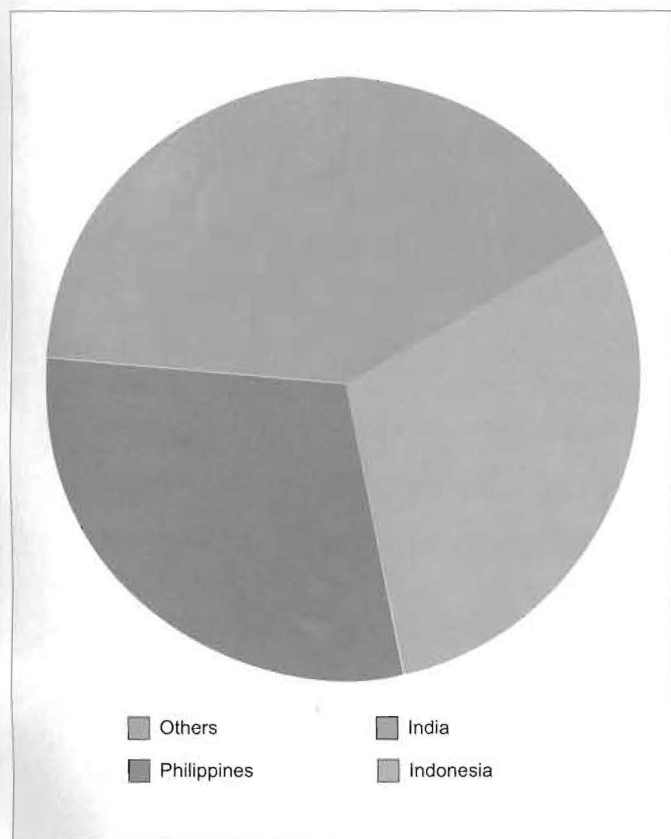


Coconut: national and international scenario

Among plantation crops, coconut is the major crop grown both under plantation and homestead management system. It provides livelihood security to several millions of people across the world, and capacity of coconut in providing improved nutrition, employment and income generation is well known. India produced 23,351 million nuts in the year 2011-12 from an area of 2.07 million ha with a productivity of 11,277 nuts/ha. The coconut palm exerts a profound influence on rural economy in many states where it is grown extensively and provides sustenance to more than 10 million people. The processing and related activities centered on the crop generate employment opportunities for over three million people in India. In addition, it contributes ₹92,000 million annually to the Gross Domestic Product (GDP) of the country. The coconut sector also contributes to foreign exchange earnings to the tune of ₹21,385 million through the export of coconut and coir products. Over 90% of coconut farmers in India are small holders and are considered resource-poor.

ALTHOUGH coconut is widely dispersed in most of the tropical regions, global decadal rate of coconut area expansion and growth is about 1%, indicating that scope for further area expansion is limited. Area under coconut would most likely remain at 12.5-13.0 million ha in coming decades.



Share of area under coconut in major coconut-producing countries

Table 1. Global scenario of coconut

Country	Area ('000 ha)	Production (million nuts)	Productivity (nuts/ha)	Export value (million US\$)
India	2,070 (16.6%)	23,351 (32.1%)	11,277	356
Indonesia	3,796 (30.4%)	16,256 (22.3%)	4,282	1,091
Malaysia	112 (0.9%)	570 (0.8%)	5,089	225
Philippines	3,574 (28.6%)	15,862 (21.8%)	4,438	1,957
Sri Lanka	417 (3.3%)	2,741 (3.7%)	6,573	428
Thailand	214 (1.7%)	806 (1.1%)	3,766	53
World	12,473	72,758	5,833	—

Source: APCC Year Book 2011, CDB Annual Report 2012-13

GLOBAL SCENARIO

Globally, out of 12.5 million ha of area under this crop, close to nine million hectares (about 75% of the total area) is contributed only by Indonesia, the Philippines and India (Table 1). The export market of coconut and coconut products is highly concentrated with less than half a dozen exporting countries accounting for over 80% of the total quantity traded in most cases.

Coconut Oil

Oils and fats are important constituents of human diet and crops constitute the main source of oil (80%), while the remaining source is from animals. World production of vegetable oils is dominated by four crops, viz. soybean, oil palm, rapeseed/canola and sunflower.

Table 2. World production of edible oils (million tonnes)

Oil	2000	2012	% Change
Palm oil	21.87	52.81	141.4
Soybean	25.54	41.75	63.4
Rapeseed	14.46	24.21	67.4
Sunflower	9.7	9.62	-0.84
Coconut	3.28	3.24	-1.2
Others	13.667	20.26	48.2
Total	88.517	151.89	71.6

Source: FAOSTAT

Production of edible oils in the world increased to 71.6% (Table 2) and palm oil alone contributed to the tune of 34.5% due to tremendous increase of oil palm production to an extent of 141%. The increased availability of oil palm, soybean and rapeseed oils reduced the share of coconut oil in total edible oil production to 2.13%. Seventy percent of global coconut oil production comes from the Philippines and Indonesia (Table 3).

World demand for coconut oil in the past decade has not increased compared to other vegetable oils. A recent report on growth rate of coconut oil in the year 2014 indicated that only Malaysia recorded a positive growth rate (4.55%), while export from India, Indonesia and the Philippines showed a

Table 3. Average export quantity and value of coconut oil by major exporting countries during 2001-2010

Country	Value (1000\$)	Quantity (T)	CGR (%)
India	6,517.4	5,397.9	9.0
Indonesia	341,905.9	562,031.8	3.3
Malaysia	89,950.6	142,176.5	9.7
Philippines	592,069.6	1,033,699.7	-3.5
Sri Lanka	2,433.4	2,342.6	-10.1
Thailand	1,769.8	2,915.6	-13.0

Source: FAO statistics

marginal decline by -0.25%, -0.31% and -1.29%, respectively. USA is the single largest importer of coconut oil (31%); the import share of EU-27 countries is 34%.

Virgin Coconut Oil

Virgin coconut oil, a high value cosmetic and medicinal product has a niche market. The Philippines, Sri Lanka and Solomon Islands are the major exporters of VCO. The average exports per annum from these countries are approximately 6,000, 88 and 1.5 tonnes, respectively. The USA, Canada, Germany, Lithuania, UK, New Zealand, Australia, Russia, Finland, and Turkey are the major VCO importing countries.

Table 4. Average export quantity and value of desiccated coconut by major exporting countries during 2001-2010

Country	Value (1000\$)	Quantity (t)	CGR (%)
India	385.9	822.9	32.6
Indonesia	33,538.6	45,941.3	6.3
Malaysia	5,629.9	9,610.6	-3.7
Philippines	12,3801.3	112,993.5	6.1
Sri Lanka	41,884.8	43,970.4	-5.2
Thailand	249.5	463.3	24.9

Source: FAO statistics

Desiccated Coconut

Desiccated coconut is a well-established product from coconut. World production of desiccated coconut is around 290,000 tonnes. Largest exporter of desiccated coconut is the Philippines. In the recent years, export from India is picking up (Table 4).

The major importing countries of desiccated coconut are the USA, Europe, Canada, Australia, Middle East, Japan and Russia. Out of 0.272 million tonnes desiccated coconut imported, 41% is imported to five countries.

Activated Carbon

Activated carbon from coconut shell charcoal is



Kalpajyothi

Table 5. National scenario 2012-13

State	Area ('000 ha)	Production (million nuts)	Productivity (nuts/ha)
Andhra Pradesh	142	1,985	13,979
Karnataka	511	5,915	11,576
Kerala	766	6,211	8,109
Tamil Nadu	431	7,057	16,387
India	2,070	23,351	11,277

Source: CDB, 2013

of high demand for its superiority in terms of adsorption of gas/vapour and removal of colour and odour of compounds. The global activated carbon market will grow faster in the coming decades chiefly because of its use in mitigating environmental pollution, especially removing heavy metal residues in industrial pollutants. The global market for activated carbon was estimated to be 1.25 million tonnes in 2012 and is expected to grow at a CGR of 11.7% from 2014 to 2020. Just over 10% of global demand for activated carbon is met from coconut shell.

Coir and Coir-Based Products

Till recently, India

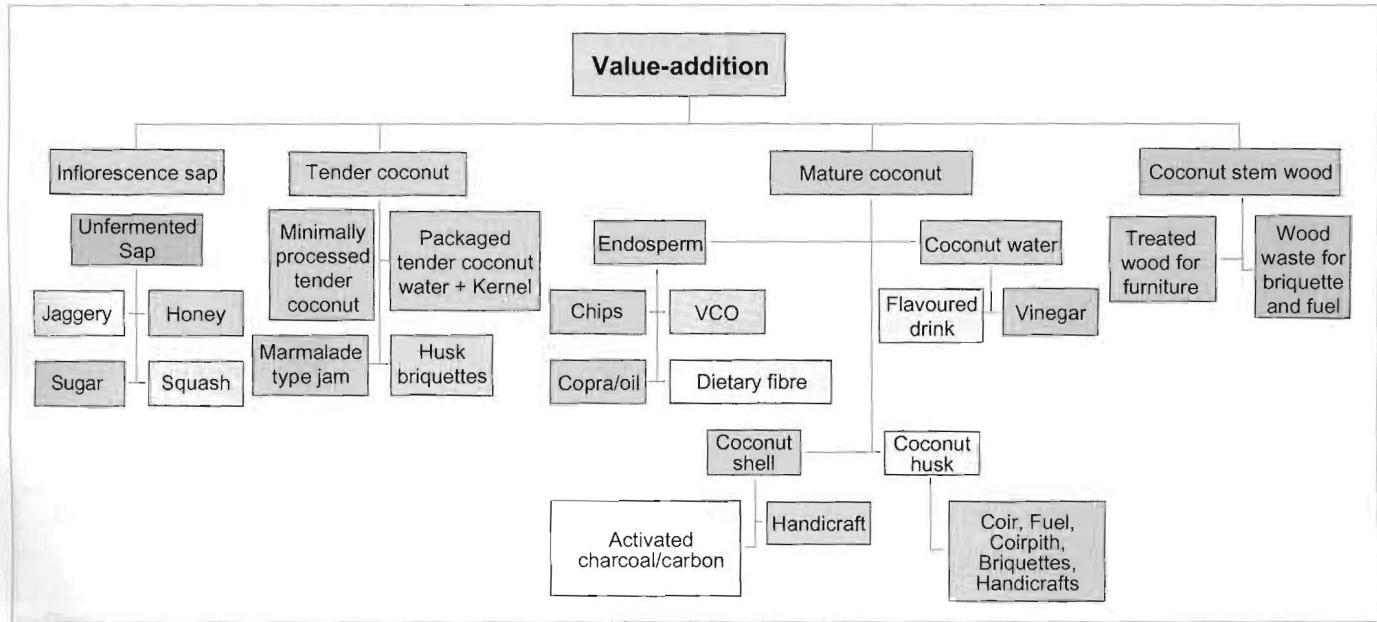
and Sri Lanka were the only coir producing and exporting countries. In the recent past, coir industry has been established in few other countries as well (Philippines, Indonesia, Thailand, and Vietnam). Quantity of coir exported in the year 2011 was 0.63 million tones. Around 80% of the export is in the form of coir fibre. China is the major buyer of coir fibre (90%) and its requirement is expected to increase 10-20% every year. At present, there is deficit of nearly 20% in supply of coir fibre in the world.

Demand and Supply

Assuming the projected population of India by the year 2050 as 1.62 billion, the projected coconut demand for 2050 is predicted to be about 45,000 million nuts. With the projected supply of around 36,000 million nuts, there would be a demand-supply gap of 8,695 million nuts by 2050. In order to meet the projected demand, the annual growth rate in production should be 3.20%. As a matter of fact, coconut in future may experience a paradigm shift from the oil seed label, if promoted as food for nutrition, healthcare and environmental services to support the farming community. Moreover, the recent surge in export of coconut products and the rising demand for tender coconut in the country are noteworthy. In such a scenario, by 2050, the demand for coconut would be certainly more than the estimated figure. Therefore, it would be a challenge to meet the futuristic coconut demand, especially because of the scarce land, labour, water and energy resources at disposal. An appreciable growth in total factor productivity and appropriate capital substitution are the possible alternatives and to achieve these, strengthening the traditional coconut based farming system through the use of modern research tools would be the starting point.

NATIONAL SCENARIO

Tamil Nadu is the leading coconut producer in the country with an annual production of 7,057 million nuts, followed by Kerala which produces 6,211 million nuts annually (Table 5). In India, coconut is predominantly cultivated in small and marginal holdings. Most of these holdings neither provide gainful employment opportunities for the family labour throughout the year nor generate sufficient income to meet the family requirement. Presently, coconut growers are more exposed to economic risks and uncertainties owing to the high degree of price fluctuations. In this context it is needless



Value-addition in coconut

to emphasize the importance of crop diversification in coconut gardens.

Trend in Production

Coconut production in the country is around 15 billion nuts and the crop occupies an area of around 2 million ha, and is predominantly cultivated in small and marginal holdings. In the last decade, the area expansion and increase in production was in slow phase with CGR as 0.3% and 3.5%, respectively.

Export-Import Scenario

During 2012-13, export of coconut products (excluding coir items) was valued at ₹102,236 lakhs as against ₹94,329 lakhs during the corresponding period in the previous year. This shows an increase in export by 26% in terms of value. Government of India has notified Coconut Development Board as an Export Promotion Council (EPC) for all coconut products other than those made from coconut husk and fibre vide Public Notice No. 169 (RE-2008)/2004-2009 New Delhi dated the 1 April 2009. During the year 2012-13 (up to February 2013), import of coconut products (excluding coir items) in terms of value was ₹5,665.68 lakh as against ₹6,916.02 lakh during the comparable period previous year (2011-12).

Coconut oil cake and coconut oil were the major two coconut products imported into India, of which coconut oil cake accounted for 86% and coconut oil 11% in terms of value of imports. During the same period, the quantity of coconut oil imported amounted to 1,001.88 MT as against 2,663.03 MT imported during the comparable period in the previous year. The striking benefit derived from the notification of designating CDB as EPC can be attributed to the tremendous increase in the export share of coconut kernel products.

Value Addition and Byproduct Utilization

India has tremendous potential for the production

Table 6. Tariff reduction schedule: 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

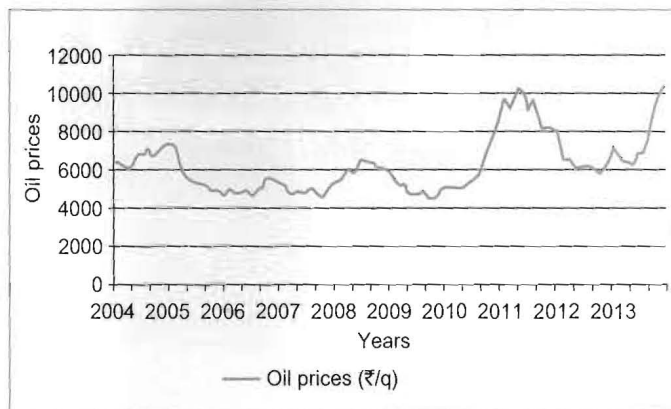
and sale of value added products both in the domestic and international markets. Any successful coconut processing industry should have a plan for economic utilization of all the by-products. The existing technologies for production of coconut oil, VCO (virgin coconut oil) and coconut chips, neera collection and processing, vinegar production, tender nut water bottling, fat-free, gluten-free, egg-free, nut-free and soya-free ice creams, 'lactose-free beverages from coconut milk and coconut milk residues', coconut-based balanced health foods like bakery, extrudates, confectioneries, candies in the country are neither efficient nor globally competitive. Further value added products from coconut inflorescence sap, endosperm and tender nut water need to be developed to tap the



Coconut garden

Edible Oil

India, being deficient in edible oils, import of palm oil is a necessity. The price of coconut oil is closely linked with the prices of other edible oils. Among the vegetable oils imported in the last year, palm oil and its fractions account for 73.10% and palm kernel oil (crude and refined) accounts for 1.40%. Being an oil rich in lauric acid, imported palm oil seems to be the major competing oil for coconut oil and often beats down coconut oil prices in the domestic market. The excessive import of edible oils, especially palm oil that too during the peak coconut production season, would definitely trigger price crash of coconut oil.



Price movement of coconut oil (2004-2014)

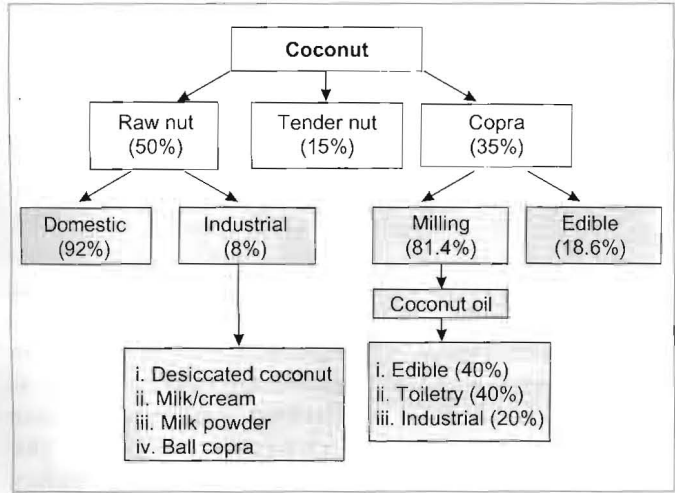
market for health foods and nutraceuticals and improve profitability of the sector. At the same time, conversion of coconut shells into charcoal and subsequent conversion of the charcoal thus produced into activated carbon opens up an avenue for community level processing for value addition of these by-products. Activated carbon being a high value-added product from charcoal and charcoal being the single raw material required for manufacturing activated carbon, rather than selling the charcoal, scope exists to use it for the production of further value-added products, like activated carbon. On a global scale, tender coconut husk and trunks of uprooted young coconut stem biomass represents a considerable problem as well as new challenges and opportunities.

In view of potential health benefits of dietary fibre, protein and antioxidants, development of health foods, nutraceuticals from neera, coconut sugar, coconut milk residue, VCO cake and copra cake is the need of the hour. Towards this end, due focus should be given to standardize/optimize the formulations of various coconut products such as tender coconut water, coconut water, coconut milk and coconut neera powders, RTS beverages, coconut ice cream, coconut jam, coconut honey, coconut jaggery, coconut based traditional sweets and confectioneries.

DEVELOPMENTAL AND POLICY ASPECTS

Impediments in Trade

The significance of analyzing coconut sector in



Depiction of consumption pattern of coconut and its products

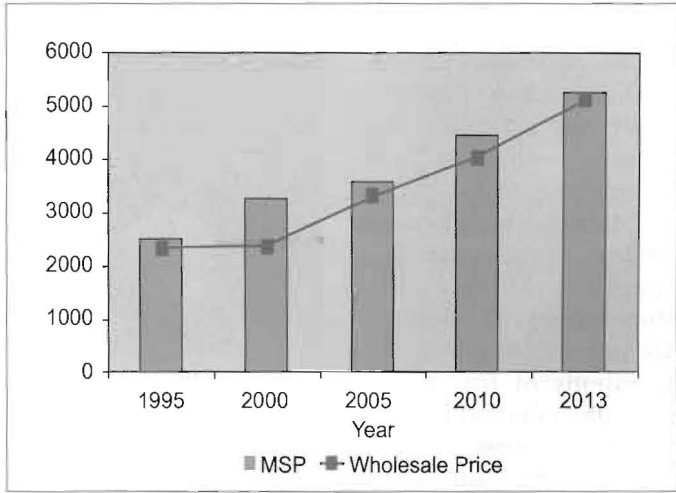
India in the light of recent policy issues, especially the ASEAN-India Free Trade Agreement (AIFTA) emerges in the context of commodity crisis. The likely impact of AIFTA could not be undermined for three reasons. Firstly, the present context should be seen as a continuation of evolving trade liberalization regime and the effects of such a regime

on the agrarian sector, especially plantation crops sector. Secondly, although coconut and coconut oil is put under the negative list, the tariff reduction in palm oil, which is a close substitute of coconut, would turn up detrimental in the near future (Table 6). The surging palm oil imports in the recent years are noteworthy and substantiate this argument. Thirdly, the agreement is evolving one and the tariff rates fixed are ceiling rates (the maximum level to which

tariff can be fixed), thus providing adequate flexibility to fix the tariff rates to lower levels. Although coconut and coconut oil are in exclusion list of AIFTA, there is a general commitment under AIFTA to review the exclusion list every year with a view to improve the market access. Obviously, there will be pressure to reduce the number of tariff lines kept in the exclusion list. Therefore, there always exists a threat for the domestic coconut industry, considering that, the existing price difference may facilitate the cheap imports in case coconut is removed from the exclusion list.

Price Volatility

The coconut market in India is always unstable and uncertain due to frequent fluctuations in prices.



Minimum support price of copra vis-à-vis market price
Source: CDB, Kochi

Usually fluctuation in price occurs due to change in market conditions in response to seasonal and annual variation in production apart from competition from other edible oils, particularly palm oil. While examining the price movement of coconut for the past ten years, the price instability during the past four years is noteworthy. The analysis revealed that steep rise in coconut price is associated with less supply due to decline in productivity and high demand for export and processing units within the country. Five major reasons are attributed to the price escalations which are: a) the supply deficits, b) price rise in substitute oils, c) surging industrial demand, d) high volume of exports and e) a global shortfall in edible oil supply. Any price rise due to the demand pull is always sustainable, or else the price rise period will not last for a long time. Such a scenario will create perplexity among farmers with respect to their approach towards coconut farming. Therefore, long term strategies for the price stabilization of the coconut and coconut products are imperative in the current juncture.

An effective price signaling with expert market intelligence system is of paramount importance to mitigate the frequent price fluctuations in coconut and its major products.

In this connection a collaborative effort to chalk out a supply chain frame wherein the coconut oil lobby syndicates are brought under the control of Coconut Development Board/NAFED should be an urgent initiative. The problems of low income from the coconut holdings due to decline in the prices of coconut and its products necessitated the need for development of appropriate coconut based farming systems to enhance the farm level income and development of

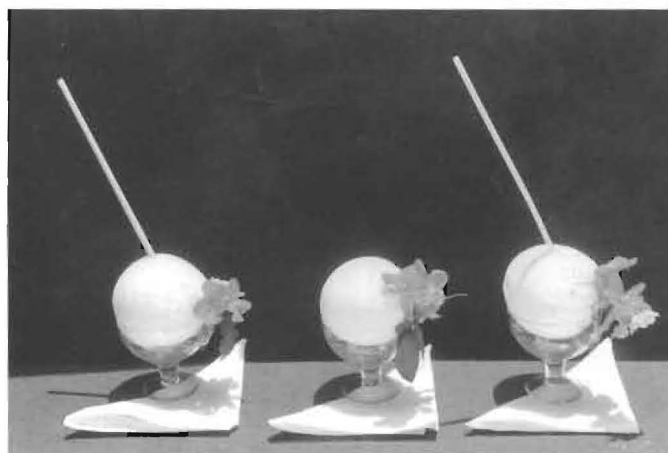
broad based processing technologies for the sustainable growth of the industry. It is categorically proved that, scientific coconut based farming systems will mitigate the price risks of coconut monocropping by providing adequate additional returns. Therefore region specific coconut-based cropping/farming system models are to be evolved to moderate the price risks.



Value-added products

Coconut Products

Coconut products can be certified as organic, GMO-free, natural, healthy and environment-friendly. To improve market access of coconut products, the conduct of market promotional campaigns through participation in high-impact trade exhibitions, technical seminars on health and nutritional aspects of coconut products need to be intensified. Product positioning is an important aspect to be taken care of with regard to increasing the demand for high value coconut products. Concerted efforts to break the cognitive belief on adverse health effects of coconut and its products need to be revamped with authentic medical certification.



Consumption Pattern of Coconut and its Products

Of the total production of coconuts in the country, about 50% is used as mature nuts, 35% is used for copra and 15% is consumed in the tender form for drinking purposes. Ninety two % of the mature raw nuts are consumed for domestic purpose and a meager eight % is absorbed by the industry for converting into value added products like desiccated coconut, coconut milk/cream/powder and other products. In order to upgrade into a commercially vibrant sector, there is an urgent need to restructure the existing consumption pattern through providing more emphasis on value added coconut products.

A general decline in household level consumption of coconut for culinary purpose has been observed invariably among major states as well as at the all India level. Most surprisingly, in tune with the all India decline in per capita coconut oil consumption, Kerala, which traditionally uses coconut oil as its major cooking oil, has also shown a decline in consumption both in rural as well as urban sectors. These changes in the

consumption pattern will definitely have a policy level implication as far as the demand of coconut is concerned.



Marketing of Coconut

As far as market stabilization of coconuts is concerned, National Agricultural Cooperative Marketing Federation of India Ltd (NAFED), established in 1958, has been entrusted to procure the copra from market with a Minimum Support Price (MSP) in the event of price crash. The procurement system of copra in India has never elevated the market prices to a higher level. From the NAFED's point of view, the agency, though could procure large quantum of copra and has the capacity to convert the copra into coconut, could never find the market to push their product with at least a minimum profit margin.

However, various edible oils are substitutable; linking the price of coconut oil to price of other vegetable oils especially palm oil. Palm oil is the closest and the cheapest substitute of coconut oil as far as industrial and culinary purposes are concerned and it is also the largest imported edible oil.

Another related reason for crashing of market price of copra below the MSP is the inability of NAFED and the respective state designated nodal agencies to carry out large scale procurement operations. At all India level, procurement was 8.0% of the total copra production in 2009, which decreased to 3.2% in 2010, but increased to 9.2% in 2012. This level of procurement is too low to create an impact on the market prices. This is due to some basic constraints which include lack of adequate infrastructural facilities, problems in getting storage space, delay in selection of state agencies for procurement etc. In addition, in 2013, the government has decided to restrict procurement operation to ninety days in one calendar year. The procurement plan on 90 days' period at a stretch is insufficient as the harvesting season for coconut is much longer.

For further interaction, please write to:
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Policy Distortions in Procurement and Tariff Structure

The supply of coconut oil has been consistently higher than the corresponding demand. This excess supply has been exerting a downward pressure on coconut oil prices in recent years and thereby depressed the prices for the main raw material, copra. This is in contrast to the widening gap between domestic consumption and production of total edible oils. Edible oils are India's largest agricultural imports with India importing US\$ 11.2 billion worth of edible oils in 2012-13. Imports of edible oils constitute almost half of total domestic consumption of edible oils and the largest chunk (about 70%) of these imports consists of palm oil.

The price of milling copra is influenced by the demand and supply position of coconut oil.

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– Editor