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STRATEGIC PLANNING FOR SUSTAINED GROWTH OF INDIAN COCONUT SECTOR

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ABSTRACT

Indian coconut sector faces stupendous challenges in the present era of globalization and economic liberalization. At international level, Indonesia and the Philippines pose serious challenges for the sustained growth of this sector. To overcome the inherent problems in the domestic coconut production, marketing and processing sectors, specific long-term and vision oriented strategies are need to be formulated and effectively implemented by the developmental agencies and research organizations.

INTRODUCTION

Global agricultural sector in general and the same in the developing countries in particular are undergoing major transformation since the early nineties. The World Trade Organization and the Trade and Tariff Agreements signed by the member countries forces them to revamp and reorient their agricultural sector through strategic short and long-term plans. The felt need of these reforms is more in the developing countries as compared to the developed ones.

Agricultural sector in those areas pre dominant with Perennial Crop Based Farming Systems in different parts of the World have the major impact of trade liberalization and globalization since short-term adjustments is not possible in their production, marketing and processing sectors. Coconut sector is one among the Perennial Crop Based Farming Systems facing major challenges arising out of World Trade Agreements.

India is one of the major producer and consumer of coconut in the World. The strengths of Indian coconut production sector includes a) diversified production environment with varied agro-climatic, edaphic, biotic and socio-economic factors, b) consistent domestic demand for coconut products and c) scope for producing diversified coconut products. However in the present era of trade liberalization and globalization, Indian coconut sector faces daunting challenges both at macro and at micro level, for which several short and long-term strategies needs to be formulated and effectively implemented. At macro level, higher cost of production and pattern of domestic consumption place India in a disadvantageous position in the arena of international trade for coconut and its products. At micro level, the problems include predominance of small and marginal holdings and consequent less marketable surplus, low productivity and higher cost of production and weak links in product diversification. This paper attempts to evolve long-term, vision oriented strategic plans for the sustained growth and development of production, marketing and processing sectors of coconut in India.

METHOD

The study is based on secondary data sources from authorized source. Forecasting techniques and standard estimation procedure for cost of production and price analysis was adopted. The logic behind these analyses served as the basis for evolving the strategic plans for production, marketing and processing sectors.

Production Sector

International Scenario

Coconut is cultivated in more than 50 countries around the World, however intensive cultivation and trade is mainly carried out by 15 member countries of the Asian Pacific Coconut Community (APCC). India, Indonesia, the Philippines and Sri Lanka are the major producers of coconut in the World. The estimated domestic consumption of coconut (Table 2) in India indicates that, due to higher domestic demand and consumption pattern (55 % as raw nuts, 38 % for copra, 5 % as tender nuts etc.), the demand and supply is almost in equilibrium and at times a

small amount of import is undertaken. In the case of other major producers like Indonesia, the Philippines and Sri Lanka, the rate of domestic consumption is less and hence the coconut sector in these countries is international trade oriented.

Indian Scenario

India is one among the largest producer of coconut in the World. The country's annual production of coconut is to the tune of 12597 million nuts from an area of 18.40 lakh hectares. The realized average annual productivity of 6847 nuts/ha is the highest in the World. In India, coconut is mainly cultivated in the four major Southern States viz., Kerala, Tamil Nadu, Karnataka and Andhra Pradesh. These states together account for more than 90 per cent of area and production. Demand forecasting for coconut products indicated that by 2025 AD, 20572 million nuts would be required (Fig. 1) for which effective measures for increasing the productivity needs to be taken.

Area and productivity effects

Perennial crops like coconut have the inherent problems such as long life span extending up to 60 years, a long gestation period, multiple phases of vegetative growth and fixed assets like land once committed cannot be revoked for several decades. These problems suggest a long-term

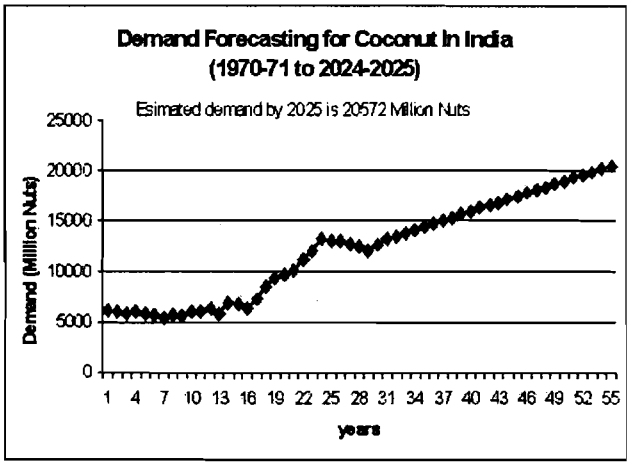

Fig. 1

Table 1. Coconut production scenario (2001)

S.No	Particulars	India	Indonesia	Philippines	Sri Lanka
01	Area under coconut (ha)	1777700	3684335	4090000	442000
02	Production Million Nuts	12251	15119	12499	3096
	Copra Equivalent MT	1750000	3023894	2544000	536104

Source: http://www.apcc.org.sg/apcc.htm

Table 2. Estimated domestic consumption (2001)

S.No	Particulars	India	Indonesia	Philippines	Sri Lanka
01	Million nuts	14925	7960	2629	2126
02	Copra Equivalent MT Copra	2319000	1591900	535115	473914

Source: http://www.apcc.org.sg/apcc.htm

vision for increasing the production through productivity rather than by increase in area (Table 3).

However, the trend in area, production and productivity of coconut indicates the fact that the rate of increase in area is higher than that of productivity. The rate of growth in area as indicated by the index numbers is higher than that of productivity (Fig.1). This is not a desirable factor because if this trend continues, in long run, formulation and effective implementation of research and development policies would become difficult. By discouraging area expansion, the effect of technology development and its adoption could be effectively monitored, which in turn would help the Indian coconut production sector to achieve the competitiveness through higher productivity.

Trend in cost of production

Cost of production is a major parameter indicating the competitiveness through productivity. Since they are inversely related, strategies aiming for bringing down the cost of production, necessarily should aim for increasing the productivity. Coconut farmers in India in general and those of Kerala State in particular, often opine that the trend in cost of production is not terms of trade for their products viz., coconut, copra and coconut oil. In this regard, researchers strongly feel that farmers could effectively bring down their cost of production through adoption of various technologies, thereby achieving higher efficiency in production through higher productivity. The estimated cost of production of coconut under optimum management conditions for Kerala (rainfed) and Tamil Nadu (irrigated) conditions is given in Table 4.

Table 3. Area, Production and Productivity of coconut in India

Year	Area ('000 ha)	Production (Million nuts)	Productivity (nuts/ha)
1950-'51	626.500	3281.700	5238
1960-'61	717.400	4639.100	6466
1970-'71	1045.500	6075.000	5811
1980-'81	1083.300	5942.000	5485
1990-'91	1513.900	9700.200	6407
2000-'01	1839.800	12597.300	6847

Source: Directorate of Economics and Statistics, New Delhi

It could be inferred from the table that the increase in cost of production of coconut between 1982 and 2002 realized in the rainfed coconut gardens of Kerala is ranging between 366 to 369 % and the same in the case of Tamil Nadu ranges between 392 to 438 % for varying levels of productivity. This indicates that unless the relative increase in the price of coconut and its products is exhibiting an increasing trend, the relative profitability of coconut cultivation would reduce.

Strategies suggested

The following ten strategies are proposed as guidelines for formulating appropriate development and research plans for the sustainable growth of Indian coconut production sector considering the retrospective and present scenario in major coconut growing states. The suggested strategies have the major objective of achieving higher productivity on a sustainable basis targeting the problems based on prioritization. The major sub-themes involved are

Table 4. Estimated cost of production of coconut (Rs./1000 nuts)*

	Productivity levels /ha		
Kerala			
	14000	10500	7000
1982	470	630	750
1987	630	840	1010
1992	1040	1390	1670
1997	1750	2340	2800
2002	2200	2940	3520
Tamil Nadu			
	19250	14000	10500
1982	430	590	630
1987	600	830	880
1992	970	1340	1430
1997	1460	2010	2140
2002	2000	2760	2940

* under optimum management with varying productivity levels

a) discouraging area expansion b) categorization of coconut growing zones based on tangible parameters, c) research prioritization and d) systems approach in both development and research programmes. (Fig 2).

- Area expansion needs to be stopped and the Coconut Development Board may reorient this programmes for productivity improvement in Kerala and other major coconut growing states

- The coconut growing areas of Kerala, Tamil Nadu, Andhra Pradesh and Karnataka needs to be classified based on the surface and ground water availability. This could serve as a basis for formulating soil and water conservation measures and development of water-shed programmes especially in the lower highland and midlands of northern Kerala

- Similarly, coconut producing zones in Kerala and other major growing states needs to be classified as low, medium and high (criteria may be the average state productivity as the fulcrum) and specific developmental schemes needs to be formulated with their objectives focusing on the inherent strengths and weaknesses in each zone. The inter-face programmes initiated by CPCRI and Department of Agriculture in Kerala may be taken as a basis for this and the same may be expanded to other states Based on the secondary data sources from the Directorate of Economics and Statistics the following productive zones are identified for each state. (Table 5).

- Sustaining the existing productivity and value addition for coconut are the appropriate development and research areas for high productive zones, whereas in the case of medium productive zones, increasing the productivity through transfer of technology needs to be given more emphasis. For low productive zones, improving the total productivity through integrated farming systems needs to be formulated and effectively implemented.

- The research institutes need to create reliable perspectives plan through proper reorientation to sustain the productivity in high productive zones and to improve the same in medium and low productive areas. More emphasis is needed in the areas of post harvest technology and technology development through agro-processing.

- Research institutes need to categorize the technologies and the economic feasibility of individual technology may be assessed based on the scale of operation. For example drip system is economically viable for coconut holdings of more

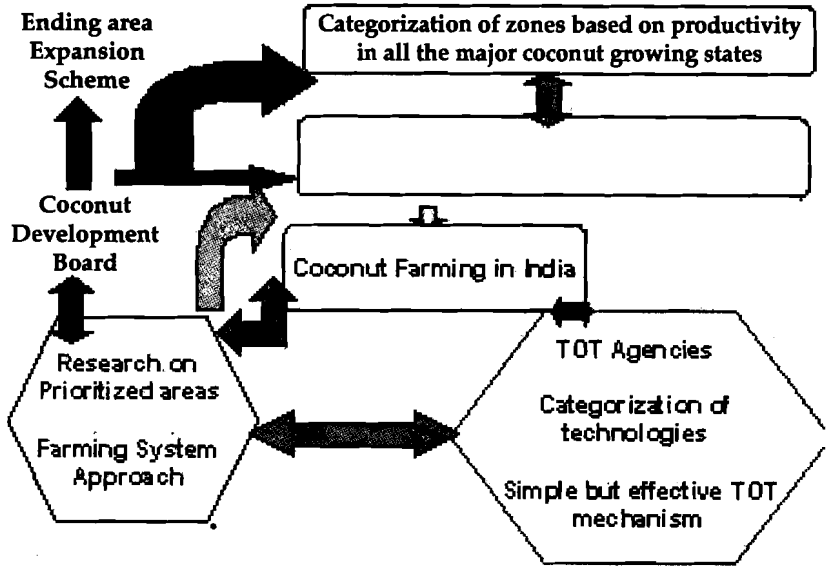

Fig. 2

than one acre in water scarce areas. Similarly, cultivation of hybrids under better management yields better results and hence this may be encouraged in medium and large holdings. In case of post harvesting technology, copra dryers are more viable if they are being operated on a co-operative basis.

- In Kerala, the mid lands and lower portion of the highlands are better suitable for the adoption of Coconut Based Farming Systems through integration of crop husbandry and live stock rearing. Specific developmental schemes may be formulated by the Coconut Development Board to develop Farming Systems approach in all the major coconut-growing states. In this process, the prospects for aggregation of small and marginal holdings through co-operative/self help groups / other net works may be explored through specific pilot studies.

- In case of development and research on farming systems, it is very crucial to understand that adoption of improvement over the existing system is more rational than thrusting with a newer system.

- Aggressive and appropriate Transfer of Technology is very much essential for tacking the field level problems. For example, in Kerala, a well-written note about the solution for a field problem in Malayalam dailies (newspapers) would more impact and would be most effective mode of technology dissemination as compared to other means of TOT.

Marketing and Processing Sectors

International scenario

Though India is one among the largest producers of coconut in the world, its role in the international trade of coconut products is not significant due to the inherent structural problems in production and consumption patterns. Other major coconut producing countries such as Indonesia, the Philippines and Sri Lanka have strengthened their processing sectors since the eighties and hence they play a prominent role in the international trade sector.

Since the seventies, the macro level policy committees for coconut research and development have concentrated on the sole goal of increasing the production and have not strengthened the vital concepts of product diversification and byproduct utilization to the expected level, which is at present is stressed as the slogan for saving the coconut sector.

From the table 6, it could be inferred that the percentage contribution in export earnings of coconut products in their respective GDP ranges from 2.60 in case of Sri Lanka as compared to 0.20 in India. This is however cannot be considered

Table 5. Productive zones of coconut in India

States	High	Medium	Low
Kerala	Kozhikode	Malappuram	Alappuzha
	Thrissur	Kasaragod	Kollam
	Trivandrum	Kannur	Kottayam
	Ernakulam	Pathanamthitta	
Tamil Nadu	Dharmapuri	Madurai	Kanyakumari
	Erode	Vellore	Cuddalore
	Salem	Thanjavur	Villupuram
	Trichirappalli	Nagapattinam	Coimbatore
Karnataka	Tumkur	Mandya	Dakshina Kannada
	Hassan	Bangalore	Shimoga
	Chitradurga	Rural	Chickmagalur
A.P	West.Godavari	Srikakulam	Vishakapatnam
	East.Godavari		

since Sri Lanka is too small to be compared with India in terms of absolute GDP per annum. However, the above table firmly indicates that Indonesia, the Philippines and Sri Lanka have already taken a stronger hold in international trade scenario of coconut products. Hence, appropriate strategic plans become inevitable to sustain the domestic marketing and to increase the prospects of international trade through product diversification and value addition.

One of the characteristic feature of Indian and international trade of coconut and its products is the volatile price fluctuations. Since the nineties the Indian and International price exhibits a declining trend for coconut products and the comparative rate of decline is more in Indian markets. However, in absolute terms, Indian prices of copra and coconut oil continues to be higher as compared to the international prices, but the gap is getting narrowed.

Marketing of coconut is an unorganized feature in Indian coconut sector and hence fluctuating prices has become a common feature in coconut trading.

Secondary data analysis of the wholesale prices of coconut and its products exhibits a fluctuating trend since the early nineties, posing a higher degree of price risks especially in the predominant coconut growing areas. The average wholesale price of coconut in Kerala markets exhibits high degree of fluctuations. The percentage increase ranged from 165 during 1996-97 to – 2 during 2000-01 and 24 during 2001-02. However, during the period 1990-2002 (point-to-point basis), the Coefficient of seasonal variation has remained the same with inter year fluctuations.

Table 6. Global export pattern of coconut products (MT)

S.No.	Particulars	India	Indonesia	Philippines	Sri Lanka
01	Coconut (No.)	319000	5334	1580977	29024981
02	Copra	20	34579	2751	14563
03	Coconut Oil	1535	734560	1036428	4656
04	Copra Meal	30	408431	530378	7337
05	Desiccated Coconut	209	31373	73688	82735
06	Coir Yarn	14817			
07	Coir Mats	28944			
08	Coir mattings	8288			
09	Coir ropes	298			
10	Coconut milk/cream		9234	1662	3834
11	Shell charcoal		26735	25849	6458
12	Activated carbon		10205	31344	16201
13	Coconut Shell		354		
14	Fatty acids			11502	
15	Diethanol amide			1182	
16	Nata de coco			10649	
17	Fatty alcohol			10849	
18	Total export value	32240000	401204000	653510000	12504221
19	% contribution in export earnings (%)	0.20	0.65	1.71	2.60

Export value in local currencies for India and Sri Lanka and in US $ for the Philippines and Indonesia

Source: http://www.apcc.org.sg/apcc.htm

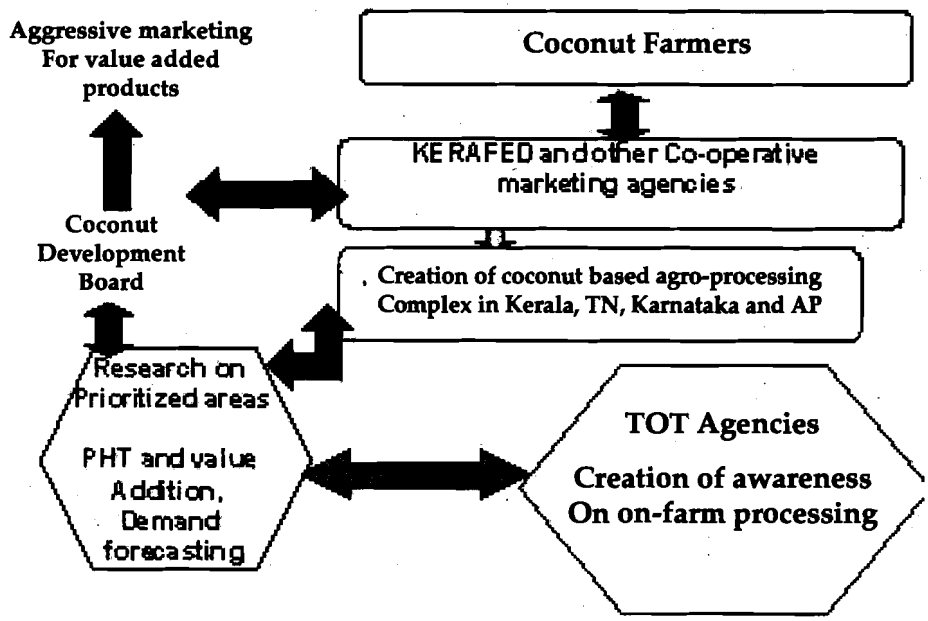

Fig. 3

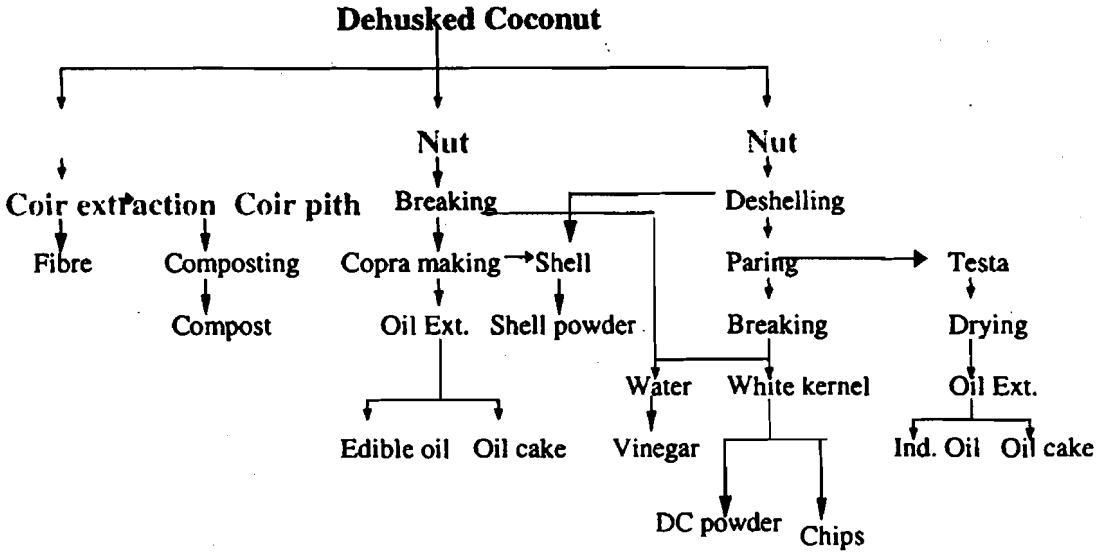

Fig. 4. Integrated coconut processing complex

Predominance of small and marginal farmers, lesser marketable surplus and consequent capital non-availability for technology adoption continues as a vicious cycle in the coconut production sector of India and in particular in Kerala State.

It could be inferred from Table 7, that the realized net returns from coconut cultivation varies from Rs. 5400 in the case of marginal farms to Rs. 29700 in the case of large farms. However the actual income through marketed surplus ranges from Rs. 6300 to Rs.71700. Under these situations, in the absence of effective and organized marketing mechanisms, the role of intermediaries like that of village traders would continue to be crucial.

A study on price spread of coconut and its products conducted in Kerala markets indicated that 70 per cent of the farmers sell their produce through the village traders as raw coconuts. Less marketable surplus due to small and marginal holding size is the primary reason for the farmers for not undertaking copra/oil production for sale. The marketing channel consists of village traders, wholesalers and retailers who in turn sell their products to oil millers and retailers and send some of their lots to up country markets as raw nuts, edible or ball copra. Research planners and policy makers opine that under those situations in which the marketed surplus is low, the concept of co-operative marketing linked to processing is the most effective way for ensuring better price stability for coconut farmers.

At present in Kerala, the Kerala Kerakarshaka Sahakarna Federation Ltd., (KERAFED) seems to play a major role in co-operative marketing of coconut and its products in Kerala. This organization serves for over 27 lakh coconut farmers in Kerala, by offering them attractive support prices for coconut and copra during unfavorable market conditions,

Table 7. Marketable Surplus of coconuts under different land holdings of Kerala

S.No.	Particulars	Marginal	Small	Small-Medium	Medium	Large
1	Palms (per ha)	190	180	180	175	175
2	Bearing Palms (per ha)	171	162	162	158	158
3	Yield (per palm)	40	45	50	55	65
4	Production (per ha)	6840	7290	8100	8663	10237.5
5	Actual Production	2736	5905	9720	17498	24877
6	Total Value	8208	17715	29160	52495	74631
7	Cultivation cost	2800	7695	14400	27270	44955
8	Net Returns	5408	10020	14760	25225	29676
6	Domestic use	365	365	365	548	548
7	For oil extraction	250	300	300	400	400
8	Marketable surplus	2121	5240	9055	16551	23930
9	Marketed Surplus	2100	5200	9000	16500	23900
10	Income	6300	15600	27000	49500	71700
11	Copra quantity (kg)	336	832	1440	2640	3824
12	Value	8400	20800	36000	66000	95600
13	Profit over nut	2100	5200	9000	16500	23900
14	Coconut oil (kg)	202	499	864	1584	2294
15	Value	9072	22464	38880	71280	103248
16	Profit over copra	672	1664	2880	5280	7648
17	Profit over nut	2772	6864	11880	21780	31548

Marginal – 0.4 ha, Small – 0.81 ha, Small-Medium – 1.20 ha, Medium – 2.02 and Large – 2.43 ha

procuring copra under the price support scheme on behalf of NAFED, Government of India and rendering value added services to enhance their earnings through improved productivity, and by assisting them in production and procurement. Apart from these, the Federation organizes periodic extension activities to help farmers, like demonstration farms, training camps, exhibitions, seminars and publication and distribution of bulletins and literature on coconut farming. This organization has future strategies for expansion of its goal towards production and marketing of value added coconut products (Source: http://www.kerafed.com/). Considering these facts, a joint venture by KERAFED, research and the development board could assist in formulating and implementing strategic plans for promoting export oriented value addition for coconut and its products. It is interesting to note that the existing net work of KERAFED with coconut marketing of other states like Tamil Nadu, and Karnataka, which could be further strengthened through meaningful and vision oriented plans.

Suggested strategies

- The marketed surplus from individual forms could not be increased due to structural problems. Under these situations, the role of KERAFED (or similar co-operative organizations) and its net works with marketing co-operatives in other major coconut producing states needs to be revitalized.
- The Coconut Development Board could further strengthen its market promotion schemes for value added coconut products (including tender nuts) through aggressive marketing techniques.
- Research institutes needs to encourage, with the able co-operation of CDB and agencies like KERAFED, setting up of coconut based agro-processing complex. Initially few pilot schemes may be started on a smaller scale. Meanwhile, the domestic demand as well as their export prospects may be assessed. Depending on their success, this may be expanded and taken on a larger scale (Fig 2)
- Demand forecasting for value added coconut products like tender coconuts, coconut chips, Snow Ball Tender Nuts, Desiccated coconuts etc. in domestic and international markets and linking them with estimated supply (Fig 3)

CONCLUSIONS

Indian coconut sector has inherent strengths of varied agro-climatic conditions, huge domestic demand, highest productivity, sound research, developmental and TOT systems etc. However, so far, the sector has not effectively utilized the possible linkage between them for increasing the production and marketing efficiencies. The present era of globalization and trade liberalization warrants a sustainable growth in the entire industry to sustain the economic prospects of Indian coconut farmers.

For this, long-term vision oriented strategic plans needs to be formulated and effectively implemented involving the research, developmental, extension and co-operative marketing agencies. In the production sector, all the activities of these agencies need to aim towards competitiveness through higher productivity. For this, area expansion needs to be discouraged, coconut producing zones need to be categorized as high, medium and low and appropriate technology transfer and development schemes needs to be implemented considering their inherent strengths and weaknesses. The inter face meetings ventured by CPCRI and State Department of Agriculture of Kerala may be expanded to other states. Based on the decisions taken and marching ahead with the suggested strategic plans, the country could achieve sustained growth in the production sector.

In case of marketing and processing sectors, on-farm processing needs to be encouraged and joint efforts of research, extension, co-operative marketing sector, and developmental agencies needs to test the technical feasibility and economic viability of coconut based agro-processing complex in all the major coconut-producing states. The activities of KERAFED need to be revitalized and its net work needs to be expanded in other states like TN, Karnataka and AP. The commodity board may further aggravate market promotion schemes for popularizing value added coconut products.

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