

Coconut in Malaysia - current developments and potential for re-vitalization¹

A. Sivapragasam
Rice and Industrial Crops Center
MARDI

INTRODUCTION

The coconut palm (*Cocos nucifera* L.) is aptly described as the 'tree of life' with multifarious uses. It is socially and culturally linked besides providing jobs and income to millions of people. In many island economies, it is the major source of revenue and is an integral part of the livelihood of the population. In many countries, despite the numerous benefits derived, the coconut is under threat due to factors such as conversion of farmers to other oil crops (e.g. oil palm), urbanization and vagaries of the market particularly the volatility of its various products in global trade. The decreasing interest is reflected distinctively based on the trends in world production of some major vegetable oils *vis a vis* coconut oil (Table 1). Coconut has only shown marginal increase since 1960 compared to palm, soybean and rapeseed oils. In fact, the nearest competitor in the lauric oils market, palm kernel oil (PKO) has now slightly overtaken coconut oil. However, this decreasing trend does not fully mirror the potential of this crop globally. This paper highlights the global and domestic developments of coconut and its related products, the issues and challenges faced with the crop, the opportunities available to expand its utilization horizon and aspects of the Malaysian government's re-vitalization plan and its implementation.

Table 1: World production of coconut and other oils.

Vegetable oils	1960	1970	1980	1990	2000	2005
Soybean	3300	6477	13382	16097	25541	33287
Coconut	1949	2020	2717	3387	3281	3181
Palm oil	1264	1742	4543	11014	21847	33486
Palm kernel oil	421	380	547	1450	2691	3914
Rapeseed	1099	1833	3478	8160	14466	16027

GLOBAL SCENARIO AND DEVELOPMENTS

The coconut palm is grown in more than 93 countries. According to the estimates given by the Asian Pacific Coconut Community (APCC), an independent regional intergovernmental organization which consists of fifteen member countries based in Jakarta, the global coconut area in 2005 was about 12 million ha and total production was 11.9 million metric tons (MT). The APCC member countries, which include Malaysia, account for 88%

¹ Paper presented at the 2nd International Plantation Industry conference and Exhibition (IPICEX2008), Shah Alam, Malaysia; 18-21 November 2008.

of the acreage and 83.3% of the world output of copra. Unlike oil palm, worldwide coconut acreage increased only by 0.14% per annum over the period of 2001 - 2005 and production grew by 2.42%. Over the last 45 years, countries such as India, Indonesia and the Philippines had considerably increased the area under coconut while Malaysia, Sri Lanka, Thailand, Fiji and Vietnam showed a negative trend. The major exporting countries are Indonesia and the Philippines. Based in 2005 figures, Indonesia has about 3.898 million ha with a production of 3.17 million MT of copra; the Philippines has 3.12 ha with production of 2.29 MT in copra terms; and India is the third largest producer of coconut with an acreage of 1.935 million ha and equivalent production of 12,251 million nuts (about 21.5% of global production). However, the domestic needs in India are high resulting in net imports. The major coconut product traded in the world market is its oil (CNO) and the major producers are the Philippines and Indonesia. The other products traded are fresh nuts (husked), copra, desiccated coconut (DC), activated carbon and coir and coir-based products. The vagaries of internationally traded prices (based on the exchange rate of 1US dollar = RM3.5) of the various products in 2007 compared with figures for August 2008 in different countries are given in Table 2.

Table 2: Prices of major coconut products (RM/MT) traded in the global market. (Source: *The Cocommunity*, Vol XXXVIII No.9, September 2008).

Products	2007 (Average)	Aug. 2008	% increase
Fresh coconut (Philippines;husked)	472.5	500.5	59.3
Copra			
• Philippines (CIF Europe)	2124.5	2705.5	27.4
• Indonesia (Domestic)	1799.0	2650.0	47.3
• India (Dom. Bangalore)	2646.0	3818.5	44.3
Coconut oil			
• Philippines (CIF Rott.)	3216.5	4070.5	26.6
• Indonesia (Domestic)	2866.5	3892.0	35.8
• Sri Lanka (Domestic)	4942.0	5498.5	11.3
• India (Domestic)	4133.5	5362.0	29.7
Desiccated coconut			
• Philippines FOB (US)	4139.0	7329.0	77.1
• Sri Lanka (Domestic)	3941.0	5498.5	39.5
• India (Domestic)	3755.5	6821.5	81.6
Copra meal			
• Philippines (Domestic)	577.5	687.0	18.9
• Sri Lanka (Domestic)	679.0	630.0	-7.2
Coconut shell charcoal			
• Philippines (Domestic)	469.0	651.0	38.8
• Sri Lanka (Domestic)	563.5	745.5	32.3
• Indonesia (Domestic)	455.0	574.0	26.2
Coir fiber (Sri Lanka)			
• Mattress	462.0	514.5	11.4
• Bristle 1	871.5	987.0	13.3
• Bristle 2	1193.5	1424.5	19.4
• Geo-textile (India)	3762.5	4049.5	7.6

Fluctuations and variance in the prices within products between countries are quite significant. Nevertheless, prices of all coconut products as recorded in August 2008 had significantly increased over that of 2007, the exception being copra meal from Sri Lanka (Table 2). The price change was especially significant for desiccated coconut which ranged from 40-80%. In August 2008, the price range per MT of CNO was between RM3892 to RM5498.5 which was higher than the palm oil price at that time, viz., RM3181/MT. The increase in CNO prices could be attributed to the supply problems in the major producing countries. The major buyers of crude CNO are China, Malaysia and the European market. Amongst these products, export trends between 1995-2004 showed negative growth for copra (-9.6%) and copra meal (-1.3%), marginal positive growth for CNO (1.7%) and DC (0.8%) whereas both coir and coir products and coconut shell and activated carbon showed significant growth of 6.0% and 3.1%, respectively. More recently, virgin coconut oil (VCO), a very low free fatty acid derivative of CNO, and a source of lauric oils, is gaining popularity in the pharmaceutical, nutraceutical and cosmeceutical industries. The Philippines is the major supplier of VCO to the world market.

MALAYSIAN SCENARIO -THE SOCIO-ECONOMIC IMPLICATIONS

In Malaysia, coconut is the fourth important industrial crop after oil palm, rubber and paddy in terms of total planted area. It is also one of the oldest agro-based industries. As an industry, coconut contributes very little to the overall economy of Malaysia (contribution to export earnings of about 0.08% in 2006). Recent competition with oil palm for land has also resulted in the decline of the total area under coconut cultivation: in 2001, the area was about 151,000 ha and this has gradually decreased to the acreage of 109,185 ha in 2007 (Table 3). Based on the estimates given under the 9th Malaysia Plan, it is anticipated that the acreage will consolidate to around 80,000 ha by 2010. The major variety grown is the Malayan Tall (92.2%) followed by the hybrid MATAG (4.3%), MAWA (1.7%), aromatic type (Pandan) (1.7%) and the Malayan Dwarfs (0.2%).

Table 3: Coconut production and area planted in Malaysia.

YEAR	TOTAL COCONUT PRODUCTION (Metric Tonnes)	TOTAL AREA UNDER COCONUT(ha)
2001	475,560	151,004
2002	358,460	136,915
2003	400,000	131,709
2004	429,267	143,089
2005	391,443	130,481
2006	344,847	114,949
2007	382,000	109,185

Source: Department of Agriculture, Malaysia (estimated figures)

Despite the decreasing acreage, coconut still plays an important role in the socio-economic position of the Malaysian rural population that involves 80,000 households. About 63% of coconut production is for domestic consumption and 37% is for export and industrial processing. The domestic demand for coconut products takes in the form of fresh coconut, tender coconut, coconut oil and processed cream powders. In terms of exports, the country has seen an increase in the export of end-products of coconut such as desiccated coconut, coconut milk powder and activated carbon. In 2007, exports of coconut and coconut-based products was valued at RM485,771,416 an increase from the RM466.2 million in 2006. Imports in 2007 amounted to RM404,517,380 from RM429.1million in 2006 (Table 4). There was thus a net increase of about RM81million in 2006 of exports over imports (about 2.1x more than in 2006). In 2007, negative trade balance was seen with imports of fresh coconut and copra. The highest net positive trade balance was seen for activated carbon (RM40.0 million) followed by CNO (RM25.7 million) and coconut milk (cream) (RM21.8 million) The high import of CNO is mainly for the oleochemicals industry to produce methyl ester and diethanol amide for production of surfactants and other detergent products. There are about 17 major companies involved in processing coconut-based products for domestic and overseas markets (Table 5).

CASE FOR RE-VITALIZATION - THE OPPORTUNITIES

The opportunities are driven by prospects and potentials based on: (i) Increasing global demand for oils which is influenced by three factors, viz., population, income and prices; (ii) Developing regional markets especially China and the Mid-east and North Africa area (where opportunities also exists for halal processed commodity oils); (iii) Emerging new applications such as organic food, functional foods and beverages (medium chain triglycerides, virgin coconut oil, lauric oils, coconut water as health drink), cosmeceuticals, oleochemicals, biodiesel and biolubricants. There are also increasing demand for non edible coconut products such as for coir (e.g. China); coco-peat (Europe), coco-lumber and activated carbon (e.g. USA, Japan, Korea).

ISSUES -CHALLENGES FACING THE INDUSTRY

Despite its legendary history and uses, coconut worldwide is facing major challenges to its existence. The major threats are underpinned by the chronic shortage of domestic raw materials compounded by supply threats and occasional low production from traditional exporting countries such as the Philippines and Indonesia. For example, the world coconut production in 2006 was around 11.2 million MT copra equivalent, which was lower by 5.6% over production in 2005. This was due to the low output from the two major export countries, viz., Indonesia and the Philippines; Indonesia suffered from a long dry spell and the Philippines from the devastations of typhoons.

In Malaysia, the perennial challenge faced by the coconut processing sector is the low supply of raw materials, inclusive of both for edible (e.g. oil, copra) and non edible (e.g. wood, shell and husks) materials. This is largely due to the low productivity level of about 3,500 nuts per hectare with the aging traditional Malayan Tall variety (against > 10,000 -20,000 nuts of commercial varieties such as MATAG). Other factors contributing to the low productivity are the low natural soil fertility which needs fertilization, poor agricultural practices and farm management. The total coconut production for Malaysia in 2007 was estimated at 382 million nuts per year which is equivalent to the production of copra around 76,400 MT. However, the domestic coconut consumption was about 558 million nuts, a shortfall of about 32% of domestic requirement. The deficit was met via importation mainly from Indonesia and Thailand. Despite this importation, most of the major companies generally run at 50% of their production capacity.

RE-VITALIZATION - STRATEGIES AND IMPLEMENTATION PLAN

Realizing the potential impact of the above issues on the socio-economic status of coconut smallholders, the Malaysian Government through the Ministry of Agriculture and Agro Based Industries has underlined a number of strategies and the concomitant implementation plans. These include:

(a) *National Coconut Development Plan (2001-2010)* which is based on two approaches, viz., (i) replanting of unproductive and old coconut palms with a high-yielding MATAG and Pandan (aromatic) varieties; and (ii) the rehabilitation of existing coconut area through good agricultural practices such as fertiliser application, drainage management and pest control. The replanting and rehabilitation scheme will also provide extension services to assist farmers to fully utilize the land resources. Essentially, the Plan, which covers over a 10 years period (2001-2010), will emphasise on increasing the productivity of smallholders and improving the quality of their produce. The objectives, among others, are to increase the yield from 3,000 nuts/ha/year to 6,000 nuts/ha year and improve smallholders income from RM400.00/ha/month to RM1,000/ha/month.

Currently, replanting and rehabilitation of coconut area is well underway. Focus is given to the five main coconut's producing areas: Hilir Perak, Sabak Bernam, Batu Pahat, Samarahan and Kudat. The main focus is to replant unproductive coconut areas with MATAG hybrids that produces about 25,000 - 30,000 nuts per hectare. Major efforts to produce seedlings to cater for the replanting programmes are undertaken by the Department of Agriculture, Malaysia in collaboration with a private company (e.g. United Plantation Bhd) to ensure sufficient supply of seedlings for the replanting program. Rehabilitation, on the other hand, will concentrate on efforts towards increasing the yields of the present coconut farms by the usage of fertilizer, improvement in drainage and irrigation and introducing new and high yielding varieties. Under the 9th Malaysia Plan (2006-2010), 2,800 hectares are estimated to be replanted whereby farmers will be provided with RM6,500 per hectare for land preparation, building of drainage and irrigation, purchase of seedlings and other agricultural inputs. From the

year 2006 until 2007 the Department of Agriculture (DOA) had replanted and rehabilitated over 2,000 hectares involving 1,600 farmers.

Further, In order to achieve economic of scale production, plans are under way to identify the rehabilitated areas that are suitable for farm integration with mini estate-type management. The Ministry of Agriculture and Agro-Based Industry is also discussing with private companies to invest in integrated coconut projects. In these projects, the processors and millers are encouraged to establish downstream activities such as factories producing coconut cream powder, desiccated coconut and processed coconut water. As a measure to increase the income of smallholders and introduce crop diversification and integration, coconut smallholders are encouraged to grow cash crops.

(b) *Coconut Industry Revitalising Plan (2008-2015)* whose scope entails the following: (i) Replanting of 8,000 hectares of old and unproductive coconut palm areas with MATAG hybrid and 2,000 hectares with Pandan; (ii) rehabilitation of 55,000 hectares of existing planted areas; (iii) production of MATAG and Pandan seedlings; and (iv) increasing the activity of inter-cropping in coconut farms.

c) *Research and Development*: To support some of the above activities, MARDI has undertaken Research and Development activities in the areas of breeding, mixed farming and product development (e.g. VCO and coir).

FUTURE IMPERATIVES

Needless to mention that for the domestic coconut industry to realize the opportunities of the growing global market, the consistent and increased supply of the various raw materials is a requisite. This is essential to meet domestic demands, both for fresh markets and coconut-based downstream industry. With the implementation of various replanting and rehabilitation programmes under the 9th Malaysia Plan and Revitalising Plans, it is estimated that Malaysia coconut industry will grow by 1.9% annually by 2010. Based on similar concerns of stagnant growth and decreasing supply of coconut raw for the processing industry, APCC member countries, which account for about 88% of the coconut acreage (10.78 million ha) and 83.3% of world output based on copra equivalent (9.92 million MT), had in 2006 signed the Papua New Guinea (PNG) Declaration which requires each member country to accelerate the coconut replanting and rehabilitation program. APCC had also recently initiated Roundtable Meetings, based on the regional cluster approach, for the coconut-based industrial sectors to develop strategies and implementation plans to discuss and harmonize the vagaries of globally traded prices, quality standards, market intelligence and analysis etc.

On the domestic front, the need for focus and develop the various aspects of the coconut industry should be given emphasis. In this context, perhaps it is timely to consider the establishment of a specific body (e.g. Malaysia Coconut Board ?) similar to the ones that already exists in other major

coconut growing countries. This could then herald the dawn of a new beginning for the 'tree of life' that has faithfully and relentlessly served mankind since time immemorial.

Table 4: Malaysian Imports and exports of coconut products for Year 2006 -2007.

<i>Description</i>	2006			2007		
	Import (RM)	Export (RM)	Trade Balance (RM)	Import (RM)	Export (RM)	Trade Balance (RM)
<i>Fresh Coconut</i>	11,178,602	7,343,007	(3,835,595)	14,661,741	6,102,228	(8,559,513)
<i>Dessicated Coconut</i>	964,906	16,563,057	15,598,151	372,887	15,477,561	15,104,674
<i>Coconut Milk Powder</i>	3,543,313	25,818,054	22,274,741	2,573,150	24,421,439	21,848,289
<i>Activated Carbon</i>	12,750,095	59,091,678	46,341,583	13,163,550	53,165,459	40,001,909
<i>Copra</i>	9,889,540	623,687	(9,265,853)	19,825,245	2,345,627	(17,479,618)
<i>Copra Meal</i>	618,001	1,303,561	685,560	781,485	2,944,538	2,163,053
<i>Coconut Oil</i>	388,595,631	352,051,961	(36,543,670)	351,335,147	377,074,171	25,739,024
<i>Fibre & Fibre Product (Coir)</i>	1,597,254	3,415,132	1,817,878	1,804,175	4,240,393	2,436,218
TOTAL	429,139,342	466,210,137	37,070,795	404,517,380	485,771,416	81,254,036

(Source: Ministry of Agriculture and Agro-based Industries, 2008)

Table 5: List of Malaysian companies and their coconut products.

Companies	Products
Linaco Manufacturing (M) Sdn. Bhd	Coconut milk, coconut cream powder, Low desiccated coconut under the RASAKU Brand; exported to 30 over countries
Stancodex Sdn. Bhd	Coconut cream and powder, low fat desiccated coconut, coconut dairy creamer
H.O.T. Ree Industries Sdn Bhd	Desiccated coconut (DC) and coconut cream powder
Kapar Coconut Industries Sdn Bhd	EMMA Instant coconut milk powder; EMMA UHT coconut extract, low fat DC Exported to Germany, Hong Kong, Saudi Arabia and Singapore
M.S. Food Industries Sdn Bhd	Coconut cream/milk, DC and packaged coconut water
Zaimin Industries Sdn Bhd	Coconut products
Seng Kiat Coconut Industries	Coconut products
S & P Food Industries Sdn Bhd	Coconut milk, coconut cream powder
Coconut & Allied Product	Desiccated coconut
Highland desiccated coconut	Desiccated coconut and low fat DC
Masuri Food Industries Sdn. Bhd	Coconut products
Teat Leng Industrial	Coconut products
Hong Leng Food Industries	Coconut milk
Nian Hup	Coconut milk, DC and kernel
Lacoa Coconut industries	Desiccated coconut
Malaysia coconut coir Ind. Co.	Coir products
Sensori Food Industries Sdn. Bhd.	Desiccated coconut. Coconut milk powder
M-Trex Sdn Bhd	Activated carbon and charcoal
Amidah Enterprise	Virgin coconut oil
Cocowood Sdn. Bhd	Coconut lumber (plywood)