SUMMARY, FINDINGS, CONCLUSION AND SUGGESTIONS

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CHAPTER 7
SUMMARY, FINDINGS, CONCLUSION AND SUGGESTIONS

Having analysed the various problems relating to the coconut industry on the basis of the set objectives, the present chapter covers a summary of the findings and making conclusions on the basis of the findings. It also attempts to make a few suggestions for the all-round improvement of the coconut industry in Kerala.

The study was undertaken with the major objective of analysing the coconut marketing problems at farm level. It also aimed at examining the production pattern, consumption pattern and trade in the crop.

Some of the related literatures were reviewed. A study period of 10 years from 1992-93 to 2001-02 was selected for the study. Required information was collected from both secondary and primary sources. The collected data was analysed using statistical as well as mathematical tools.

FINDINGS

In Kerala, the area and production under coconut showed a more or less increasing trend over the years. But in productivity, Kerala is far behind all other producing states. The per hectare productivity of coconut in Kerala showed a steadily declining trend.
Among the districts of Kerala, Kozhikode district has more area under coconut production. Malappuram and Kannur are in the second and third positions respectively.

On the consumption front, coconut oil continues to be the important product of coconut consumed by the Keralites.

Most people prefer coconut oil as the main edible oil. Taste is the main factor that induce them to stick to coconut oil.

Most people in Kerala believed the propaganda against coconut oil that it contained harmful cholesterol. Urban consumers believed it more than rural consumers. But the abstention period was low among urban people. That means most of them shifted back to coconut oil immediately after the abstention.

Buying edible oils in packs is preferred by urban consumers whereas buying in loose measure is preferred by rural consumers.

Female consumers, especially those from rural areas, have a strong sentiment towards using coconut oil for toiletry purpose and also as hair oil. Such sentiment is too strong among unemployed housewives.

Palm oil is found to be the immediate substitute for coconut oil for edible use. This is more so among the lower income groups. But among the
higher income groups sunflower oil and groundnut oil are found to be important substitutes for coconut oil.

About 37 percent of consumers prefer tender coconut water as a thirst quenching drink. Artificial carbonated beverages are preferred by only a small percentage of urban youngsters.

As far as the awareness of consumers about new diversified products of coconut is concerned, among the kernel based products, desiccated coconut is the only product about which consumers know. On an average 45.33 percent answered 'know' while only 4.33 per cent answered 'very well know'.

Among the coconut water based products preserved tender coconut water is the only product about which consumers know. On an average 43.83 percent answered 'know' while only 4 percent answered 'very well know'.

Among the shell based products activated carbon is the only product about which the consumers know. On an average 41.67 per cent answered know 'while only 9 percent answered 'very well know'.

Among the husk based products, coir pith is the only product about which consumers know. On an average 20.33 per cent answered 'know' while only 1.17 per cent answered 'very well know'.

Thus, it could be found that the awareness of consumers about new diversified products from coconut is very low.
On the trade front, India's total export of all coconut products put together comes to just 0.17 per cent of her total exports. Even though several new products from coconut are internationally traded, coconut products exported from India constitute traditional items like copra, coconut oil, copra meal coir products and to some extent desiccated coconut.

The price of coconut and copra is determined based on the price of coconut oil. Nearly half of the total copra produced in Kerala is sent to other states in the form of copra as such. Therefore, the Keralities have no say in determining the demand and price of coconut. It is often determined by the traders in the markets outside Kerala who are big oligopolies.

The high price and the erratic price behaviour of coconut oil coupled with the availability of low priced substitute oils have been responsible for the reduced use of coconut oil in soap manufacturing.

However, since people in Kerala still prefer coconut oil as the main edible oil, there are more than 80 brands of packed coconut oil available in the market now.

In the coir sector, about 30 percent of the annual production of coconut husk in India, is put to industrial use. Kerala accounts for more than 90 per cent of the coir products exported from the country annually which earns foreign exchange to the tune of Rs.300 crores per annum.
It was also found that the market share of tender coconuts to total sales of different thirst-quenching drink comes to about 25 per cent. The study also showed that the entry of traders into the field of tender coconut was considerable during the last five year period. Most of the traders opined that middle-aged people are the main consumers of tender coconuts.

Regarding the problems of marketing, it was found that for the marginal and small holders coconut cultivation do not offer full sustenance and therefore cannot be depended upon as the main source of income. The erratic price behaviour of coconut makes their future bleak.

About 62 percent of cultivators, mostly belonging to marginal and small category, dispose their produce immediately on harvest itself without resorting to any sort of value addition. Financial stringency is the main reason reported by them for selling away their coconuts immediately on harvest.

Only big holders go for value addition either by making copra or coconut oil, their percentage comes to 38 per cent.

On an average only 26.58 per cent of cultivators have a permanent storehouse to store their coconuts for future.

Those who make copra, dry the copra by the conventional sun drying method. Only very few cultivators use modern copra dryer (13.79 per cent)
Non availability of coconut tree climbing labour is yet another problem faced by coconut cultivators in Kerala, especially marginal and small holders. On an average 62.5 per cent of cultivators reported that they some times face the problem. 22.08 per cent of them reported that they always face the problem.

Though most cultivators know about the climbing machine, they do not use it permanently in their coconut gardens. Majority of cultivators reported that the climbing machine is difficult to operate. Thus, adoption level of new technology is very low among cultivators.

About 62 percent of cultivators do not offer their coconut palms for toddy tapping. Psychological resistance is the main reason reported by them for not offering for tapping. A good percentage of cultivators also reported that their coconut palms are not suitable for tapping. At the same time, those cultivators who offer coconut palms of tapping reported a yield increase upto 25 percent from the farm.

The above sentiments (as in the case of toddy tapping) was also visible in the matter of tender coconut harvest. On an average 88.75 per cent of cultivators reported that they never harvest tender nuts. Only 24.36 per cent of big holders reported that they sometimes harvest. Most cultivators reported that their coconut palms are not suitable for tender nut harvest. Some of the
cultivators are afraid that the yield from the garden will decline if tender nuts are harvested.

Effort of increase on-farm income through I.F.S. is very low. If at all some cultivators practice I.F.S., their percentage is higher in the central region of the state which could be due to the impact of the role played by the C.D.B. in propagating the benefits of I.F.S.

Yield loss due to diseases is yet another problem faced by the cultivators. About 45 per cent of them reported that their garden is affected by Mandari by 40-50 percent.

As for institutional support, most cultivators see the C.D.B. as an institution providing support and assistance for cultivation activities only, even though it assists in processing and marketing too. Only some cultivators in the study area of Ernakulam district have a different opinion that the C.D.B. assists in all these matters. Most cultivators still approach Krishi Bavan for their agricultural requirements.

82.5 percent of cultivators reported that they do not enjoy the benefit of M.S.P. declared by the government under the P.S.S. This is because by the time the government declares the M.S.P. almost all the coconut cultivators might have sold away their coconuts to dealers who are the actual processors of copra. Thus, it is these dealers who ultimately reap the benefits of M.S.P. rather than the cultivators themselves.
For getting agricultural loan the marginal and small category of cultivators mainly depend on private local money tenders who are also dealers of coconuts. Some cultivators on account of their financial stringency collect the price of their produce in advance from the dealers. In this way, they are permanently indebted to these dealers who usually give a price only lower than the market price.

But big holders usually approach commercial banks for loan.

Co-operative marketing has not been developed among coconut cultivators. On an average only 4.53 per cent of them sell their produce through co-operatives.

**SUGGESTIONS FOR IMPROVEMENT**

Coconut in Kerala is in the hands of small and marginal farmers. It is basically a homestead crop having profound influence on the socio-economic security of 2.5 million farm-households. The average size of holding devoted to coconut farming is as small as 0.25 ha and over 90 per cent of the holdings accounting for 60 per cent of the total area under the crop are in the category of marginal holdings not capable of generating adequate income for the dependent households.

Among the major coconut growing states in India, Kerala enjoys the pride of place both in the area under and production of coconut. However,
over the last four decades, the importance of the state has been consistently on
the wane. The contribution of Kerala which was 69.4 per cent of the total
production in the country in 1960-61 came down to 46.7 per cent in 1990-91
and to 42.17 per cent in 1999-2000. This shows that coconut production has
been increasing in other states at much faster rates than in Kerala. There has
also been a corresponding change in the utilisation of coconut in the country.
The situation in Tamil Nadu is a good example. Over the period since 1991-
92 this state has emerged as a major producer of milling copra by increasing
the share to over 38 percent from just 5.6 per cent of the total out put in the
country. As a result, the share of Kerala in milling copra production has
plummeted to 56 per cent from 90 per cent.

Kerala has not made tangible progress in product diversification and
by-product utilisation in coconut industry except for the traditional activities
such as oil milling and coir processing. As a result, coconut oil continues to
be the only major commercial product having influence on the farm level
price of coconut. Coconut oil which was once considered to be indispensable
in certain end uses, has over the last 2-3 decades lost its predominance and is
presently exchangeable with other oils and fats at will, price being the
determinant factor. Coconut oil prices continue to rule low as a result of the
increasing competition from low priced oils such as imported palm oil and
palm kernel oil from abroad. Such a situation will erode the domestic demand
for coconut oil unless its price is on par with that of the competing oils. The
downward pressure on the price of domestic coconut oil is causing a destabilizing effect on the household economy of the coconut farmers in the state.

The coconut based economy of Kerala can expect a revival from the negative impact of liberalised imports only when the profitability of coconut farming is de-linked from the price behaviour of coconut oil. This is possible to be achieved through efficient utilisation of the land under coconut and also the products at the on-farm and community levels. As coconut farming has close linkage with other aspects of rural life, it is not to be treated in isolation but only as a component of integrated rural development. The strategy for coconut development must, therefore, be multi-faceted and at the same time people centred with farm households forming the target group. The primary objectives of such a strategy shall be:

1. To create opportunities for enhanced on-farm income and employment.

2. To promote efficient product and by-product utilisation both at the on-farm and community levels.

3. To strengthen marketing infrastructure for domestic and export marketing and

4. To direct research on varietal improvements for higher output of primary products from coconut and technology development.
Enhanced on-farm income and employments

As the average size of coconut holding in Kerala is only 0.25 ha, mono-cropping models when practised will not support the livelihood security of the dependent families. In the context of the declining on-farm income caused mainly by the liberalised imports of vegetable oils it is important to restructure the small holdings into economically viable operational units by promoting intensive integrated farming. The farming system involving diverse cropping models and enterprises such as dairying, poultry rearing, pisciculture etc depending on the edaphic and climate conditions will ensure multiple sources of income, nutritious food of plant and animal origin and additional on-farm employment.

Integrated Farming System (I.F.S) seems to be the possible solution for higher coconut production, stability of income and socio-economic improvement of small scale framers with limited resources. I.F.S has a bright future owing to a good market for the outputs. This also will provide ways to recycle produces and waste materials of one component as input through another linked component and reduce the cost of production of the products which will finally raise the total income of the farm. Further, this also will bring improvement in soil health through recycling of organic wastes thereby increasing the overall productivity of the farm.
The adoption of IFS is essential as coconut production is subjected to a high degree of risk and provides only seasonal, irregular and uncertain income and employment to the farmers. With a view to mitigate these risks and uncertainties I.F.S should be practised for higher production and better standard of living. It will also create opportunities for gainful employment to the women members of the participating households and facilitate efficient resource conservation.

Potential districts are to be identified and the farmers provided with technical and institutional support for dispensing integrated farming units. In each district the participating farmers should be encouraged to organize themselves into self-help groups or co-operatives for the purpose of availing technical support, procuring inputs and processing and marketing of surplus farm output. The proposed integrated farming units linked to farmers' organisations can trigger a process of change in the farming sector of the state leading to rural prosperity and sustained growth in the agricultural economy. It is, however, important that the farmers receive effective extension education on resource conservations, appropriate cropping models, nutrient management, integrated pest and disease control and product utilisation for achieving lasting progress in the desired direction.

I.F.S. should aim at achieving optimum productivity on an enduring basis by stimulating the underlying productivity of the soil. Prevention of soil
loss is one of the more essential pre-requisites for sustaining optimum levels of production. Integration of miscellaneous woody species on coconut holding, use of biological barriers and mechanical devices against rapid surface flow of water, conservation tillage and adoption of appropriate agronomic practices to activate soil life are effective measures that should be propagated among the farmers. The conservation of locally available organic wastes should be promoted as a community activity at the village, block and district, levels in order to generate substantial amount of organic sources of nutrients and to improve the quality of local environment by preventing pollution of soil and water bodies.

The promotion of I.F.S. in coconut holdings with emphasis on resource conservation holds promise for the growth of the agricultural economy of the state by generating marketable surplus of organically grown foods which enjoy considerable consumer demand in many states in the country as well as in other countries. Global demand for good products devoid of chemical contaminants is steadily on the increase. This trend could be taken advantage of by devoting special attention to the organisations of organically maintained coconut gardens.

It would be necessary to create institutional set up for labelling and certification of organically grown coconut and other farm produces like spices, fruits, vegetables etc derived from the farming system.
Efficient product and by-product utilisation

Kerala has not achieved noticeable progress in the utilisation of the multiple products of coconut palm for value addition both at the farm-household and community levels. This has happened mainly because of the low priority assigned to technological research in the national and state level research establishments. As compared to the tardy growth recorded by the state in the processing sector, most of the coconut growing countries in the world are profiting from the production and export of diverse coconut products. For instance Philippines export over 40 non-traditional products of which coco chemicals, coconut milk products, coconut water based products and shell and coir products are of importance. From Sri Lanka, shell based products fresh coconut, coir products, double distilled arrack and even leaf mid-ribs are being exported. Small Island countries like Samoa are already major exporters of coconut milk based products. Fiji has started producing and exporting coconut cheese. Dominican Republic has set up a commercial plant for the processing and bottling of tender coconut water into a health drink and the jelly like kernel into jam and other confections. Likewise, coconut sugar is one of the export items form Indonesia and Thailand. Although possibilities are wide, it is prudent for Kerala to concentrate on selected products which could compete price-wise and quality-wise both in the domestic and export markets.
Marketing of Tender Coconut

Consumer preference around the world is changing in favour of natural health foods and beverages. Tender coconut is gaining acceptance in the developed countries as a natural source of nutritious food and beverage. The consumer demand for this natural drink is now on the increase particularly in the context of the propaganda and awareness against artificial carbonated beverages like cola. This opportunity is being made use of by some countries for export. Already Malaysia, Thailand and Sri Lanka have stated exporting tender coconut and for which special varieties have been identified and their cultivation promoted. The yellow and orange coloured nuts of Malayan Dwarf variety, Aromatic coconut of Thailand and King coconut of Sri Lanka are the types presently exported. The Orange Dwarf variety of Kerala is comparable to those types in sugar content, flavour and nutritional features. The potential has not been made use of by the state neither for export nor for sales within the country.

In Kerala there is immense scope for utilizing a major share of coconut production at the tender stage itself and thereby eliminating a sizable portion of the mature nuts for conversion as copra.

Appropriate technologies have been developed by the exporting countries for retaining the flavour and fresh appearance to tender coconut for a long period. Under normal conditions the freshness of tender coconut will
be lost after 3-4 days. In order to meet the export demand the taste of nut water and external appearance of the fresh nut have to be maintained for a minimum period of 3-4 weeks.

Export possibilities of tender coconut could be explored by Kerala for the nuts of Orange Dwarf variety. Demand for fresh tender coconut is also high in many states within the country. Along with developing appropriate marketing strategies, the farmers are also to be induced to cultivate Orange Dwarf palms in order to create adequate supply sources for tender coconut. In short, marketing of tender coconut will create opportunities for enhancing on-farm income of farmers and employment at different levels.

Marketing of Coconut sugar and Toddy

Coconut sugar made from unfermented inflorescence sap is a health food. It is a preferred commodity by health conscious people and its demand as a natural health good is consistently on the increase in both the developing and developed countries. The production and marketing of coconut sugar constitute an organised activity in countries like Thailand and Indonesia.

Sugar production from coconut palms is labour intensive requiring not much of capital investment. When organised as a rural activity under the aegis of coconut farmer's co-operatives, it could generate additional income and employment to a sizable section of rural community in the state.
Along with sugar production, introduction of canned fresh toddy for domestic and export marketing will prove to be a viable activity. Like palm sugar, unfermented sweet toddy could be marketed as a health drink. Techniques for preventing spontaneous fermentation of fresh coconut sap are now available. Similarly, technologies for the canning of fresh toddy are available which are only to be pilot tested for adopting the most appropriate one, under local situations. The farmer's co-operatives which organise toddy tapping and sugar production or even individual entrepreneurs may be permitted to undertake the activity under proper control.

In Kerala income from coconut holdings will register a sharp increase with the direct involvement of registered farmer's organisations in toddy tapping and the subsequent processing of sweet toddy. Apart from the production and marketing of different forms of sugar, these organisations could also serve as the supply source of toddy to the local toddy parlours. Registered farmers' societies may also be permitted to dispense licensed toddy parlours in their respective operational areas. The membership of these societies should comprise both coconut farmers and tapers. For facilitating the toddy based processing, adequate availability of toddy is essential. This could be ensured by granting the societies the right to tap by making amendments in the present Abkari Laws etc. (According to the Abkari Law enacted in 1902, coconut growers are banned from making coconut based products like sweet toddy and jaggery from coconut trees on their holdings).
At a time when the price of coconut has crashed, the growers would benefit if they are allowed to make coconut-based product to supplement their income.

Coconut based food processing through Women's groups

Women's groups engaged in coconut based food processing are active in countries like Vietnam, Thailand and Philippines. These groups produce diverse convenience foods from coconut and market them through different channels both in the domestic and external markets. Common among the products are coconut kernel based confections, kernel, chips, coconut cheese, coconut milk based sweetened concentrates, coconut water based nata-de-coco, vinegar etc. The progress in this direction is sluggish in Kerala.

Registered women groups are to be organised in Kerala for food processing in the coconut sector. Both technical and marketing support are essential to sustain their activities. Training facilities presently available with organisations like Coconut Development Board should be kept open for the benefit of the members of the groups. Similarly, marketing support has to be extended in the form of market promotion for selected value added products. The processing could be organised both at the on-farm and community levels. In the Philippines, nata-de-coco is encouraged to be produced in households for subsequent procurement and marketing by specialised agencies. For
domestic marketing the product is processed further into different preparations.

The women's groups in Kerala that are to be involved in food processing can organise the production at common locations as well as at individual households depending on the nature of the product. The products that are amenable for production at household level are nata-de-coco, Vinegar, Kernel based confections etc. These products are to be pooled and labelled by the group concerned for final marketing. At the common location facilities are to be developed for the processing of diverse products such as kernel chips, cheese, milk-based sweetened concentrates etc. Through these activities the women members of the groups can find gainful employment at the local levels. The farmers will also be benefited through increased demand for coconut.

Project facilitation in selected processing areas:

The importance of Kerala as the major coconut producing state in India is confined to the production of nuts and not in processing them for value addition. The lack of investment opportunities as well as poor entrepreneurial response to modern advances in coconut processing have been instrumental for the lack-lustre performance of the sector. Facilities for developing appropriate processing technologies and for encouraging prospective
entrepreneurs to make investments with confidence are yet to be created in the state.

The coconut products which show potential for organised production in the state are desiccated coconut, partially defatted coconut flour and coconut water and milk based products. The availability of good quality desiccated coconut produced by adopting modern processing technologies and supported by purposeful market promotion will expand the demand for the product both in the coconut producing and non-producing states. The product has also export opportunities.

The production of partially defatted coconut flour and special grade coconut oil also offer commercial possibility. Partially defatted coconut flour has longer shelf life and better functional properties than desiccated coconut. The product will find acceptance in the organised food industry because of its favourable qualities and the possibility of making it available at a price less than that of desiccated coconut.

The coconut oil derived from the process of partial defatting will be of high quality particularly with respect to moisture and free fatty acid contents. It is highly suitable for direct edible uses and for cosmetic applications.

Among other kernel based products, dehydrated kernel chips, preserved form of finely ground wet kernel paste and skim milk products show potential for commercial scale production and marketing. These has
already evoked consumer interest in the international markets and the opportunity could be exploited profitably by Kerala.

**Coconut based handicrafts**

Attractive coconut based artefacts are now available in the markets of many countries, particularly Vietnam, Thailand, Indonesia Sri Lanka and Philippines. These products find acceptance not only in the markets of the respective countries but in the international markets also and constitute one of the major sources of export earnings. The coconut products made use of by skilled artisans are wood, shell, fiber and spathe and some of the artefacts are valued for their aesthetic quality and also for their utility as household appliances.

In Kerala many rural artisans are engaged in handicrafts for their livelihood. These activities are mostly confined to households barring a few large units. There are many small scale handicraft units in the state managed entirely by women. Although manufacture of coconut based handicraft has been in existence as a traditional activity in the state, its development into a viable and flourishing enterprise has been inhibited because of the absence of facilities for design and training and also organised marketing. New designs in accordance with changing consumer preference and training in the production of modern artefacts are essential pre-requisites for competing with
quality products emanating from other countries. Equally important is the opportunity for marketing the products in the domestic and export markets.

Strengthen Marketing Infrastructure

Marketing support is essential for the traditional and non-traditional coconut products emanating from the state. Apart from those products which can find domestic markets, there are some which could be successfully introduced in the export markets. Coconut sugar, tender coconut, coconut skim milk and water based products, coconut kernel based convenience foods etc have potential to attract consumers both within and abroad on quality consideration.

As most of these products are amenable to be procured at the household level, community based organisations are essential for procuring, screening for quality, packaging, labelling and marketing. Organised producers would need different forms of support for domestic as well as export marketing.

The marketing support should cover Evaluation and promotion of New coconut based Enterprises, Market information and consultancy, Market Research and surveys and Market promotion.
Research on varietal improvement

Research support is needed in two specific areas. One is in crop improvement for evolving and popularising coconut varieties that will yield nuts with a higher out-turn of processed products. The other is in technology development for the efficient utilisation of coconut and its products.

CONCLUSION

India is a signatory to W.T.O. agreement which shall call for liberalised E.X.I.M. policy where the barriers of trade are to be removed. It would not be possible to stop the coconut import and it will have negative impact on coconut industry in the country if the production cost is not reduced to make it competitive as international price of coconut and coconut products is much less. Thus, product diversification, adoption of stringent quality standards for coconut products and increased productivity are some of the ways to make this industry competitive.

It is pertinent to mention that there is bright future for coconut in India provided we prepare our self to meet the challenges. Available infrastructure, trained man-power and wide range of climatic conditions available in the country are indicative of best capabilities. At the same time, these resources have to be effectively utilised to harness the best for making coconut industry more competitive and dynamic.
There is ample scope for further research studies, particularly in areas like role of co-operatives in new coconut product development and marketing, extent and problems associated with women labourers in engaged in the coconut industry, problems relating to technology upgradation and adoption level in coconut sector and so on.