety of foods and beverages. Included are 36 tantalizing coconut water recipes. With 80 percent less sugar than fruit juice or soda, coconut water makes a healthy, refreshing drink for you and your kids.

EXPERTS' FINDING ON THE HEALTH BENEFITS OF COCONUT OIL

Marry G. Enig, Ph.D.
Director, Nutritional Sciences Division, Enig Associates, Inc.12501 Prosperity Drive, Suite 340, Silver Spring, MD, 20904-1689 USA

The lauric acid in coconut oil is used by the body to make the same disease-fighting fatty acid derivative monolaurin that babies make from the lauric acid they get from their mothers' milk. The monoglyceride monolaurin is the substance that keeps infants from getting viral or bacterial or protozoal infections. Until just recently, this important benefit has been largely overlooked by the medical and nutritional community.

(Source: Enig, G.M. 2001. *Health and Nutritional Benefits from Coconut Oil: an Important Functional Food for the 21st Century*. Coconuts Today, Special Edition for the 13th Asian Pacific Congress of Cardiology, October 2-3, 2001, EDSA Shangrila Hotel, Manila, Philippines).

Dr. Jon J. Kabara
Emeritus Professor, Michigan State University, and Technology Exchange Inc. Galena, Illinois 61036, U.S.A

Never before in the history of man it is so important to emphasize the value of lauric oils. The medium-chain fats in coconut oil are similar to fats in mother's milk and have similar nutriceutical effects. In the past four decades misinformation and disinformation provided by certain politically biased agricultural groups and repeated in professional and lay press have led people to believe that all saturated fats are unhealthy. Little attention is focused on the fact that saturated fatty acids are not single family of fats but comprise three subgroups: short (C2-C6), medium (C8-C12) and long (C14-C24) chain fatty acids. The medium chain fats are found exclusively in lauric oils.

Source: *Kabara, J.J. 2000. Nutritional and Health Aspect of Coconut Oil In: Proceedings of the XXXVII COCOTECH Meeting/ ICC 200, 24-28 July 2000, Chennai, India, pp. 101-109) .*

Vermen M. Verallo-Rowel, M.D.
Award-winning, American Fellow Dermatologist and Medical Researcher based at the Makati Medical Center, Metro Manila Philippines

The Coconut is the Perfect Health Nut. The coconut can help you avoid obesity, boost your immunity, protect you from bacteria, fungus, and viruses – all while keeping you heart-healthy and moisturizing your skin to a natural glow and beauty, even treating acne, and providing beneficial antiseptic, tumor-protecting, and antioxidant effects.

Source*: Verallo-Rowell, V.M. 2005. RX: Coconuts! (The Perfect Health Nut). Bookman, Inc, Manila, Philippines..*

Dr. Conrado Dayrit
Emeritus Professor, University of the Philippines, College of Medicine, Former President, National Academy of Science & Technology, Metro Manila, Philippines

With all the opprobrium cast against it, it bears repeating again and again that no evidence has ever been presented to prove that coconut oil causes coronary heart disease in humans. The human epidemiologic evidence proves that coconut oil is safe. Coconut eating peoples like the Polynesians and Filipinos have low cholesterol, on the average, and very low incidence of heart disease. All evidences now point to inflammation and low HDL as the principal instigators of plaque formation. The chemical properties of coconut oil (CNO) and its biologic actions as a medium chain fatty acid make CNO superior to other oils for cooking and health use. Its anti-inflamatory and immune-regulatory actions as shown by its remarkable control of diabetes, hypertension, heart disease, auto-immune diseases and cancer, make coconut oil unique.

Source: *Dayrit, Conrado S. 2006. Coconut Products and Virgin Coconut Oil (VCO) for Health and Nutrition – A strategy for Making Coconut Globally Competitive. In Proceedings of the XLII Cocotech Meeting, 21-25 August 2006, Manila, Philippines.*

Dayrit, Conrado S. 2005. The Truth About Coconut Oil: The Drugstore in a Bottle. Anvil Publishing, Inc. Manila, Philippines.

EXPERTS' FINDING ON THE HEALTH BENEFITS OF COCONUT OIL

Dr. Bruce Fife
Certified Nutritionist and Doctor of Naturopathic Medicine, USA

If there was an oil you could use for your daily cooking needs that helped protect you from heart disease, cancer, and other degenerative conditions, improved your digestion, strengthened your immune system, and helped you lose excess weight, would you be interested? This is what coconut oil can do for you. The oil from the coconut is unique in nature and provides many health benefits obtainable from no other source. Coconut oil has been called the healthiest dietary oil on earth. If you are not using coconut oil for your daily cooking and body care needs, you are missing out on one of nature's most amazing health products.

Source: *Fife, B. 2004. The Coconut Oil Miracle. Penguin Books (USA.) Inc. New York, USA.)*

Walujo Soerjodibroto, MD, Ph.D.
Nutrition Department, Faculty of Medicine, University of Indonesia, Jakarta, Indonesia

The clinical study on the effects of virgin coconut oil (VCO) on immune responses among HIV positive patients in Dhamais Hospital, Jakarta concludes that the macronutrient intake, mostly in terms of energy, fats and protein were significantly improved among the VCO supplemented group. In addition, the weight and nutritional status of the subjects, especially among the VCO supplemented group, were maintained well throughout the study. By maintaining body weight and nutritional status, it is expected to have significant increases in CD 4 concentration because nutritional status is frequently associated with immune status, both humoral and and cell-mediated.

Source: *Research Report on the Effects of Virgin Coconut Oil on Immune Responses among HIV Positive Patients in Dharmais Hospital, Jakarta, 2006:21*

DR. D.P. Athukorale
Cardiologist, Pharmacologist, Academician, Colombo, Sri Lanka

Coconut milk and coconut oil are consumed by the majority of Sri Lankans and rural people which comprise 70% of our population. They get a significant portion of their calories from coconut. It has been found that the majority of people in the rural areas get about 35 gram of fat per day from coconut and they consume very little food containing fats such as milk, butter, cheese, beef, pork, and corn oil as they cannot afford these expensive dietary items. From our clinical experience, we know that serum cholesterol level of people in rural areas is very low. When we investigate patients with ischaemic heart disease (IHD) from rural areas, we find that their serum cholesterol is normal or low. The commonest risk factor for heart attack in rural areas is smoking.

Coconut has been used in Sri Lanka for over 1000 years but the epidemic of IHD is of recent origin. Before 1950, heart attacks were not common in Sri Lanka.

Source: *D.P. Athukorale 1996. The Truth About Coconut Oil. In Facts About Coconut Oil, Jakarta: APCC, pp. 52-54 .*

Raymond Peat Ph.D.
A lecturer at some universities such as the University of Oregon, Urbana College, Montana State University, National College of Naturopathic Medicine, etc

Most of the images and metaphors relating to coconut oil and cholesterol that circulate in our culture are false and misleading. I offer a counter-image, which is metaphorical, but it is true in that it relates to lipid peroxidation, which is profoundly important in our bodies. After a bottle of safflower oil has been opened a few times, a few drops that get smeared onto the outside of the bottle begin to get very sticky, and hard to wash off. This property is why it is a valued base for paints and varnishes, but this varnish is chemically closely related to the age pigment that forms "liver spots" on the skin, and similar lesions in the brain, heart, blood vessels, lenses of the eyes, etc. The image of "hard, white saturated coconut oil" isn't relevant to the oil's biological action, but the image of "sticky varnish-like easily oxidized unsaturated seed oils" is highly relevant to their toxicity.

Source: *Coconut Oil by Dr. Raymond Peat, http://www.efn.org/%Eraypeat/coconut.rtf*

EXPERTS' FINDING ON THE HEALTH BENEFITS OF COCONUT OIL

Dr. Mehmet Cengiz Oz
Director of the Cardiovascular Division, New York Presbyterian Hospital

If you're going to choose just one product to add to your health arsenal, coconut oil may be your best bet. Coconut's chemical compounds make this natural ingredient a powerful tool to solve a whole handful of health issues, including aging, weight balance and infection. Full of antioxidants, this healthy fat is an Oz-approved essential for a healthier you.

Source: *www.coconutresearchcenter.org)*

Prof. B.M. Hedge
M.D. FRCP (London) FRCP (Edinburg), FRCP (Glasgow), FRCPI (Dublin) FACC, FAMS

Little over 50 per cent of coconut oil is medium chain fatty acid, Lauric acid and another 7-10 per cent is medium chain Capric acid. Lauric acid gets converted inside the human system into Monolaurins, the best fat that mother's milk has. Other than mother's milk monolaurins are found only in coconut oil. New born babies and infants depend on the monolaurins for their immune system development and their capacity to withstand any infection. In addition, coconut oil can be digested by the salivary lipase, getting obsorbed very fast to give energy like carbohydrates. All other fats need the pancreatic lipase for digestion that the infants do not have. The coconut oil is the best alternative food fat for the infant when mother's milk is not available.

Coconut oil is low calorie fat and as such helps control body weight. Changing the food fat to coconut oil could help reduce weight in obese individuals. It also helps to control blood fat levels in diabetics. Coconut oil's regular use in diet would regularize blood fats and is known to increase the HDL cholesterol fraction while decreasing the LDL and triglycerides significantly; disproving the myth that coconut oil increases cholesterol and triglycerides.

Naiphinich Kotchabhakdi, Ph.D.
Neuroscience, Research Center, Institute of Molecurlar Bioscience, Mahidol University, Salaya, Nakornpathom 73170, Thailand

Coconut oil is a rich natural source of Medium-Chain Fatty Acids (MCFAs) which contain highest percentage (up to 92%) of saturated fatty acids with 6-12 carbons, such as Caproic or Hexanoic acid (C6:0), Caprylic or Octanoic acid (C8:0), Capric or Decanoic acid (C10:0) and Lauric or Dodecanoic acid (C12:0). These MCFAs usually form esters of glycerol to become Medium-Chain Tryglycerides (MCTs). Like all triglycerides (fats and oils), MCTs are composed of a glycerol backbone and three fatty acids. In the case of MCTs, 2 or 3 of the fatty acid chains attached to glycerol are medium-chain in length. Many recent studies have demonstrated that MCTs can potentially help in the process of burning excess calorie, and thus reducing weight gain and promoting loss. MCTs also promote fat β-oxidation and reduced the need for more food intake. Compared with long-chain fatty acids (LCFAs), MCFAs are substantially different in their chemical and physical properties on metabolism. MCFAs do not seem to require binding to proteins such as fatty-acid binding protein, fatty acid transport protein, and/or fatty acid translocase (FAT, homolog to human CD36). MCFAs are a more preferred source of healthy energy (β-oxidation). Recent studies have shown that MCFAs are usually incorporated into adipose tissue triglycerides, and can influence adipose tissue and other systemic functions more substantially than previously known.

Source: *The International Conference on Coconut Oil 17-20 March 2015, Bitec Conference and Exhibition Center, Samut Prakan, Thailand*)

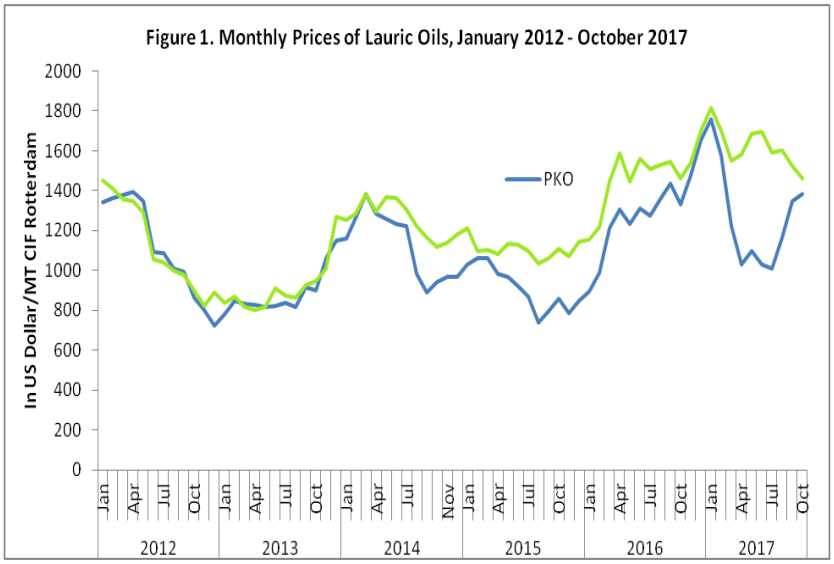
DR. S.M. Sadikot
Hon. Endocrinologist, Jaslok Hospital & Research Center, Bombay. Hon. Diabetologist, All India Institute of Diabetes, Bombay

Ghee, coconut oil and mustard oil are traditional cooking media which have been used in India and other developing countries for thousands of years. Although they are saturated fats, they do not show a wide Omega-6 to Omega-3 fatty acid ratio which is quite high in polyunsaturated oils. The desirable ratio is less than 10:1. Increasing prevalence of diabetes and other related diseases are found correlated with increasing Omega-6 to Omega-3 ratio. On the other hand, consumption of coconut oil which is deficient in polyunsaturated fatty acids has been found to enhance secretion of insulin and utilization of blood glucose. It is beneficial to consume the traditional edible fats such as coconut oil along with polyunsaturated fats to reduce the Omega-6 intake and maintain optimum Omega-6 to Omega-3 ratio in the diet.

Source: *Coconut Oil for Health and Nutrition, APCC 2004*

BEARISH COCONUT OIL MARKET IN THE FIRST HALF OF 2018

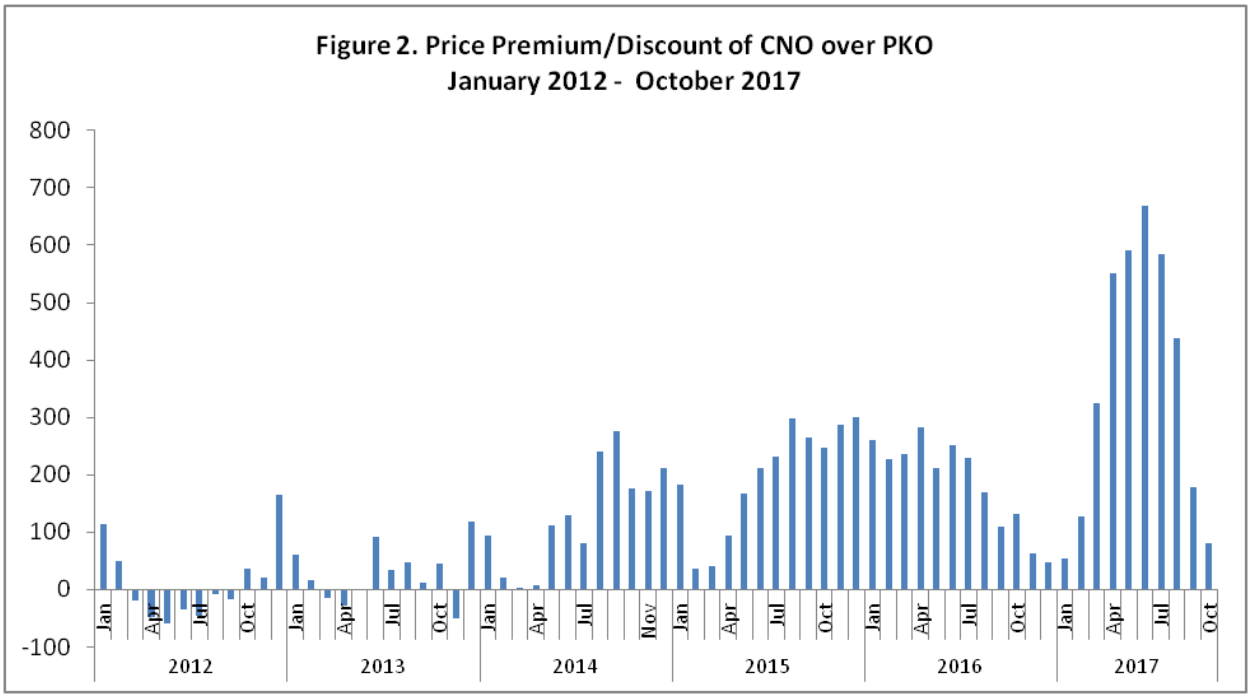
Price of coconut oil showed an easing trend in 2017 amid a tight global supply for the product. In January 2017, the price of coconut oil was US$1,815/MT and dwindled to US$1,580/MT in April 2017. At the same time, the price of palm kernel oil dropped from US$1,760/MT in January 2017 to US$1,029/MT in April 2017. Since coconut oil plays a complementary role with palm kernel oil in the market, the high price premium over palm kernel oil put a pressure on the price of coconut oil and also brings price of palm kernel oil up. This prevailed in the second half of 2017 when price of palm kernel oil improved to US$1,382/MT in October 2017, price of coconut oil, in contrast, further declined to US$1,463/MT and brought about the price premium over palm kernel oil to lessen from US$551 in April 2017 to only US$81 in October 2017. The narrowing price gap between the two lauric oils also pointed toward a shifting demand of the oils at the expense of coconut oil.



Amid expected improving supplies, the price of coconut oil is expected to be steady at US$1,500/MT to US$1,600/MT in the first half of 2018. Crude coconut oil in Rotterdam was quoted firm at US$1,550 for March/April 2018 on November 16, compared to US$1.570/MT for Nov/Dec shipment.

Coconut production is estimated to be stagnant in 2017 amid recovery in rainfall pattern. In Philippines, UCAP projected coconut production to recover 9.3% to 2.244 million MT since rainfall pattern revealed recovery below normal status to above normal status in many coconut areas last year especially in the last quarter. Meanwhile in Indonesia, India and Sri Lanka coconut production is expected to decline. Ministry of Agriculture of Indonesia estimated that the production in 2017 will fall to 2.871 million tons or 2.84 percent lower compared to the previous year. In India, a Coconut Development Board survey revealed production estimate for agriculture year 2016/17 at 20,789 million nuts, 6.22% lower than the previous year. Coconut Research Institute of Sri Lanka forecasted coconut yield for the year 2017 is 2,347 million nuts and this is about 17.5 % reduction (498 million nuts) with respect to the estimated Annual National Coconut Production (ANCP) for the year 2016 (2,845 million nuts).

Production deficiency of coconut puts a pressure on copra production. The Oil World indicates that the global copra production in 2017 is expected to decrease by 4.1% as opposed to the previous year's production at 4.12 million tons. Only Philippines is projected to have a good production of copra f ollowing a favorable weather. Copra production in Philippines is estimated to increase by 7% to the level of 1.37 million tons this year. Meanwhile Indonesia is expected to have lower copra production of 1.18 million tons compared to 1.28 million ton in the previous year. Copra production stayed behind potential in recent years, partly as a result of senile palms worsened by typhoon damage and diseases but also indicating rising demand for coconuts for other uses. Export of desiccated coconut from Philippines leveled up by 39% to 57,866 tons during the period of January-July 2017. Exports of desiccated coconut from Indonesia rose as well to 78,538 or increased by 20% compared to the same period



last year. Export of fresh coconut even rocketed from 392,997 tons in January - October 2016 to 720,961 tons for the same period in 2017.

Amid a tight copra production, global export of coconut oil in 2017 is expected to maintain its level at 1.66 million tons and hold back the previous negative trends. Current figures show that Philippines' export of coconut oil in 2017 increased almost double from 366,553 MT to 533,890 in the period of January-July 2017 following upturn in coconut production. Meanwhile in the period of January-October 2017 Indonesian export of the product was 415,577 MT or declined for more than 15% compared to 492,715 MT for the same period last year. Insufficient coconut production worsened by competition for raw material with other coconut products restrained recovery of copra production in Indonesia.

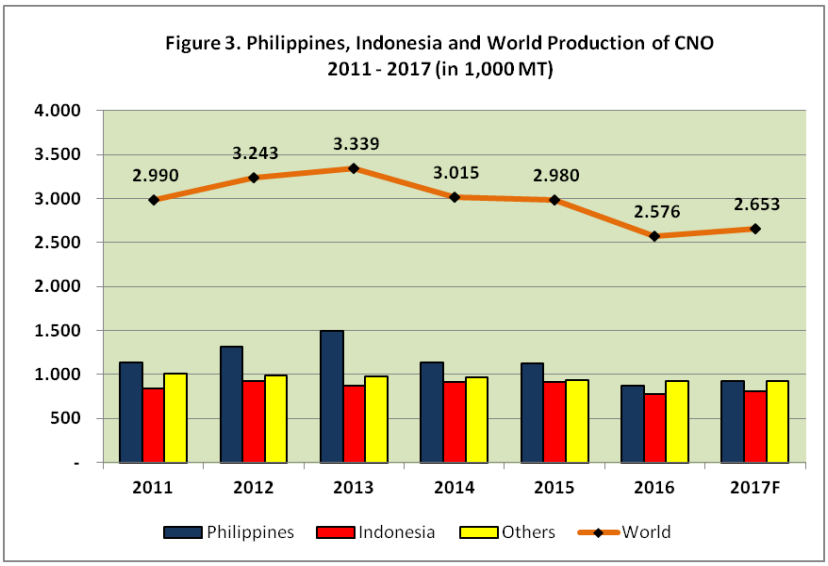
The import demand of coconut oil, on the other hand, is expected to grow from 1.62 million MT in 2016 to 1.69 million MT in 2017 and forecasted to further strengthen in 2018. At the same time import of palm kernel oil is, similarly, estimated to scale up from 3.06 million MT to 3.19 million MT. As a result, total imports of lauric oils decreased by 9.7% to a level of 3.4 million MT as against 4.8 million MT of 2015.

A shortage in copra production and a wide price premium over palm kernel oil has further brought about a pronounced shift of demand at the expense of coconut oil in major destinations.

The US is one of countries where the buyers of lauric oils indicate to shift their preference at the expense of coconut oil. A decline in imports of coconut oil was observed in the US until the third quarter of 2017. In the period January-September 2017, US imports of the oil was 0.35 million MT or shrunk by 11.8% compared to 0.40 million MT in the previous year. Meanwhile, imports of palm kernel oil in the same period were jumping. The oil rocketed from 0.26 million MT in January-September 2016 to 1.29 million MT in the same period of 2017. Hence, share of coconut oil to the US total imports of lauric oils dropped to 21.3% from 50% in the corresponding period of 2016.

The shift in preference of lauric oils at the expense of coconut oil was also observed in Europe. In the period of January -July 2017, share of coconut oil to the European total imports of lauric oils was 42% which was 8% lower than its share in 2016 for the same period. Shipments of coconut oil to Europe were 0.43 million MT which was shrunk by 9.5% opposed to that of last year. In total, imports of lauric oils went up by 8% following an improvement in supply of palm kernel oil.

Unlike in the US and Europe, the cross-price substitution effect of the two oils did not appear in China. The share of coconut oil to total imports of lauric oils in the first half of 2017 remained at 19% the same as that of last year. However, demand of the oil slightly contracted to 68.5 thousand MT from 68.7 million MT in 2015 or shrunk by 2.6%. The decline in demand was also witnessed for palm kernel oil. The oil



0.dropped to 0.55 million MT in 2016. Hence, the total imports of lauric oils to China shrunk by 9.8% for the said period.

The Oil World forecasted that combined world production of palm kernel oil and coconut oil is expected to increase by roughly 0.8 million MT in 2017/2018 as a result of a further uptrend in palm kernel oil by 0.4-0.5 million MT and expected recovery in coconut oil by 0.3-0.4 million MT. Given an about unchanged mature area available for production of copra and assuming an uptrend of the average yield to a three-year high of 0.83 tons per hectare, Philippine copra output in 2018 may increase by approximately 0.3 million tons. This would raise production of coconut oil by roughly 170 thousand tons next year, raising Philippine export supplies by 120-140 thousand tons.

Amid expected improving supplies, the price of coconut oil is expected to be steady at US$1,500/MT to US$1,600/MT in the first half of 2018. Crude coconut oil in Rotterdam was quoted firm at US$1,550 for March/April 2018 on November 16, compared to US$1.570/MT for Nov/Dec shipment.

[1]*Alit Pirmansah is Market Development Officer, Asian and Pacific Coconut Community.*

Coconut Week and 4th International Coconut Festival, August 18-20, Manila, Philppines

The Philippine Coconut Authority (PCA) successfully organized the country's 31st Coconut Week Celebration this year and the 4th International Coconut Festival on August 18-20 at the Megatrade Hall 1, SM Megamall, Mandaluyong City. With the theme "Go healthy, go wealthy with Coconut," the event features the following activities: August 18 - opening of trade fair and exhibits, tribute and recognition to coconut farmers and exporters, technologies, products, services and programs promotions and launching, coconut industry stakeholders' conference, coconut-inspired fashion show and cocomania; August 19 - coconut investment forum cum B2B meetings (investing in quality coconut oil, processing coconut shell into charcoal, investing on coconut-based social enterprises, coconut water processing, cocopeat-based urban gardening/ nursery management, bio-technology for productivity improvement), KAANIB partners congress, and cocomania; August 20 - Trade related Seminars (halal certification, fair trade certification, organic certification, requirements in exporting organic VCO to China and GAP certification), cocomania, cooking demo with chef Boy Logro, coconut inspired fashion show, and closing of trade fair and exhibit. Asian and Pacific Community also participated in this event. All latest APCC publications were displayed and many participants were interested in getting information from APCC publication.

Ribbon Cutting Signified the Opening of Coconut Week and 4th International Coconut Festival in Manila, Philippines

A View of the Crowd in Front of the Main Stage During International Coconut Festival

MCT Oil, a New Coconut Product Line Displayed in the Exhibition

World Coconut Day and International Coconut Festival,Tembilahan, Indragiri Hilir, Riau Province, Indonesia. 9-11 September 2017

This international event organized by the Indragiri Hilir Regency on 9—11 September 2017 in Tembilahan, the capital city of Riau, Ir. H. Arsyadjuliandi Rachman, M.B.A. Indragiri Hilir Regency, Riau on 9 September 2017. Indragiri Hilir is the largest coconut area amongst all Regencies in Indonesia. It has more than 400.000 hectares coconut area all over the Regency. Mr. Arsyad, in his inaugural address stated that if we are talking about coconut, we are talking about people or farmers since more than 90% of coconut plantation belongs to farmers, not companies. He pointed out that he will continue to support programs on coconut to improve farmer's welfare. Meanwhile, in his keynote address, Mr. Muhammad Wardan, Regent of Indragiri Hilir, said that the aim to celebrate World Coconut Day 2017 in Tembilahan is to promote coconut potency in Indragiri Hilir globally for the benefits of coconut farmers.

Cultural Show During the Gala Dinner

Students Participating in Record Breaking for Massive Coconut Water Drinking

the Regency went well and successful. The event was officially opened by by the Governor of

(From Right to Left) Mr. Said Syarifudin, the Regency Secretary, Mr. H.M. Wardan, the Regent of Indragiri Hilir, and Mr. H. Arsyadjuliandi Rachman, Governor of Riau Province Holding the Indonesian-Style Guiness Record Certificates

The festival was held during 9 – 11 September 2017 attended by not only local participants but also those who come from other regions in Indonesia and also other countries. Mr. Bambang, Director General of Estate Crops, Ministry of Agriculture and Mr. Oke Nurwan, Director General of Foreign Trade, Ministry of Trade also attended the festival. During the event, Record Museum of Indonesia (MURI) presented record certificates for national record of drinking tender coconut water by as many as ten thousand people at the same time. Another record certificate was awarded for 500 different foods using coconut-based recipes. The activity lineup included exhibition, seminar, business meeting and field trip. APCC Executive Director presented a paper on global scenario of coconut products in the seminar. In the last day, all participants visited a coconut plantation and PT Inhil Sarimas, an integrated coconut processor, which currently processes one million nuts per day.

Pacific Week of Agriculture, Port Vila, Vanuatu, 16-20 October 2017.

Global agricultural leaders gathered in Vanuatu during the inaugural of the Pacific Week of Agriculture 2017. Vanuatu was hosting the one-week event from 16 to 20 October 2017 in partnership with the Pacific Community (SPC) and the Food and Agriculture Organization of the United Nations (FAO). International and regional participants explored innovations, discussed challenges and looked for ways to protect and expand agriculture in the Pacific. With support from the Technical Centre for Agricultural and Rural Cooperation (CTA), over 30 participants from the Caribbean Islands also took part in the event.

Main Stage During the Inaugural Ceremony

Activities concluded on Vanuatu's Iririki Island, with two major regional agriculture forums - The Special Session of the Heads of Agriculture and Forestry (HOAFs) on 19 October, and the Ministers of Agriculture and Forestry (MOAFs) meeting on 20 October. At the MOAF meeting, ministers endorsed the new FAO five-year plan for its 14 Pacific Island member countries and territories. At the same meeting, a landmark initiative for Small Island Developing States (SIDS) known as the Global Action Programme on Food Security and Nutrition for SIDS, was introduced.

School children were curious in looking for information about coconut at the Asian and Pacific Coconut Community (APCC) Booth

Vanuatu's Minister for Agriculture, Matai Seremaiah Nawaluhighlighted the Government of Vanuatu's goal for PWA 2017 of elevating the awareness of agriculture to its rightful place as a major driver of Pacific economies. "I believe that PWA 2017 can provide the appropriate platform for regional collaboration, knowledge sharing and partnership,"said Minister Nawalu. "We certainly look forward to hearing from the experiences of other Pacific nations and from our Caribbean colleagues who face very similar challenges."

Minister Nawalu also acknowledged recent events in Ambae, which have resulted in the displacement of well over 10,000 people due to volcanic activity. "Recent events perfectly demonstrate the challenges that face our

peoples. The situation on Ambae is an example of our need to explore ideas and expand conversations beyond Vanuatu borders to ensure our country and our region remain global examples of resilient communities." Supporting the Minister's sentiments, SPC's Deputy Director General, Dr Audrey Aumua stated that, "SPC is grateful to its valued member, the Government of Vanuatu and commends its leadership in the coordination of the first ever Pacific Week of Agriculture, particularly in the wake of recent events on Ambae. We are pleased to support this historic initiative given serious challenges faced by our member countries in the pursuit of food and nutrition security".

Maria Helena Semedo, FAO Deputy Director-General, Coordinator for Natural Resources, expressed her appreciation to the Government of Vanuatu for hosting the event, particularly in light of the situation in Ambae. "This first ever PWA provided an opportunity for partners across the Pacific to coordinate in moving agriculture, forestry and fisheries forward in line with the Global Action Programme for Food Security and Nutrition for Small Island Developing States, the S.A.M.O.A Pathway and other key SIDs related initiatives," Semedo said.

A number of side events will also take place, focusing on Youth Entrepreneurship in the Pacific and Farmers' Knowledge Exchange; Pacific Women in Agriculture Research and Development; The Role of Farmer Organizations in Climate Change Adaptation; The GAP or Global Action Programme on Food and Nutrition Security in Small-Island Developing States; Regional Strategies and Partnerships for Agricultural research; and Market Linkages for farmers. During this event Asian and Pacific Coconut Community (APCC) was taking part in he exhibition and many people and school children visiting APCC booth to get knowledge and information about coconut. (*https://reliefweb.int/report/world*)

53rd APCC Session/ Ministerial Meeting, Tarawa, Kiribati, 23-28 October 2017

The House of Parliament in Tarawa, the capital city of Kiribati witnessed the coconut community unanimously decide to move into an international organisation. The decision to upgrade the Asian Pacific Coconut Community from a regional intergovernmental organisation to an international organisation was taken by the Plenipotentiary Delegates from the APCC member countries during the 53rd APCC Session/ Ministerial Meeting at Tarawa, Kiribati on 24-28 October 2017.

The APCC Session was hosted in Tarawa by the Government of Kiribati through the Ministry of Commerce, Industry and Cooperatives. The country of Kiribati opened its rich Pacific hospitality to the delegates and observers from member countries and turned the APCC Session into an event, whose memories will last forever in the minds of all who participated. The Tarawa Accord which declared the commitment of all member countries to affirm, support and effectively promote the health and nutritional attributes of coconut products was also signed by the member countries.

The country papers were presented by the plenipotentiary delegates on coconut production, processing and marketing in the country; the constraints faced by the sector and the policies and programs implemented in the country to enhance farm productivity and increase the farmer's income; updates on the research and development activities undertaken in the countries; and the suggested road map for the way forward for the coconut sector. Observer organisations also presented statements on their activities for the development of the coconut sector.

The APCC Annual Reportsfor the year 2016 and 2017 were presented by Mr. Uron N Salum, Executive Director. The Session discussed and took decisions on the various programs and projects proposed to be undertaken by APCC. The delegates were also taken on a field visit to the major processing units and farms in Kiribati.

Participants of 53th APCC Session/ Ministerial Meeting Conducting a Field Visit

Table 1. WORLD Exports of Coconut Oil, 2012– 2017 (In MT)

Country	2012	2013	2014	2015r	2016p	2017F
A. APCC Countries	**1,841,896**	**1,881,101**	**1,818,892**	**1,712,259**	**1,540,716**	**1,562,800**
Fiji	3,794	1,494	1,630	1,794	1,500	1,500
India	6,552	6,829	7,067	7,725	28,887	28,000
Indonesia	799,973	630,568	771,419	760,072	602,318	605,000
Kenya	553	38	612	161	271	200
Malaysia	136,783	131,068	187,665	152,091	115,969	128,000
Marshall Islands	3,956	3,330	124	0	1,239	1,000
Papua New Guinea	19,847	13,466	11,068	18,467	23,942	19,000
Philippines	852,234	1,080,836	814,206	740,279	726,827	740,000
Samoa	3,935	1,428	1,450	1,020	546	500
Solomon Islands	172	196	238	1,163	1,487	1,500
Sri Lanka	2,499	3,821	11,254	22,032	22,679	22,000
Tonga	0	0	0	1,020	900	900
Thailand	366	651	1,960	15	1,236	1,500
Vanuatu	10,011	5,535	9,208	9,000	659	700
Vietnam	1,221	1,841	991	10,773	12,256	13,000
B. Other Countries	**296,958**	**347,674**	**278,857**	**361,450**	**280,000**	**270,000**
TOTAL	**1,860,582**	**2,138,854**	**2,228,775**	**2,087,062**	**1,820,716**	**1,832,800**

	2016		2017									
Products	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
Copra	1,029	1,127	1,225	1,146	1,016	1,044	1,113	1,119	1,059	1,062	1,015	989
Coconut Oil	1,538	1,699	1,815	1,703	1,547	1,580	1,687	1,697	1,591	1,604	1,525	1,463
Copra Meal[2]	189	184	190	195	177	184	194	212	185	171	163	154
Desicc. Coconut[2]	2,395	2,444	2,475	2,528	2,480	2,494	2,653	2,655	2,636	2,544	2,505	2,502
Mattress Fiber[1]	182	180	180	110	110	110	119	123	130	173	189	190
Shell Charcoal[2]	340	340	340	376	388	400	406	428	430	456	464	452
Palm Kernel Oil	1,476	1,652	1,760	1,576	1,228	1,029	1,097	1,029	1,007	1,165	1,346	1,382
Palm Oil	751	788	809	774	736	685	727	677	663	674	724	718
Soybean Oil	880	907	872	835	813	791	827	827	835	855	882	866

Sri Lanka (FOB)

Philippines (FOB)

Table 3. World Oil Balance 2016-2018 (1,000 Tons)

Oil/Year	2016	2017F	Oct/Sep 2018F
Palm Oil			
Opening Stocks	13,370	9,840	10,670
Production	58,310	66,050	68,770
Imports	43,540	48,080	49,220
Exports	43,680	48,330	49,400
Disappear	61,980	64,770	66,870
Ending Stocks	9,560	10,860	12,390
Soybean Oil			
Opening Stocks	5,230	5,250	5,360
Production	51,500	54,370	55,840
Imports	12,140	11,810	12,630
Exports	12,120	12,110	12,650
Disappear	51,950	53,990	55,570
Ending Stocks	4,800	5,330	5,610
Groundnut Oil			
Opening Stocks	260	300	300
Production	3,740	4,110	4,450
Imports	260	280	160
Exports	240	290	160
Disappear	3,750	4,080	4,410
Ending Stocks	270	320	330
Sunflower Oil			
Opening Stocks	2,350	2,490	2,410
Production	16,360	18,920	18,440
Imports	8,650	10,610	10,050
Exports	8,710	10,650	10,100
Disappear	16,130	18,540	18,460
Ending Stocks	2,520	2,830	2,340
Rapeseed Oil			
Opening Stocks	6,060	4,480	3,500
Production	24,940	25,270	25,330
Imports	4,390	4,450	4,560
Exports	4,300	4,540	4,580
Disappear	26,610	26,170	25,470
Ending Stocks	4,470	3,490	3,340
Cotton Oil			
Opening Stocks	450	380	300
Production	4,100	4,240	4,450
Imports	130	120	160
Exports	130	130	160
Disappear	4,160	4,210	4,410
Ending Stocks	400	400	330
Palm Kernel Oil			
Opening Stocks	1,080	880	910
Production	6,360	7,110	7,430
Imports	3,060	3,190	3,280
Exports	3,040	3,200	3,300
Disappear	6,620	7,030	7,220
Ending Stocks	830	940	1,100
Coconut Oil			
Opening Stocks	430	360	320
Production	2,550	2,500	2,790
Imports	1,620	1,690	1,850
Exports	1,660	1,660	1,860
Disappear	2,580	2,530	2,670
Ending Stocks	360	330	420

Source: Oil World

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COIR MACHINERY MANUFACTURERS

- COIR - PITH (COCO PEAT) 5 Kgs BLOCK MACHINE
- COIR - PITH (COCO PEAT) BRICK MACHINE
- COIR - PITH (COCO PEAT) GROW BAG MACHINE
- COIR - PITH (COCO PEAT) DISC MACHINE
- COIR - PITH (COCO PEAT) 25 Kgs BALE MACHINE
- COIR - PITH (COCO PEAT) DRIER
- COIR - PITH (COCO PEAT) PROCESSING MACHINE
- COIR - PITH (COCO PEAT) CLEANING SYSTEM
- CUT - FIBER MACHINE
- COCONUT HUSK SUBSTRATES PROCESSING MACHINE
- COIR FIBER BALING MACHINE
- COIR GEO TEXTILE LOOMS
- COIR LOG MACHINE

TURN KEY PROJECTS

- COCONUT FIBER
- COCO PEAT
- GEO TEXTILES
- COCONUT HUSK SUBSTRATES

INTEGRATED COCONUT PROCESSING PLANT

- DESICCATED COCONUT POWDER PROCESSING PLANT
- COCONUT WATER PROCESSING PLANT
- COCONUT FOOD PROCESSING PLANT
- COCONUT MILK PROCESSING PLANT
- WET VCO PROCESSING PLANT
- DRY VCO PROCESSING PLANT

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