

# Chapter 17

## World Coconut Economy: Sectoral Issues, Markets and Trade



C. V. Sairam and S. Jayasekhar

**Abstract** Liberalized marketing and trade regimes of coconut sector pose serious challenges for policymakers and planning experts of the coconut-growing countries across the world. This is particularly true, when the world coconut sector faces many daunting challenges such as low productivity, incidence of pests and diseases, fluctuating prices, volatile domestic marketing system, recession in trade sector, etc. This chapter depicts varied aspects like global scenario including the challenges faced by major coconut-producing countries, trade aspects, global competitiveness, price analysis, policy-level impediments, issues related to procurement and marketing, empowerment through agribusiness and future perspectives of global coconut economy.

### 17.1 Introduction

Coconut assumes considerable significance in the national economy of coconut-growing countries in view of rural employment and income generation. The traditional coconut farming in these countries is an integral part of their life, culture and identity. The livelihood of millions of people across the world relied on coconut farming, and hence the importance of coconut sector for the upliftment of rural economy in major coconut-growing countries cannot be undermined. Income- and employment-generating ability from kernel-based, husk-based and shell-based sub-sectors of coconut is significant. It is notable that more than 90% of coconut farmers in the world are asset poor with meagre size of holdings. Of late, apart from price-/market-related constraints, coconut growers face many other challenges such as

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C. V. Sairam (✉)  
ICAR-CIBA, Chennai, Tamil Nadu, India  
e-mail: [sairam\\_cpcri@yahoo.com](mailto:sairam_cpcri@yahoo.com)

S. Jayasekhar  
ICAR-CPCRI, Kasaragod, Kerala, India  
e-mail: [jaycpcri@gmail.com](mailto:jaycpcri@gmail.com)

scarcity of skilled labour, high wage rate, low productivity of coconut, depletion of natural resources in coconut gardens, soil-related constraints and inadequate irrigation facilities as well as crop loss due to incidence of pests, disease and natural calamities. The post-World Trade Agreement (WTA) and ASEAN Treaty regime witnessed integration of plantation economies across the globe that resulted in fierce competition among producing countries (Jayasekhar et al. 2014; Lathika and Kumar 2009). A substantial number of technologies have been developed for enhancing productivity and income from coconut farming. These include planting high-yielding varieties and hybrids, irrigation techniques, integrated nutrient, pest and disease management as well as adoption of cropping/farming systems, and technologies for value addition through product diversification. However, due to several socio-economic factors, the adoption rates of these technologies are extremely low. Hence, it is highly imperative that a favourable pro-poor policy environment is evolved to protect the interests of coconut growers especially for small and marginal farmers, and appropriate development and extension interventions are implemented to enhance the efficiency of coconut sector. Moreover, unlike in the case of annuals, perennial crops pose varied challenges for the producers (farmers), scientists and developmental personnel, because the efforts taken by any of them either individually or in groups cannot be scaled up in the short run. In spite of several constraints stated above, coconut cultivation, especially in a coconut-based cropping/farming system, is a profitable venture (Kannan and Nambiar 1976; Krishnaji et al. 1976; Das 1984, 1991; Hegde et al. 1990). This chapter depicts in detail the global-level sectoral issues, marketing and trade aspects of coconut.

## 17.2 Global Scenario

In spite of the fact that coconut is broadly scattered in the vast majority of tropical tracts and grown in 93 countries across the world, 10 out of 12 million hectares under this crop are contributed by only 4 countries, namely, Indonesia, the Philippines, India and Sri Lanka (APCC 2016). Indonesia holds the largest area in coconut (30%) followed by the Philippines. India stands third in area of coconut and first in production with the share of 16.5% and 28%, respectively. As far as the productivity is concerned, Brazil holds the top position (11,630 nuts ha<sup>-1</sup>) followed by India (10,119 nuts ha<sup>-1</sup>). Eight percent of the coconut export market is in the hands of half a dozen countries.

### 17.2.1 Indonesia

Coconut farmers in Indonesia are predominantly small holders (98%) who are not well versed with the advanced production technologies. Hence, the cultivation practices and the productivity are functioning at suboptimal levels in the country. It is

**Table 17.1** Export of coconuts and coconut products in Indonesia

Item	Value US\$ 1000	Share (%)
Fresh coconuts	63,125	4.9
Copra	33,214	2.6
Coconut oil	811,981	63.1
Copra meal	46,494	3.6
Desiccated coconut	137,610	10.7
Coconut milk/powder	35,042	2.7
Shell charcoal	113,238	8.8
Activated carbon	34,270	2.7
Fibre and fibre products	12,204	0.9
Total	1,287,178	100.0

Source: APCC (2016)

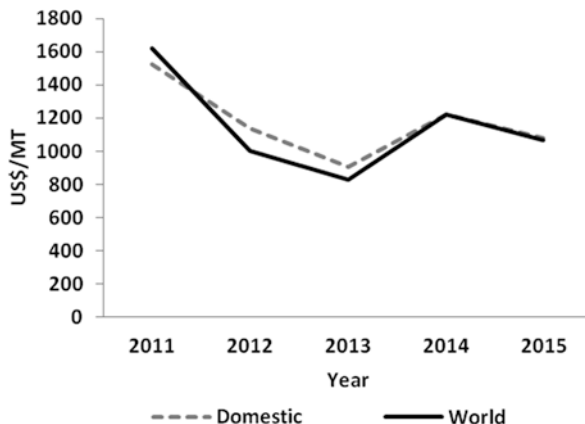
also pertinent to mention that the coconut farms are located in far-off places from the main urban centres and the transportation and other infrastructural facilities are underdeveloped. With very limited resources, the coconut farmers are effortlessly lured by the private financial intermediaries and subsequently are trapped in the vicious debt trap. However, the export sector of the Indonesian coconuts and coconut products is well diversified both in terms of products and markets (FAO 2014). Table 17.1 depicts the extent of product diversification achieved in Indonesia. Coconut oil with 63% of total exports holds the major value share, followed by desiccated coconuts (11%) and shell charcoal (9%). The export destinations are also very well diversified across Europe and Asian countries.

The country has taken proactive efforts to adopt National Quality Standards of various coconut products in view of the proliferating international food safety standards (USDA 2017). Such a step has to be seen in the perspective of market competition as the stringency in food safety has already led to heavy consignment rejections of coconut products across the European markets. Conversely, the price movement of coconut oil in the country has shown topsy-turvy pattern, and in general, there is a tendency of price fall. In the recent times, there is a trend of price integration of domestic and international coconut oil (Fig. 17.1).

### 17.2.2 *Philippines*

The Philippine Coconut Authority has identified that coconut-based integrated farming systems and development of agribusiness have been promoting the two priority areas for income enhancement of coconut farmers in the country. Formation of coconut clusters is given utmost importance in the country. As of now, the consumption-export ratio is 25:75 (Pabuayon et al. 2009). Coconut oil accounts for the major share of coconut products export (64%) followed by desiccated coconut (12%). A substantial quantity of coconut water (in various flavours) finds the export

**Fig. 17.1** Price movement of coconut oil – Indonesia



**Table 17.2** Export of coconuts and coconut products in the Philippines

Item	Value (US\$ 1000)	Share (%)
Fresh coconuts	1118	0.1
Coconut oil	843,160	63.7
Copra meal	70,424	5.3
Desiccated coconut	160,051	12.1
Coir products	13,810	1.0
Shell charcoal	32,343	2.4
Activated carbon	81,527	6.2
Coconut milk	17,093	1.3
Coconut water ('000 litres)	81,152	6.1
Others	22,767	1.7
<b>Total</b>	<b>1,323,445</b>	<b>100.00</b>

Source: APCC (2016)

destinations overseas (Table 17.2). Nevertheless, the break-up of export products categorically highlights the over-dependency on copra and coconut oil.

There exists a robust demand for conventional coconut products like desiccated coconut in the country. It is also remarkable that solid specialty markets are fast emerging for coconut-yoghurt, flavoured milk, coconut-based dessert, palm sugar and snacks. In spite of the fact that the country in general has a favourable business ambience for the coconut sector with excellent growth rate, the dominance of senile palms and overall decline in productivity are the grave concerns, which are to be addressed with immediate priority.

While looking at the coconut industrial structure of the Philippines, there are 68 oil mills with cumulative processing capacity up to 4.31 Mmt of copra year<sup>-1</sup>, and 38 coconut oil refineries work with added up capacity of 1.44 Mmt of oil year<sup>-1</sup> (FAO 2014). The capacity of desiccated coconut year<sup>-1</sup> is 0.20 Mmt from 11 plants, and

**Table 17.3** Coconut industry of the Philippines – a glance

Sl. No.	Particular	Total number	Capacity (Mmt year <sup>-1</sup> )
1	Oil mills	68	4.30
2	Oil refineries	38	1.44
3	Desiccated coconut plants	11	0.21
4	Activated carbon plants	8	0.05

Source: Philippine Coconut Authority

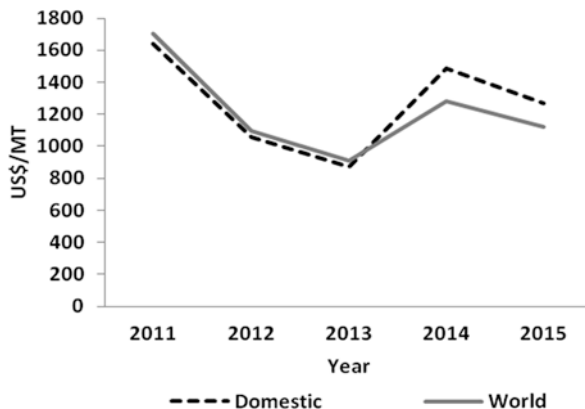
that of activated carbon is 0.055Mmt year<sup>-1</sup> from 8 activated carbon plants (Table 17.3).

The coir industry in the Philippines has not yet developed to the fullest potential that the sector offers and hence warrants more focus and concerted effort for the full-fledged development of this aspect. It is also imperative to give more thrust on shell charcoal segment and activated carbon production, especially in the context of surging worldwide demand for the activated carbon. Having said that, it is also essential to address the newfound challenges, such as sanitary and phytosanitary requirements of the developed countries (food safety standards) and rising environmental standards.

Scarcity of resources was observed as the major reason behind the lack of adoption of innovative concepts on value addition and marketing in the coconut sector. The farmers of the country, in general, are vulnerable and incapable to upgrade their position in the coconut value chain. Therefore, the upstream end of the value chain, where the farmer concentration is the highest, receives the lowest revenue share of the global value chain of the coconuts/coconut products. Subsequently, the lack of price incentives in terms of revenue share has resulted in negligence of coconut gardens by the farmers and subsequent low productivity (Alma and Albert 2016). This partly explains the relatively higher poverty incidence among coconut farming communities in this part of the world.

In order to alleviate poverty in coconut farming communities, providing assistance to farmers for their market development and improvement of the present marketing system needs attention. Providing capital, technical assistance, training, equipment, tools and market information is the critical element to empower farmers to establish village-level enterprises for producing higher-value products and create necessary linkages with markets. They also need to increase their farm productivity to support the raw material needs of the new enterprises. Attractive domestic market for toddy (alcoholic beverage from coconut inflorescence sap) and VCO is prevalent even in the rural villages of the Philippines. Nevertheless, such opportunities are utilized only by the resource-rich farmers, entrepreneurs and other intermediaries, thereby marginalizing the majority of the coconut farmers. This fact is very well reflected in the widespread poverty incidence among the coconut farmers of many remote villages in the country. The authorities should urgently act on these issues by developing an action-oriented strategic plan for the inclusive growth of coconut farmers. The investment pattern in the coconut sector should be monitored by the

**Fig. 17.2** Price movement of coconut oil – Philippines



coconut development authorities, wherein investment by farmers in cluster mode should be promoted. The production mode of the coconut value chain should be strengthened by creating appropriate linkages with research and development agencies and farmers and should propose strategies for addressing the issue of declining productivity. Although the price movement in the recent years is integrated with the world prices, an increasing price wedge is apparent (Fig. 17.2).

### 17.2.3 Sri Lanka

As in the case of other Asian countries, Sri Lanka is also confronting several sectoral challenges related to coconuts such as persisting adverse weather conditions, widely fluctuating farm-gate prices, escalating input costs, ineffective utilization of advanced technologies and encroachment of coconut farms for urbanization. In perspective of these, the Sri Lankan government chalked out a coconut revitalization agenda, and ministry of coconut development has been entrusted with the execution of programmes. According to the recent policy statement of the government of Sri Lanka, enhancement of coconut productivity and welfare of the farmer is the top most priority in coconut sector. The government has also devised special programmes to bring in more coconut area under mixed cropping/farming models to enhance the resource utility and income from unit area.

While analysing coconut product utilization and marketing, it was found that, out of the total production of nuts, more than 70% is used for household consumption. Two million nuts are required for annual domestic consumption. Depending on the global demand, the excess coconut is used for oil, copra and desiccated coconut production. Table 17.4 depicts the coconut industry outlook of Sri Lanka. It is noteworthy that the idle capacity in oil mills and DC units is huge.

Sri Lanka is the most specialized exporter of coir products in the world. In the past, they have come up with innovative coir products, and their export growth rate in the sector is impressive. Recently, apart from the traditional export destinations of coir products, they have diversified their markets, and China has become one of

**Table 17.4** The glimpse of coconut industry – Sri Lanka

Industry	No.of units	Capacity (mt)	Utilization (mt)	Utilization (%)
Oil mills	1265	335,706	81,000	24.12
DC units	51	77,904	42,000	53.91
AC units	8	50,640	39,810	78.61

Source: CDA (2016)

the major importers of Sri Lankan coir products. Sri Lanka's coconut shell-based industries also have been experiencing rapid growth, and their market share in these products has improved in Germany, Japan, France and the USA.

The plight of small-scale coconut entrepreneurs in the villages of Sri Lanka is not different from other coconut-growing countries, in terms of low levels of awareness, know-how and marketing expertise on technologies of coconut-based value-added products. At the village level, farmers are not well organized into clusters or societies; thereby, they lack the bargaining capacity in the financial institutions, as their production capacities at the individual levels are not enough to reap the economies of size. There is an urgent need for capacity building in the rural coconut-growing tracts of Sri Lanka. The farmers and the small-scale entrepreneurs in the villages should be empowered, and their activities are to be promoted.

#### **17.2.4 Pacific Island Countries**

The export of coconut products (mainly copra, coconut oil and desiccated coconut) contributed 60% of the total merchandise export of the Pacific Island countries during the late 1960s and 1970s. In the mid-1970s onwards, there had been a rapid decline of the industry, caused by low prices that resulted in low investments. All forms of coconut products have fallen sharply between mid-1970s and 1987, and the share of coconut products fell to 24% of the total exports. In the recent times, the coconut sector of these countries plays an insignificant role in terms of productivity, competitiveness and export earnings. It is necessary to assess the current status of the coconut sector and identify the gaps and opportunities to provide a renewed focus for coconut sector of the Pacific Island countries.

Among the Pacific Islands, Papua New Guinea has the largest coconut area (37.5%), considering the nine major islands under consideration (Table 17.5). In the case of coconut production, again Papua New Guinea tops the list with 55.2% share of the total production of the islands under comparison. The low productivity of these countries is a matter of grave concern not only in view of the comparative disadvantage but also in terms of sustainability of the coconut sector. It is evident that the comparative picture of Pacific coconut growers on the aspects of coconut production is bleak as of now and requires adequate impetus to make it competitive and sustainable.

**Table 17.5** Comparison of coconut production statistics

Country	Area (000' ha)	Production (million nuts)	Area (%)	Production (%)	Productivity (nuts ha <sup>-1</sup> )
F.S. Micronesia	18	59	3.1	2.2	2197
Fiji	62	200	10.5	7.4	2387
Kiribati	20	55	3.4	2.0	2730
Marshall Islands	8	35	1.4	1.3	4375
Papua New Guinea	221	1483	37.5	55.2	6710
Samoa	99	267	16.8	9.9	2697
Solomon Islands	38	100	6.5	3.7	2631
Tonga	31	75	5.3	2.8	2423
Vanuatu	92	415	15.6	15.4	4512
Total	589	2689	100.0	100.0	3407 <sup>a</sup>

Source: APCC (2016)

<sup>a</sup>Average productivity of the nine islands**Table 17.6** Comparison of coconut product exports and its contribution

Country	Export (mt)							% export contribution <sup>a</sup>
	Coconut	Copra	Coconut oil	Copra meal	VCO	Cream	Desiccated coconut	
F.S. Micronesia	–	76	–	–	–	–	–	–
Fiji	74	–	1630	75	–	–	–	2.57
Kiribati	–	1332	2939	216	–	–	–	46.25
Marshall Islands	–	–	124	482	–	–	–	0.04
PNG	–	48,228	11,068	5250	25	–	–	0.43
Samoa	1311	NA	82	2094	–	100	13	4.66
Solomon Islands	–	1586	–	–	–	–	–	2.22
Tonga	1644	–	–	–	–	–	–	4.15
Vanuatu	–	25,194	9208	4786	–	–	0.1	43.98

Source: APCC (2016)

<sup>a</sup>Share of revenue from coconut exports in the total export revenue of the country

The share of revenue of a commodity/sector in the total merchandise trade of a country implies the importance of the particular commodity/sector to the country. In the case of coconut exports of the nine Island countries, the share of coconut export revenue in the total revenue is highest for Kiribati and Vanuatu (46% and 44%), respectively (Table 17.6). Tonga's coconut export revenue accounts for a meagre 4.15% of the total merchandise revenue of the country.

The World Bank report (World Bank 1990) rightly points out the importance of trade expansion, value addition and market access for a sustainable and profitable coconut sector of the Pacific Islands in the long run. But the worrisome factor is the lack of entrepreneurs in the sector. There are only very few coconut traders who are

active at present. High labour costs (eight times higher than those in a competing country) like the Philippines remain a constraint. This makes returns to labour from copra about one tenth of the rural wage and the lowest of any recorded rural activity in the Pacific Islands.

It is evident from the analysis of data and qualitative research conducted among stakeholders that the present operating environment of coconut sector in the Pacific Islands has to be thoroughly restructured with the provision of adequate consideration of the economic incentives to the farmers. As far as international competitiveness is concerned, the Pacific Island countries have disadvantages on various facets. The production segment is characterized by very low productivity and dominance of senile palms. The contribution of coconut sector in the GDP and export earnings has been dwindling of late. It could be noticed that product diversification initiatives targeting export markets are unsatisfactory. The benefit of perfect competition and economy of scale is not realized because there are not many exporters in the sector. Although scientific replanting is necessary coupled with scientific package of practices, the return to investment in this regard has to be ensured. The return to investment is crucial, because as of now, the Pacific tract is lacking comparative advantage in terms of coconut exports.

### **17.2.5 India**

In India, coconut production, processing and marketing sectors face an uphill task for achieving sustainable growth in the present international trade scenario, in which competitiveness through higher productivity is the goal for all the coconut-growing countries. At present, India is the largest coconut-producing country in the world, with second highest productivity of 10,119 nuts ha<sup>-1</sup> (APCC 2016). The crop contributes Rs. 221,670 million to the gross domestic product (GDP) per year<sup>-1</sup> (CDB 2016). Export of coconut and coir products brings in foreign exchange earnings of Rs. 33,510 million.

The Philippines, Indonesia and Sri Lanka, which are the major coconut-producing countries, have lesser domestic demand and hence have competitive advantage of economies of scale of production for value-added production and trade sector.

In India, both at macro- and micro-level coconut production, processing and marketing sectors face many daunting challenges, for which several short- and long-term strategies need to be formulated and effectively implemented. At macro level, higher cost of production and pattern of domestic consumption places India at a disadvantageous position in the international trade map. At micro level, the problems like predominance of small and marginal holdings and consequent less marketable surplus, rainfed cultivation, higher cost of production and weak links in product diversification are the major challenges of Indian coconut sector.

According to the statistics of year 2015, the area under coconut cultivation in India is 2.08 million ha, from which 22,167 million nuts are produced. The productivity of coconut palms in India was estimated to be 10,614 nuts ha<sup>-1</sup> (Table 17.7).

**Table 17.7** Coconut – Indian scenario

State	Area (000 ha)	Production (m nuts)	Productivity (nuts ha <sup>-1</sup> )
Andhra Pradesh	104	1427	13,732
Karnataka	526	5129	9744
Kerala	771	7429	9641
Tamil Nadu	460	6171	13,423
Other states	227	2011	7295
Total	2088	22,167	10,614

Source: CDB (2016)

Majority of the coconut gardens in India fall under the category of marginal size of holdings. Such holdings are ineffective in view of generation of adequate income for livelihood support as well as for providing meaningful employment. The sustenance of coconut farming, in the recent times, is much more relied on the market prices of coconuts and its products, and essentially the practice of integrated farming with suitable crop diversification assumes greater importance. For brightening the future prospects of a sustainable coconut sector, it is necessary to delink the sector from the dependency on coconut oil and enhance production of diversified value-added products.

### 17.2.5.1 Area and Productivity Effects

The rate of increase of area in India is higher than that of productivity. The annual compound growth rate analysis for the period 1961–2014 (FAO 2017) indicates that the area under coconut has grown by 1.90% annum<sup>-1</sup>, while the productivity has grown up by only 0.52%, whereas in countries like Brazil, Sri Lanka, Papua New Guinea and Micronesia, the productivity effect is more than that of area effect (Table 17.8).

Since the 1970s, the macro-level policy committees have concentrated primarily on increasing the production of coconut and have neglected the vital concepts of product diversification and product utilization. The detrimental effect of this has been realized in the post-WTO era, wherein small countries like Sri Lanka have proved competitiveness over India due to effective product diversification.

### 17.2.5.2 Trade Aspects

The total value of exports in the case of coconut products during the year 2015–2016 was found to be Rs. 14,502 million (here we have excluded the coir products), which is 11% higher than that of the export earnings of the year 2014–2015 (Table 17.9). On the other hand, the imports of coconut products to India in the year 2015–2016 (valued at Rs. 3833 million) were observed to be 11% less than that of the value of imports during 2014–2015 (valued at Rs. 4217 million). The major

**Table 17.8** Compound growth rates of coconut area, production and productivity

Country/region	Annual compound growth rate (%)		
	Area	Production	Productivity
Brazil	1.04	5.28	4.20
India	1.97	2.50	0.52
Indonesia	2.18	2.75	0.55
Papua New Guinea	-0.30	0.77	1.07
The Philippines	1.61	1.94	0.33
Sri Lanka	-0.29	0.26	0.55
Oceania	0.25	0.45	0.20
Melanesia	0.49	0.62	0.13
Micronesia	0.02	0.70	0.69
World	1.50	2.00	0.49

Source: FAO (2017)

**Table 17.9** Export/import of coconut products: India

Year	Export value (Rs. million)	Import value ((Rs. million)
2007–2008	690.1	559.3
2008–2009	1798.0	1030.8
2009–2010	2197.5	1071.6
2010–2011	4959.2	1207.7
2011–2012	9432.9	2098.8
2012–2013	10223.6	1919.0
2013–2014	11561.2	2311.1
2014–2015	13123.8	4216.6
2015–2016	14502.4	3832.6

Source: CDB (2016)

coconut product imported to India was copra meal (coconut oil cake), which accounts for 86% share of total imports, followed by the coconut oil (11%). Importantly, the import of coconut oil to the country has come down to around 1000 mt during the year 2015–2016 from 2660 mt imported during the year 2014–2015.

It was observed that the import intensity of the coconuts and coconut products is at low levels (Table 17.10) and thereby will not influence the domestic price behaviour of the product. Moreover, as far as the international trade is concerned, India can boast a robust domestic market in comparison with other competing counterparts. Furthermore, the coconut and coconut oil are in exclusion list of ASEAN-India Free Trade Agreement (AIFTA), which provides temporary immunity for the domestic coconut oil sector. Nonetheless, the commodities in the exclusion list are subjected to periodic revision, and in all probability, coconut oil will be included in the reduction list sooner or later. In such a scenario, the immunity of the coconut oil from the cheaper imports will be lost, and eventually there will be huge price crash in the domestic coconut oil sector.

**Table 17.10** Coconut imports, production and import intensity

Year	Import (Rs. million) <sup>a</sup>	Production (million nuts)	Value output (Rs. million)	Import intensity <sup>b</sup>
2009–2010	1071.69	16918.40	203020.80	0.53
2010–2011	1207.77	16942.92	203315.04	0.59
2011–2012	2098.85	23351.22	280214.64	0.75
2012–2013	1908.52	22680.03	272160.36	0.70
2013–2014	2301.44	21665.19	259982.28	0.89

<sup>a</sup>HS Code: 0801, EXIM Data bank, Department of Commerce  
Production NHB (Various years)

<sup>b</sup>Quantity of import as percentage of production

**Table 17.11** Percentage share of world exports of coconut products

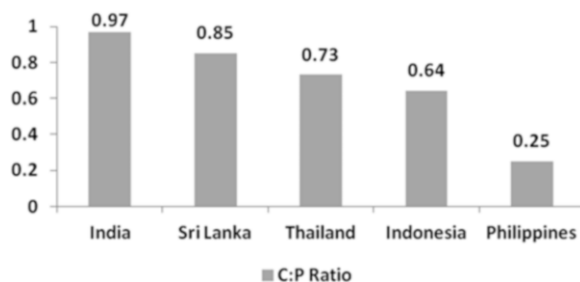
S. No	Product	Countries (percentage share)			
1	Coconut oil	Philippines (42)	Indonesia (35)	Malaysia (9)	India (0.30)
2	Copra meal	Philippines (64)	Indonesia (34)	Others (1.9)	India (0.004)
3	Desiccated coconut	Philippines (25)	Indonesia (20)	Sri Lanka (12)	India (1)
4	Coconut milk/cream	Indonesia (51)	Sri Lanka (44)	Philippines (4)	India (0.30)
5	Coconut shell charcoal	Indonesia (70)	Sri Lanka (20)	Philippines (7)	India (0.30)
6	Coir and coir products	Sri Lanka (42)	Thailand (12)	Indonesia (10)	India (25)

Source: APCC (2016)

## 17.3 Global Competitiveness

It is imperative to have a look at the international trade scenario of coconut value-added product exports. While comparing with other major global exporters, the share of India in coconut product exports is meagre (Table 17.11). Though it is an accepted fact that India holds a robust domestic market in the coconut sector, it is high time that India emerges as a major export player by upgrading its position in the global value chain of coconut exports. The Philippines and Indonesia together contribute the major world export share of coconut oil, copra meal and desiccated coconut. Sri Lanka too contributes substantially to the international exports of coconut milk, shell charcoal and coir products.

It is worth mentioning that a major proportion of coconut produced in India is consumed domestically itself (Fig. 17.3). On the other hand, the Philippines consumes only 25% of its coconut production domestically. The economic logic always points towards the correlation between the export growth and domestic consumption. In most of the cases when there is a market surplus developing outward market orientation and thereby in the long run, you will develop a robust export market for the product, and there will certainly have a first mover advantage as well. This is

**Fig. 17.3** Consumption-production ratio of coconut**Table 17.12** Revealed comparative advantage indices of major coconut-growing countries

Country	Coconut oil	Desiccated coconut	Activated carbon	Virgin coconut oil	Coconut milk
India	2.10	1.80	6.90	1.10	NA
Indonesia	21.20	4.90	26.20	16.10	NA
Malaysia	12.00	4.20	10.60	5.20	5.20
Philippines	32.30	29.10	28.10	38.00	NA
Thailand	1.60	5.60	12.60	8.10	39.20

Figures indicate revealed comparative advantage (RCA), \*NA not available

exactly what happened with the Philippines, and now they are the most competent exporter with respect to coconut and coconut products. Nevertheless, India, of late, has been making concerted effort to penetrate their products in the high value export segments.

Competitiveness analysis of coconut and coconut products to export destinations through employing revealed comparative advantage (RCA) methodology indicates that comparative advantage of India is lower than major coconut-exporting countries like the Philippines, Indonesia and Sri Lanka (Table 17.12). The Philippines clearly dominates in most of the coconut value-added product lines. The analysis suggests the need to formulate plausible strategies to reach the overseas market and capture the optimal share in market segments. Though India has a strong domestic market base, it is an indubitable fact that in the near future due to the evolving trade agreements even in the domestic sector, India may confront fierce price competition from the overseas export. Hence, the country needs to chalk out modalities and execution plans to elevate our export competitiveness and comparative advantage.

## 17.4 Price Analysis of Mandate Crops in Value Chain Perspective

Beyond any degree of doubt, in the recent times, trade-related issues, market access and attractive prices are the major factors shaping up investment decisions in coconut farming enterprise. The above-mentioned factors assume much more

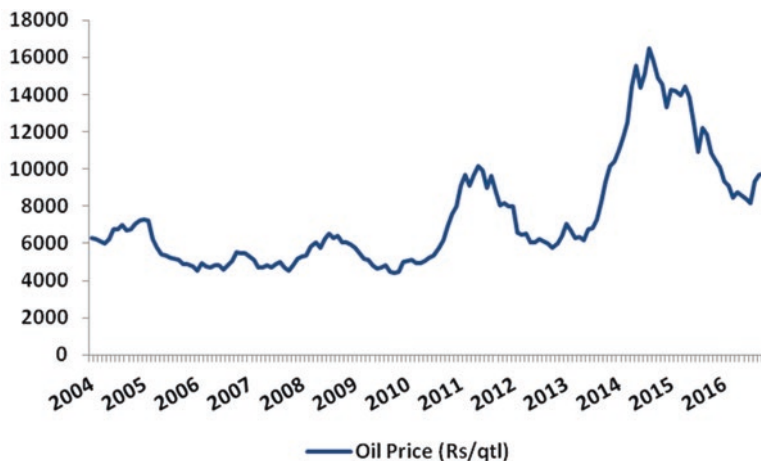


Fig. 17.4 Price movement of coconut (2004–2015)

importance than that of the increase in productivity, which otherwise conventionally considered as the single crucial component. The coconut farmers in India are so far concentrated in the upstream end of the coconut value chain, without any functional upgradation.

As a matter of fact, the confidence of coconut farmer can be elevated only when a stabilized price regime is experienced for a reasonable period. Analysis of coconut prices for over a decade (2004–2016) depicts the increasing price volatility, especially in the recent years (Fig. 17.4). From 2004 to 2015, the prices were keeping low with comparatively low price fluctuations. On the other hand from the year 2010 onwards, the price fluctuations are quite apparent wherein the prices started rising reaching peak levels during the mid-2011 after which it plummeted to low levels. But again from the beginning of 2013, the prices started improving, and the prices continued as attractive, and all over again, from 2015 onwards, the sector has been experiencing a price crash regime. Jnanadevan and Jayasekhar (2011) attempted to characterize the earlier price rise regime (during 2011). They have put forth the argument that the price rise regime experienced in the coconut sector is linked with the supply crunch of coconuts and copra coupled with huge industrial demand for processing and exports. They have provided corroborative evidence in the form of increasing export growth rate, inefficient copra procurement and low levels of supply and general supply deficit in edible oil sector. They have also rightly argued that the bubbles of price rise regime is not helpful for the sectoral prosperity, as these sort of price boom periods are not long-lasting enough to instil confidence in the coconut farmers to have a serious reorientation towards scientific farming approaches.

Besides, the analysis of demand-supply scenario using stock-use ratio revealed that there is a declining demand for coconut oil from 2012 to 2013 onwards and the

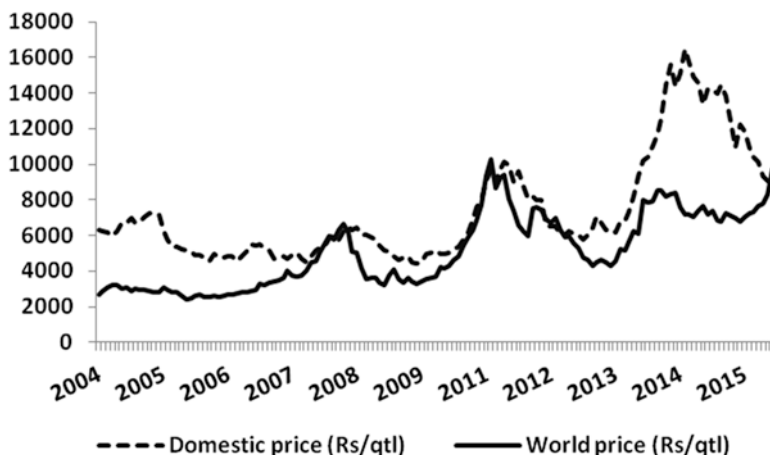


Fig. 17.5 Coconut oil: movement of domestic prices and international prices

wedge between demand and supply has been narrowed down. This of late has certainly reflected in realization of low prices for the commodity.

It was observed that there is huge price wedge between domestic and international prices (Fig. 17.5). As the prices will tend to integrate, there is a possible price crash in the near future.

## 17.5 Policy Level Impediments

For the past two decades, plantation sector in India has been confronting a commodity crisis, arguably as an off shoot of the ongoing trade liberalization. The regional trade agreements such as AIFTA have made the crisis even worse due to the adverse policy frame in the form of phased tariff reduction and fixation of import tariffs at extremely low level. In this context, it would be erroneous to view coconut sector in isolation, because the trade and tariff decisions on competing crops as well as edible oils in general would straight away affect the coconut sector as well. In Table 17.13, tariff reduction schedule of the special products is depicted, wherein the reduction commitment of palm oil (an immediate substitute of coconut oil) is notable. Unprecedented growth rate in palm oil imports in recent times is also a matter of concern in view of the domestic prices of the coconuts. The possibility of lowering the existing tariff structure of special products in the forthcoming review meetings of AIFTA is also bothersome.

With the ongoing liberalization process across the world, proliferation of regional free trade agreements (RTAs) has become inevitable. There will be a differential impact of such trade agreements on different sectors, and it is important to safeguard the plantation sector in general and coconut in particular in the forthcoming RTAs. In view of this, it is imperative to conduct studies on challenges faced by the

**Table 17.13** Mandatory tariff schedule for special products

Tariff line	Base rate	2010	2015	2019
Crude palm oil	80	76	56	37.5
Refined palm oil	90	86	66	45
Coffee	100	95	70	45
Tea	100	95	70	45
Pepper	70	68	58	50

Source: Harilal (2010)

coconut sector at micro and macro levels to bring out plausible strategic action plans for the sectoral reorientation. It is also crucial to envisage appropriate policy options with regard to the trade and tariff structures of coconut sector and to ensure such sectoral details are appropriately represented in the national and international dialogues.

It is always better to have a floating import duty structure on edible oils, so that the tariffs can be adjusted in relation to the international prices of edible oils to stabilize the domestic price fluctuations. But in the case of palm oil in India, the import duty was always hovering around 5%, irrespective of the international price movements. The flawed tariff fixation of such pattern had detrimentally affected the domestic price scenario (and movements) of the coconut oil in the country. Therefore, it is vital to regulate the edible oil tariff structure, so that the state machinery can adopt flexible policy options to control the price fluctuations of coconut oil.

## 17.6 Issues Related to Procurement and Marketing

The studies on marketing margins and costs are important as they reveal many facets of trade, price structure and the efficiency of the system. The 'price spread' is associated with the movement of a commodity from the producer to consumer wherein the actual costs involved in the transaction at various nodes as well as the margins accrued to various actors at different nodes are accounted. In general, the term 'price spread' in agriculture implies the 'producer's share in consumer's rupee'.

The impact of risks is more severe in the case of perennials, in which heavy initial investments are made. Price-spread analysis of coconut marketing revealed that raw coconuts are sold through the village traders by almost 70% of the farmers.

Less marketable surplus due to small and marginal holding size is the major reason for the farmers for not undertaking copra or oil for sale. The marketing channel consists of village traders, whole sellers and retailers who in turn sell their products to oil millers and retailers and send some of their lots to upcountry markets as raw nuts and edible or ball copra. Predominant marketing channel identified is:

Producer→Copra maker→Oil miller→Whole seller→Consumer.

In Kerala (India) conditions, which are the same in many countries with predominantly small holder coconut gardens, the producer share in consumer rupee is around 64%, and the market chain consumes as much as 36% share in the total value chain. Higher price spread always indicates a lower share of the final price to the producer. In other words, it reflects the low marketing efficiency of the market channel. The price spread and marketing efficiency can be improved only through collective and constant efforts in terms of adoption of higher-value addition technologies at individual or group level.

Coconut sector in India has been experiencing a low-profit and low-income regime for quite long, and the impact is such that the farmers lost their interest in scientific coconut-based farming systems (Mani and Santhakumar 2011). As of now, the prices of coconuts are attractive, and this is the apt opportunity for creating awareness among coconut growers on integrated coconut-based farming systems, the adoption of which can act as shock absorber in the event of failure or price crash of the main crop. It is an experienced fact that the coconut prices are volatile and unpredictable and there are close substitutes available to replace the coconut oil in the event of any supply shock or price crash. In this scenario, it is wise to redefine the present coconut farming methods more towards high-density integrated farming, based on the agroclimatic specifications.

Coconut prices in India have been historically integrated with the coconut oil prices. Therefore, indubitably the coconut prices received by the farmers are integrated with the Minimum Support Price (MSP) of copra. In general, the farmer prefers to sell fresh coconut when the price of coconut is attractive, as he receives a remunerative sum as ready cash and he can avoid processing and transportation charges. Contrary to this, if the copra and oil prices are lucrative, farmer prefers to do at least primary-level processing which would augment farm-level copra production. Therefore, the MSP for copra fixed at higher levels would certainly influence and act as an incentive for the primary value addition in coconut.

Having said this, it should be mentioned that the copra procurement system in the country has been functioning always at suboptimal levels and never effective in lifting up the market prices to optimum levels. The National Agricultural Cooperative Marketing Federation of India Ltd. (NAFED) is the apex state machinery controlling the copra procurement. The major issue faced by the NAFED in the event of huge procurement was finding the appropriate market avenue to push the product with a reasonable margin, which in the past had resulted in market failures.

Minimum Support Price (MSP) should be in such a way that it ensures an incentive for processing to the coconut farmers when compared with that of selling fresh coconut. Other pertinent factors in this context of discussion are lack of effectiveness and efficiency in copra procurement by the agencies and inadequate infrastructural facilities for the storage of copra. It is noteworthy that for the most part of the year, copra is traded below MSP.

The effectiveness and efficiency of price support mechanism can be enhanced only by means of adequate quantity of procurement and by ensuring that the genuine farmers are benefitted by the system of procurement. It is also important to

design the procurement pattern in such a manner that adequate quantity is procured throughout the year, without any seasonal restrictions.

The potential area of the coconut sector is the agribusiness, based on value-added products of coconuts. The breakthrough products developed from the coconuts have the export potential, and thereby in the long run, the price stabilization in the domestic coconut sector is also possible.

The coconut inflorescence sap called Kalparasa can be preserved up to 45 days under cold condition (in refrigerator) without addition of any preservatives and additives (with the bottling technology). This enterprise can bring very good earnings to farmers and tappers. For sustaining the value-added coconut sector, Women's Self-Help Groups like Kudumbashree can be equipped with technical know-how, and smooth functioning of the coconut value chain is to be ensured through continuous supply of value-added products to the downstream part of the chain.

Desiccated coconut (DC) export from India is only to the tune of less than 1% of the global demand, in spite of the fact that the country is the largest producer of raw coconut in the world. Nevertheless, during the year 2015–2016, India exported 4261 MT DC worth Rs. 526 million. In comparison with the export figure of the previous year, India achieved an increase to the tune of 63%, which is indeed remarkable. Due to the growing consumer demand for DC across the world, there exists an immense export potential for the product. The capital investment required to start up a DC production unit, of capacity to process 15,000 coconuts day<sup>-1</sup>, amounts to Rs. 12.9 million. It is noteworthy that there are attractive export promotional schemes initiated by the Indian government under the new Foreign Trade Policy (2015–2020), wherein under merchandise export from India scheme, 5% export subsidy can be availed on free on board (FoB) prices. There is also a duty draw back scheme wherein up to 1% of the FoB prices is refunded for the service taxes paid for raw materials and other input services for the production of DC.

## 17.7 Empowerment Through Agribusiness

Complete package of practices is available for virgin coconut oil production (hot and fermentation process), coconut chips, coconut honey, jaggery and sugar (Sairam et al. 2008). Virgin coconut oil (VCO) has received much attention globally in the recent times. The popularity of VCO is growing among consumers in all the continents due to its myriad properties including potential health benefits. Feasibility analysis of the project on commercial production of VCO revealed a benefit cost ratio of 1.12 and an internal rate of return of 21.5%. Thereby, we may conclude that the commercial production of VCO could turn out to be a profitable venture. Though the market of VCO is expanding in the domestic and international front, as a matter of fact, coconut-growing countries are yet to realize the potential benefit that it holds in this segment. It is imperative to establish good quality, technically advanced VCO units across the countries so as to realize the competitive market share of VCO in the global market.

## 17.8 Future Strategy

In the evolving trade liberalization regime, processing and value addition in the coconut sector have to be scaled up manifold across the coconut-growing countries to sustain the coconut industry as a profitable enterprise. Establishment of coconut parks which can ensure production of value-added products in accordance with the sanitary and phytosanitary regulations will be a right step in this direction.

The coconut development authorities of the coconut-growing countries should assess the strengths, weaknesses, opportunities and threats of their respective countries and accordingly should formulate an action-oriented time-bound strategic framework for the sectoral development. Such a strategic framework should essentially consider the ongoing trade nuances, the food safety requirements and the market preferences of the major trade destinations of coconut products. It is desirable to give heuristic attention to the coconut value chain of each coconut-growing country and ensure that the upstream end players (mainly farmers) receive a reasonable share of the revenue generated in the entire value chain. In the ongoing competitive spectrum, it is advisable to work as farmer collectives for attaining the optimum economies of size as well as reducing the cost of marketing. Furthermore, the research organizations should highlight coconut-based farming systems which are economically viable and possibly forward linked with the processing units. The coconut sector should be placed as a priority crop in the agrarian policies and developmental agendas of each of the coconut-growing countries.

For better trade relations among the APCC countries, it is imperative to form a regional coconut trade agreement among the APCC countries. The modalities of such a commodity-specific trade agreement should be such that all the partners will be in a win-win position. In this respect, an unbiased tariff reduction schedule should be developed, considering the existing tariff structures of close substitutes/ competing products as well, through a consensus.

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**Dr. C. V. Sairam** is an Agricultural Economist at ICAR-CIBA, Chennai, India. His specialization is in farming system research and frontline extension programmes. He has 15 years of experience in plantation crops research as well as in technology transfer mechanisms. He has 160 publications to his credit which include 43 research articles, 51 conference papers, 1 book and 24 book chapters. [sairam\\_cpcri@yahoo.com](mailto:sairam_cpcri@yahoo.com)

**Dr. S. Jayasekhar** is a Senior Scientist in the discipline of Agricultural Economics of ICAR-CPCRI, Kasaragod. He has also served as Indian Technical and Economic Cooperation (ITEC) Expert to the Kingdom of Tonga and was awarded the certificate of merit from the Government of Tonga. His specific areas of interest include policy research in plantation crops and studies on global and domestic commodity chains. He has 87 articles to his credit including 36 research articles and 1 edited book. He has received the Best Researcher Award from the International Institute of Fisheries Economics and Trade (IIFET) at Montpellier, France. [jaycpcri@gmail.com](mailto:jaycpcri@gmail.com)