



THE COCONUT INDUSTRY IN SRI LANKA

Sri Lanka's three traditional export crops of Tea, Rubber and Coconut suffered a deterioration in production and exports over most part of the last decade. Adverse weather conditions is one stock reason given for a drop in production or exports though the cause for the impasse in the traditional export sector is far more deep-rooted than unfavourable weather. Among the three plantation crops coconut seems to have been the most severely affected. While the proportion of tea and rubber exports have fallen gradually in Sri Lanka's overall export picture coconut exports have taken a deep plunge and was edged out in 1980 from its position among the three major contributors to the country's foreign exchange earnings by readymade garments, petroleum products, tourism and private transfer payments, particularly foreign remittances from migrant workers.

Towards the end of last year the Secretary to the Ministry of Coconut Industries, delivering the keynote address at an SLAAS seminar on

the "Future of the Coconut Industry in Sri Lanka" commented on the general fears about the future of the industry thus: "I presume there is a feeling amongst the public that the Coconut Industry is doomed. They think that production has gone down over the years and that a time might come when we will have to import coconut. I wouldn't say that these fears are baseless"; though his own optimistic conclusion was "I think the future of the industry is not as bad as some people think". What is certain, however, is that many doubts are being expressed about the future of the industry. There is also concern in most quarters that positive steps should be taken, before it is too late, to recussitate the industry.

The significance of this factor comes into focus when we realise how pervasive a role the coconut industry has played in the economic and social life of Sri Lanka. It has made an impact on almost all aspects of the economy, namely,

Growing of improved varieties and adoption of more scientific cultural practises can provide the answer to most problems of the coconut industry. In this endeavour Coconut Research authorities have developed this early yielding and high yielding strain by crossing the 'tall' and 'dwarf' varieties of the coconut palm.

agriculture and land use, manufacturing, employment, government revenue, exports and domestic consumption. Historically the industry has played a central role in the emergence of a local capitalist class and in local elite formation.

Furthermore, unlike the other plantation industries, coconut is closely integrated with the peasantry and the village economy supply-food and non-food.

The industry occupies a land area of over one million acres and as an agricultural crop ranks second only to paddy in land use. In regions where coconuts are grown extensively such as Kurunegala, Puttalam, Chilaw, Gampaha and Hambantota districts the economic and social life of a substantial section of the population is closely woven around it. (See Box on page 7). In recent years, the coconut industry has contributed about 4-5 percent of the country's Gross Domestic Product (G.D.P.) and 10-18 percent of the total export receipts of the country. An estimated 135,000 persons (constituting some 3 percent of the employed population of the country) are employed in the coconut industry and at least half a million people are dependent on this industry for a living. A wide range of industrial activities—large, small and cottage level — have emerged to process coconuts and coconut by-products, and such coconut-based industries occupy an important place in Sri Lanka's industrial picture. Fresh coconuts and coconut oil are important items in the diet of the people accounting for nearly 10 percent of the food expenditure of an average household, and contributing over 20 percent of the calorie intake of an average consumer.

Coconut in the National Output

The contribution of coconut cultivation (i.e. excluding processing) to the Gross Domestic Product in 1979 has been estimated at Rs. 1,991 million or 4 percent of the total, though in 1980 there was a drop. Throughout the decade of the 1970's the share of coconut cultivation in

the GDP has remained around 4 percent. It may be noted that of the three plantation crops, (cultivation only), coconut cultivation makes the highest contribution to the GDP. In the 1970's the share of tea in the GDP has varied from 2-3 percent and the share of rubber has been below 2 percent. Among the agricultural crops, the contribution of coconut is exceeded only by paddy which contributed 5-7 percent of the GDP in the 1970's.

local consumption demand, and only the residual (the surplus over local consumption) is exported. The size of the export surplus has varied considerably from year to year depending mainly on the size of the overall coconut crop. In a bad crop year the export surplus can fall sharply or even disappear altogether. In the 1970's the export surplus has varied in the range of 20 to 45 percent of the total crop, with an average of about 30 percent.

In 1979, export earnings from all coconut products amounted to Rs. 1,699 million or SDR 84 million, accounting for 11 percent of the total export earnings of the country; while in 1980 export earnings had dropped to Rs. 1,234 million or SDR 57 million and accounted for only 7 percent of the country's export earnings. During the decade of the 1970's, this share (contribution to the total export earnings) has varied widely from a low of 8 percent in 1977 to a high of 17 percent in 1972. The average annual export earnings during the decade amounted to SDR 57 million, that is 14 percent of the total.

Table 1. CONTRIBUTION OF PRINCIPAL AGRICULTURAL CROPS TO THE GROSS DOMESTIC PRODUCT

| Item | Value added in Cultivation | | | As percentage of GDP | | |
|-------------|----------------------------|---------|---------|----------------------|------|------|
| | 1970 | 1975 | 1980 | 1970 | 1975 | 1980 |
| | Rs. Mn. | Rs. Mn. | Rs. Mn. | % | % | % |
| Tea | 423 | 660 | 1,635 | 3.2 | 2.6 | 2.6 |
| Rubber | 233 | 328 | 873 | 1.8 | 1.3 | 1.4 |
| Coconut | 535 | 973 | 2,368 | 0.1 | 3.8 | 3.8 |
| Paddy | 951 | 1,501 | 3,791 | 7.2 | 5.8 | 6.1 |
| Total | | | | | | |
| Agriculture | 3,392 | 7,173 | 14,210 | 25.7 | 27.9 | 22.2 |
| G.D.P. | 13,187 | 25,691 | 62,346 | 100 | 100 | 22.8 |

Source: Central Bank, Annual Reports

The above figures (in table 1.) include only the value added in cultivation and hence exclude processing activity. When value-added in processing is included, the contribution of coconut rises to about 5 percent of the GDP but is overshadowed by tea with a contribution of 6-14 percent during the period 1977-80.

The relative export surplus was much higher in the previous two decades (1950's and 1960's) when it hardly fell below 40 percent and rose to over 60 percent in good crop years, the average level being around 50 percent.

Kernel products (fresh nuts, desiccated coconut, copra and oil)

Table 2. VALUE ADDED IN CULTIVATION AND PROCESSING AS PERCENTAGE OF GROSS DOMESTIC PRODUCT

| | 1977 | 1978 | 1979 | 1980 |
|---------|------|------|------|------|
| Tea | 13.5 | 10.9 | 7.9 | 6.3 |
| Coconut | 5.4 | 5.2 | 4.9 | 5.1 |
| Rubber | 2.7 | 2.9 | 4.1 | 3.0 |

Source: Central Bank, Annual Reports

The share of the GDP originating in the coconut industry has declined over the past three decades. It has declined from a level of around 10 percent in 1950 to 7.8 percent in the early 1960's and to around 5 percent at the end of 1970's. This decline reflects the fact that coconut output has grown very much slower than the overall growth of the GDP. In fact, in many years of the 1970's coconut output recorded negative growth rates.

The share of coconut cultivation in the overall agricultural output of the country has been in the range of 15 - 18 percent in recent years (1977-80); this share is highest among the plantation crops, and within overall agriculture, it is second only to that of paddy.

Contribution to Export Earnings

Unlike the other two plantation crops where exports constitute over 90 per cent of the output, the coconut industry has to meet a substantial

constitute the major export category accounting for about 75 percent of the total export earnings; by-products (coir fibre and coconut shell products) account for the balance (25 percent); although by 1980 it had fallen to about 50 percent for each of these two groups of products.

Coconut exports have financed shares varying from 8 to 17 percent of the total import bill of the country in the 1970's. In relation to the GDP coconut exports have been in the range 2 to 3.5 percent during most years of the 1970's. (See Table 3).

Contribution to Government Revenue

Export duties on coconut products have been an important source of government revenue, particularly in years when these export earnings were high. The government revenue from this source has fluctuated widely from year to year along with export earnings. During 1970-77, for example, the export duty revenue had fluctuated between Rs. 5 million and Rs. 162 million and its share in the total government revenue had fluctuated between 0.1 percent and 3.4 percent. In 1978 and 1979, the export duty revenue (including the administrative levy on kernel products) rose sharply to Rs. 405 million and Rs. 720 million respectively.

The contribution to total government revenue stood at 3.5 percent and 5.7 percent respectively in these two years. This post — 1977 increase was primarily a result of the high rupee prices fetched on exports (on account of the Rupee devaluation effected in November 1977) and the higher export duties. The weighted average ex-

Table 3. EXPORT EARNINGS FROM COCONUT PRODUCTS

| | Export | Earnings | Export | Earnings as % of | |
|------|-------------|-------------|-----------------------|-------------------|--------|
| | Rs. Million | SDR Million | Total Export Earnings | Total Import Bill | G.D.P. |
| 1970 | 290 | 50 | 15 | 13 | 2.3 |
| 1972 | 343 | 51 | 17 | 17 | 2.3 |
| 1974 | 548 | 68 | 16 | 12 | 2.4 |
| 1976 | 507 | 52 | 11 | 11 | 1.8 |
| 1977 | 496 | 47 | 08 | 08 | 1.4 |
| 1978 | 1,277 | 65 | 10 | 09 | 3.2 |
| 1979 | 1,699 | 84 | 11 | 08 | 3.5 |
| 1980 | 1,234 | 57 | 7 | 04 | 2.0 |

Source: Central Bank—Annual Reports, Various Years

Table 4. EXPORT DUTY REVENUE FROM COCONUT PRODUCTS

| | Export Duty Revenue Rs. Million | As percentage of Export Earnings % | Govt. Revenue % |
|------|------------------------------------|--|--------------------|
| 1973 | 32.6 | 14.2 | 0.8 |
| 1974 | 161.8 | 29.5 | 3.4 |
| 1975 | 65.1 | 13.2 | 1.3 |
| 1976 | 5.2 | 1.0 | 0.1 |
| 1977 | 14.1 | 2.8 | 0.2 |
| 1978 | 405.2* | 31.9 | 3.5 |
| 1979 | 719.8* | 42.4 | 5.7 |

* Includes Administrative Levy
Source: Central Bank Annual Reports.

port duty (i.e. export duty revenue divided by total export value) which was 17 percent in the 1960's and 16 percent during 1970-77, rose sharply to 42 percent and 51 percent respectively in 1978 and 1979.

Contribution to Employment

The total employment in the coconut industry — that is in growing, processing, trading and other activities can be estimated at about 155,000 persons, representing nearly 3 percent of the total employed population in the country. If we assume 3-4 dependents per employed person, the population dependent on the coconut industry for a living can be estimated to be 450,000-550,000; that is about 3-3.5 percent of the total population of the country.

The level of employment in the coconut industry is markedly lower than in tea (with 650,000) and rubber (with 225,000). This relatively low employment level is a result of the low labour requirements of coconut lands as a monoculture. Compared with the labour requirements of 1.25 persons per acre of tea, and 0.35 per acre of rubber, an acre of coconut employs only about 0.1 persons. In other words, it requires about 10 acres of coconut to provide employment for one person in coconut cultivation. According to the Socio-Economic Survey of 1969/70, the total employment in coconut cultivation was 84,400, that is an average of one employed person per 14 acres. Surveys of employment in coconut estates 50 acres and above in extent (and employing 5 or more persons) carried out by the Labour Department revealed total employment figures varying from 14,000 to 19,000 during 1971-74. The total area of coconut holdings over 50 acres in extent is about 300,000 acres.

we assume that this entire area was covered by the above surveys, the average employment works out to one person per 17.21 acres. It is quite possible, however, that the entire land area was not covered by these surveys partly because in some estates above 50 acres the employment would have been lower than 5 persons. Assuming that only about two-thirds of the above acreage was covered, the average employment

works out to one person per 11-14 acres.

Employment in coconut processing activities can be estimated at about 47,000 persons. A rough breakdown by activity is as follows:

Copra 2000; Coconut Oil 4000; Desiccated Coconut 6000; Brown Fibre 18,000; White Fibre 10,000; Coconut Shell Products 1,000; Miscellaneous 1,000.

Employment in coconut trading activities cover the employment in coconut products exporting firms, brokering firms, and wholesale and retail establishments dealing in coconut products. A rough estimate of employment in these activities would be about 5,000 persons. Another 3,000 may be added to cover employment in all other activities in relation to coconut such as transport and statutory bodies. The employment picture in the coconut industry (excluding those engaged in toddy tapping) could thus be summarised as follows:

| | |
|---------------------|---------|
| Coconut Cultivation | 85,000 |
| Coconut Processing | 42,000 |
| Coconut Trading | 5,000 |
| Other Activities | 3,000 |
| Total | 135,000 |

Contribution to Industrialisation

Coconut, more than any other agricultural crop in the country, has provided a base for the emergence of diversified industrial activity. The important coconut-based industries are the manufacture of coconut oil, desiccated coconut, fibre and fibre products, activated carbon, soap, fatty acids, animal feeds, and arrack. The number of registered industrial establishments in some of these activities in 1979 was as follows: Coconut oil mills — 65; Desiccated coconut—68, Coir fibre—654; and Activated carbon—01.

Desiccated coconut, coir fibre and activated carbon are almost entirely export industries, while the coconut oil industry caters partly to the domestic market and partly to exports. In the domestic market, coconut oil is the principal raw material used in the manufacture of margarine, soap, glycerine and fatty acids. Poonac is the principal ingredient in animal feed manufacture. A large number of small-scale and cot-

tage industries (e.g. brooms brushes, carpets, mats, ropes and cordage) have emerged using coir fibre and yarn and also coconut ekel as the principal raw materials. Most of the coconut-based industries are small-scale operations located in the rural sector. It is apparent, therefore, that coconuts play an important role in national industrial growth.

In the early 1950's (that is, prior to the development of state industries and import-substituting industries in the private sector) coconut-based industry was the leading industrial sector in Sri Lanka. A Census of Industry conducted in 1962² revealed that there were 130 industrial establishments in coir fibre and coir goods, and 75 in oil milling and desiccated coconut. The net output (value added) of these industries (Rs. 72 million) amounted to 32 percent of the total industrial output (value added) in the country. With the growth in import substituting industries in the last two decades, the relative importance of coconut-based industries in the total industrial picture of the country has recorded a decline.

(The Census covered only factory industries, that is industries with five or more employed persons, having capital of Rs. 3,000 or more and using mechanical power. Tea factories and rubber mills were not classified as industry as they were considered more associated with agriculture than with industry).

Domestic Consumption

Coconuts play an important role in the diet of the people. It is the principal source of edible oil and fats. The average annual per capita consumption is about 90 coconuts and 6.2 bottles of coconut oil. Consumer Finance Surveys have revealed that coconuts and coconut oil absorb about 9 percent of the total food expenditure of an average household. Coconuts supply about 22 percent of the total calorie intake of an average consumer and from the point of calorie supplies, coconut is only second to rice.

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In the 1970's, local consumption absorbed an average of about 36 percent of the total coconut crop. In the 1950's and 60's this average was around 50 percent.

Besides the kernel and oil, there are several other coconut products which are important in domestic consumption. Young coconuts are a popular beverage. Coconut toddy and arrack are the most important liquor consumed in the country. Coconut treacle and jaggery are also important consumer items. Coconut poonac is the principal animal feedstock in the country.

The coconut palm has also innumerable other non-food uses in Sri Lankan society — roofing, timber, fuel, household such as mattresses, brooms and brushes, artistic and cultural uses to mention just a few. The following quotation illustrates the vital role that the coconut tree plays in the village economy.

"The leaves are used for roofing, mats, baskets, torches, fuel and manure; whilst the stem of the leaf is utilised for fences, pingoes and fishing rods. Pickles and preserves are made of the cabbage or cluster of unexpanded leaves. The sap forms toddy, from which arrack is distilled. By evaporation, jaggery is obtained. Acetic fermentation produces coconut vinegar. The unformed nuts are utilised in medicine. The milk of the young nut makes a refreshing drink. The meat is used to make curry and generally in cooking. The oil from the nut is useful in medicine, for anointing the hair, to make soap, candles and to provide light. Cattle are fed on poonac or conra cake. From the shell of the nut drinking cups, charcoal, toothpowder, spoons, medicine, beads, receptacles and knife-handles are manufactured. The coir is used for mattresses, cushions, ropes, cables, cordage, canvas, fishing nets, brushes, fuel and floor-mats. The trunk is used for rafters, lathes, sailing boats, troughs, furniture, buttons and firewood." (Report of the Coconut Commission, S.P. XII of 1949, pp. 11-12)

Coconuts and Dualism

Economic and social dualism was a characteristic feature of the tea, and to a lesser extent, rubber economies. Heavy reliance on foreign capital and enterprise, immigrant Indian labour, production primarily for export rather than for domestic consumption, the estate sector constituting the bulk of the total area, and minimal economic and social relations with the traditional rural sector characterise these plantation crops. In the case of coconuts, however, some of these characteristics do not exist and others are found to a markedly lesser extent compared with the situation in the other two plantation crops.

Coconut lands do not require any substantial labour force and hence the need for imported labour

never arose for coconut. The low labour requirements were almost fully met by the indigenous labour supplies. Moreover, the role played by foreign capital and enterprise in the development of the coconut industry was minimal. From almost the beginning of the expansion of this industry, that is mid-nineteenth century, indigenous capital and enterprise played the dominant role. (See Box on "Growth and Expansion").

Compared with tea, the technology of cultivation is relatively simple, the capital requirements are low, and the intensity of maintenance and upkeep is also relatively low. In this context, coconut suited the local enterprise, well, and in fact, the coconut industry provided an important base for the growth of a class of local entrepreneurs. For those Sri Lankans who had accumulated capital in other activities such as graphite, arrack renting, transport contracts, and internal trading, the coconut industry provided a profitable investment outlet. According to the information available from plantation directories the number of Sri Lankans recorded as holding over 100 acres of coconut land in 1880-81 was approximately 76, and in 1917 the number had risen to 412. Of these 39 had over 300 acres under coconut in 1880-81, while 80 had over 500 acres of coconut in 1917. Among those who had over 100 acres of coconut at either of these dates were some famous names in Sri Lanka's political and social scene; for example, James de Alwis, Sir Solomon Dias Bandaranaike, D. C. M Gunawardena, Mrs. J P Obeysekera, S. C. Obeysekera, W. M Rajapakse, F. R. Senanayake, and T Don Philip Wijewardena. (*University of Ceylon History Vol. III pp. 266,67*). The coconut industry played an important role in the formation of the Ceylonese elite. The total foreign ownership share of coconut lands was reckoned at 5 to 10 percent in 1934. (Report of the Ceylon Banking Commission (1934) p. 165). According to the Agricultural Census of 1962, of the estate area in

Coconut (over 20 acre holdings), less than 8 percent was owned by non-citizens and companies registered outside Ceylon. (p. 7 of the Census report).

Besides, the fact of predominant indigenous ownership, dominance of small holdings is another important characteristic of the coconut industry. If we define a small holding as a holding below 10 acres, then 50 percent of the coconut acreage constitutes smallholdings. Another 23 percent of the acreage constitutes small estates ranging from 10 to 50 acre holdings. Thus the estate sector proper (that is, holdings of 50 acres or above) constitute only a little more than a quarter of the total coconut land area.

For the peasant and the small land owner in the wet zone, coconut proved to be an attractive economic proposition. It is easily grown and has a productive life of over 60 years even without systematic human attention. The tree has endless village uses and it is second only to rice as a food crop. Hence coconut cultivation expanded and came to be integrated with the village economy and became a part of and parcel of the village society. Over one-third of the total coconut acreage in the country belongs to peasants and small land owners (holdings below 5 acres). Holdings in the range of 5 to 50 acres (accounting for 38 percent of the total) are owned largely by middle class elements of various sorts, for example, village traders, school teachers, rural elite, government servants, professionals such as lawyers, doctors etc. In this way, the coconut industry created an economic opportunity for a whole layer of such middle income groups.

The high degree of local ownership and the dominance of small holdings are also reflected in the fact that a company form of business organisation had been quite negligible in the coconut industry. Individual ownership pre-dominates. According to the Agricultural Census of 1962, of the total estate area under coconut not more than 10 percent was company owned.

Table 5. SIZE DISTRIBUTION OF COCONUT LANDS

| Holding Size | Acreage ('000 acres) | % of Total |
|----------------|----------------------|------------|
| Below 1 acre | 67 | 06 |
| 1-5 acres | 336 | 29 |
| 5-10 acres | 177 | 15 |
| 10-15 acres | 264 | 23 |
| Above 50 acres | 309 | 27 |
| Total | 1,152 | 100 |

Source: *Agricultural Census of 1962.*

The Coconut Industry and Land Reform

With the land reforms of 1972 and 1975, some new dimensions were added to the structure of the coconut industry, namely, that the state became the owner and manager of a portion of the coconut sector and that private ownership was limited to 50 acres. Nearly 119,000 acres or about 10 percent of coconut lands were vested in the state under the Land Reform Laws; this percentage was considerably lower than in other plantation crops; namely 38 percent in tea and 18 percent in rubber. Hence, although coconuts occupy the largest area compared to other plantation crops, the lands vested under the land reform was lowest in coconut.

This situation essentially reflects a principal characteristic of the coconut industry, namely, the importance of the smallholder in the industry and the relative smallness of the estate sector. It may also be noted that the company owned coconut land vested in the state was quite insignificant being only 6,400 acres, that is 5 percent of the total coconut lands vested and only 1.5 percent of the total of all company lands vested for all crops. This again is a reflection of the importance of the smallholder and the high degree of local ownership in the industry. The bulk of the local ownership was in the form of single proprietorships and family concerns rather than companies; while the large estate sector (that is acreage over 50 acre holdings) amounted to only about 309,000 acres as estimated in 1962. The coconut lands vested in the state amounted to 39 percent of this estate area. Since 1962, however, the estate sector would have further diminished as a result of sub-divisions and the loss of land for various non-agricultural uses. Hence the percentage of lands vested would be much higher than 39 percent in the changed conditions of the 1970's; perhaps, anything from 40 to 45 percent.

In the first phase of land reform (that is during 1972-74 when 95 percent of the coconut lands was vested), most of the lands vested were handed over to cooperative societies of various types (e.g. Multi-Purpose Co-op. Societies, Electoral Level Cooperatives, etc.) for management. Other ad hoc arrangements (such as AGAs, Agricultural Productivity Committees) were also made for the management of some lands. Most of these organisations lacked any previous experience in plantation management and hence had no plans for maintenance and development of the lands under their management. This phase of land reform was highly politicised in character and in operation, with the M.P.s of the area and other local level politicians having a direct say in the management of vested lands. Productivity could not have been benefited by these arrangements

During the post — 1977 rationalisation phase, management by co-operative institutions was done away with, and most of the bigger estates (over 250 acres in extent) were transferred to the Janata Estate Development Board (JEDB) for management. As at June 1980, the coconut lands managed by the JEDB amounted to 27,300 acres or 23 percent of the total coconut lands vested. (Ministry of Plan Implementation, *Performance* Jan.-June 1980, p. 142). Some more lands are being managed by other state agencies such as the Coconut Cultivation Board, the Coconut Research Institute, the Estate Management Service Section of the Land Reform Commission, and the National Livestock Board. Some lands have been distributed among landless villagers and used for village expansion schemes. Thus one consequence of the land reform was to further increase the number of smallholders and cause a diminution of the estate sector in the coconut industry.

Inter-play of Diverse Interests in the Industry

In any commodity where domestic consumption is important, there is a conflict between the producer and consumer interests. In the case of the coconut industry, however,

there is an interplay of diverse and often conflicting interests which makes decision making a complex task. The divergent interests which have a direct bearing on the operation of the industry may be briefly described as follows:

Consumers: Practically the entire population are consumers of fresh coconut and coconut oil; both items figure prominently in consumer budgets and are an important element in living costs. Consumer interests suggest lower prices.

Producers (Growers): No statistics are available on the number of growers; but the number with a marketable surplus could easily number 200,000 or more. There are no producer organisations (including smallholders) to enhance bargaining power. Producer interests suggest prices high enough to make coconut cultivation a profitable activity (relative to other similar industries).

Processors: Desiccated coconut and coconut oil producers number over 180 and they constitute an important pressure group within the industry. They have their own Associations to further their interests. They purchase raw material from the growers and their interest is not in the level of the price as such but in the price difference between the raw material purchase price and the final product selling price. They would attempt to maximise the price difference by lowering the raw material purchase price or raising the selling price (where this is possible). Hence their interests clash with both growers and the exporters. There is also a clash of interests between DC and oil processors particularly in low crop years when they compete for the limited raw material supplies. Oil millers are sometimes priced out of the market by the DC millers.

Exporters: There are few exporters who are processors as well; but most are purely exporters without processing interests. Their principal concern is also not the level of the price as such but the difference between buying and selling prices. They are organised into Associations and are a powerful pressure group. Their interests would dictate, given the export price (over which they have little or no control), to maximise the profit margin by beating down the purchase price from the processors. Hence the exporters' interests would clash with those of processors directly and growers indirectly.

Livestock Industry: The main feedstock in the livestock industry is poonac, a by-product of the coconut oil milling industry (half a ton of poonac is produced with one ton of oil). The price payable for copra (hence for coconuts) depends on the prices of both oil and poonac. Given the price of oil, the higher the price of poonac, the higher would be the price of copra (and hence the price of coconuts). Hence the grow-

Table 6. LANDS VESTED UNDER LAND REFORM LAWS (In Acres)

| | Lands vested under 1972 legislation | | Lands Vested Under 1975 (Amendment) Legislation | | | | Total | % of Total |
|---------|-------------------------------------|------------|---|------------|-----------------|------------|--------|------------|
| | Total Area | % of Total | Sterling Co. Lands | % of Total | Rupee Co. Lands | % of Total | | |
| Tea | 139354 | 25 | 130474 | 67 | 107118 | 88 | 376946 | 38.4 |
| Rubber | 82563 | 15 | 23404 | 12 | 71431 | 32 | 177398 | 18.1 |
| Coconut | 112523 | 20 | 3695 | 02 | 2711 | 01 | 11829 | 12.1 |
| Other | 228972 | 41 | 37571 | 19 | 41553 | 19 | 808095 | 31.4 |
| Total | 563411 | 100 | 195164 | 100 | 222813 | 100 | 981368 | 100 |

Source: Land Reform Commission

ers' interest would suggest a higher poonac price while the interests of the livestock industry would suggest a lower poonac price.

Government Finances: Export duties on coconut products form an important source of government revenue (contributing 6 percent of the government revenue in 1979). The export duty drives a wedge between the national export price and the net receipt of the exporters and hence keeps the local prices below the international price levels. This is an advantage to the consumer since otherwise consumer prices would be higher. The interests of public finance would suggest higher export levels and duty to raise more revenue for the government. The burden of export duties are finally borne by the grower in the form of lower prices.

Foreign Exchange: From the point of view of foreign exchange earnings, the country must raise the export volume. But attempts to increase exports could clash with the interests of local consumption. Exports and local consumption will compete for the coconut crop unless the crop itself is expanding sufficiently (which has not been the case in Sri Lanka) on the other hand the contrary has happened; otherwise more exports would mean lower availability for local consumption. The interests of exporters as well as foreign exchange resources suggest a higher export level.

The operation of the coconut industry at any given point of time could reflect either some compromise among these various interests or, one or more interests dominating the others. Government policy making has been influenced by various interests at different times. There have been occasions when foreign exchange has received priority over local consumption. At other times the situation has been reversed with local consumption receiving priority. The need to maintain low poonac prices in the interests of the livestock industry has been an important consideration at different times which meant that the coconut producer has to subsidise the livestock producer. Processors and exporters have constantly exerted pressures on the authorities to achieve price policies that suit their interests. Recently there has been a tendency in favour of the grower who has often been the victim of many of the past compromise policies. The subsidised inputs (e.g. fertilizer) have failed to compensate adequately the sacrifice of producer interests to achieve other objectives. Coconut growers being mostly unorganised have the weakest bargaining power and hence their interests could get bypassed by the more powerful interests such as those of processors and consumers. A recent planning document has observed:

"The most important factor that constrained the development programme (of coconut) was the un-

remunerative price of coconuts which was inadequate to leave any surplus for reinvestment. The desire to maintain adequate domestic supplies to protect the consumer has influenced the export policies and duty structure in the past and the producer price has been depressed as a result of these measures." (Ministry of Finance and Planning, *Public Investment: 1980-84*. (July 1980), p. 46.

Past attempts to harmonise the various interests have only resulted in a discrimination against the producer. In the long-run, the ability of each of these interests to obtain enhanced gains will depend on the continued increase in the total crop.

Coconut Product Exports

Practically everything in the coconut palm can be exported in some form or another. The major coconut products of Sri Lanka can be classified into three broad groups:

- (a) Kernel products: copra, oil, desiccated coconut.
- (b) Husk products: coir fibre of varying degrees of processing.
- (c) Shell products: shell flour, charcoal, activated carbon.

Kernel products constitute the main products of the coconut palm, while husk and shell products are regarded as by-products. Apart from these items there are also possibilities of export for coconut ekels, coconut timber, curios made out of coconut shells and timber, coconut seedlings, fresh nuts, and processed products such as glycerine and fatty acids and other chemical and edible products based on coconut oil.

Sri Lanka has succeeded in exploiting export possibilities of the coconut palm more intensively than any other coconut producing countries in the world. The Philippines, the world's largest producer of coconut, has not developed a coir fibre industry and its coconut husks remain largely unutilised.

In the period 1960 to 1980, the share of coconut products in the total export earnings of the country

has varied from a low of 7 percent (in 1980) to a high of about 19 percent (in 1963). Over most years of this period, the share of coconut products in total exports has been around 14 to 15 percent, with a conspicuous decline to levels of 8 to 10 percent in recent years. The foreign exchange earnings from coconut products have been in the range of Rs. 400 million to Rs. 600 million (SDR 50 — 60 million) in most years of the past few decades; with kernel products contributing about 75 to 80 percent of these earnings. The importance of by-products in earnings from coconut exports has shown a clear increase in recent years, which reflect to an extent the declining exports of kernel products and also the rising trend of by-products exports.

In the 1970's an average of about 25 percent of the total export earnings from coconut products came from the export of by-products. An analysis of the behaviour of the by-product exports in the past three decades reveals the following features.

- (i) Unlike in the case of kernel products, a clear rising trend in exports is seen despite the declining trend in the coconut crop.
- (ii) The year-to-year fluctuations in the export volume are considerably smaller as compared with kernel products and these fluctuations are related more to the fluctuations in the export demand than to the supply availabilities for export.
- (iii) A change in the composition of exports in favour of more processed or higher valued items.

Kernel Product Exports

An analysis of the behaviour of kernel product exports during the past three decades (1950-79) reveals two important characteristics:

- (a) Sharp fluctuations in export supplies from year to year; and

Table 7. EXPORT EARNINGS FROM COCONUT PRODUCTS
(Annual Average in SDR Millions)

| | (1) Kernel Products | (2) By-products | (3) Total | (4) 1 as % of 3 | (5) as % of national export earnings |
|---------|---------------------------|--------------------|--------------|--------------------|--|
| 1960-64 | 45.9 | 10.9 | 56.1 | 11.8 | 14.9 |
| 1965-69 | 46.0 | 9.7 | 55.7 | 82.6 | 15.6 |
| 1970-74 | 38.7 | 11.9 | 50.6 | 76.5 | 14.5 |
| 1975-79 | 46.8 | 14.8 | 61.6 | 76.0 | 10.1 |

Note: Owing to the several exchange rate changes that occurred during this period it is not meaningful to compare export earnings of different years in Rupee terms. Hence the international monetary unit SDR has been used to measure changes in export earnings.

(b) A long-term declining trend in export supplies. (Symptomatic of the overall decline in the industry. See Box on page 16).

During the past three decades annual export supplies have varied from a bottom of less than 300 million nut equivalents to a peak of about 1,800 million. The supply of no other export item in Sri Lanka has fluctuated so violently. Taking

much more sharp and violent than the crop variations. A given change in the crop creates an exaggerated impact on the export supplies.

The reason for this is that the domestic consumption (which is relatively price inelastic) absorbs a substantial portion of the crop in a given year and that exports represent the residual or the excess over the domestic consumption. Domes-

tirely taken up by export supplies rather than by domestic consumption changes.

The second important characteristic revealed by the export data of the past three decades is that export supplies which had averaged 1,200-1,300 million nut equivalents per annum during 1950-64, had shown a continuous declining trend in the subsequent period (1965-79). The average annual export level during 1975-79 (at 590 million level) is less than even half that of the 1950's period and the early 1908's. The reasons for the declining trend are fairly obvious; namely, the rise in the domestic consumption with a steady growth in population in the context of a declining coconut crop.

Export supplies which absorbed over 50 percent of the average annual crop in the pre-1965 period had fallen drastically to 34 percent in the latter part of the 60's and further to 27 percent in the decade of the 1970's. By the beginning of the 1980's it was getting close to 15 percent. The number of years when the export supplies went below 700

Table 8. THE PEAK AND BOTTOM EXPORT LEVELS OF EACH DECADE
(In million nut equivalents)

| The Decade | Peak Level | Export (Year) | Bottom Level | Export (Year) |
|------------|------------|---------------|--------------|---------------|
| 1950-59 | 1542 | (1955) | 935 | (1958) |
| 1960-69 | 1929 | (1969) | 905 | (1969) |
| 1970-79 | 1258 | (1972) | 280 | (1977) |

The number of years where the export supplies were

| | Below 700 Million | Between 700-1000 | Between 1000-1300 | Over 1300 Million* |
|---------|-------------------|------------------|-------------------|--------------------|
| 1950-59 | Nil | 2 | 5 | 3 |
| 1960-69 | Nil | 3 | 4 | 3 |
| 1970-79 | 5 | 3 | 2 | Nil |

* Nut equivalents

each decade separately, the bottom and peak export levels and the number of years in which export levels remained within various ranges are given in table 8 above.

The above figures clearly demonstrate the cyclical phenomena that characterise kernel product exports. Whether measured from bottom to bottom or from peak to peak, an 8 to 10 year cycle can be clearly seen (1955-64-72, 1958-69-77). During this 30-year period, export supplies have risen above the 1,300 million (nut equivalent) level in six years and gone below the 700 million level in five years. In eleven years they have been in the range 1,000-1300 million and in the balance eight years in the range of 700-1,000 million.

These sharp fluctuations in export supplies are an outcome of two factors namely (a) high fluctuations in the coconut crop from year to year and (b) the fact that exports represent the residual or the excess over domestic consumption. The estimated coconut crop in the last 30 year period has varied from a low of about 1,800 million nuts to a high of nearly 3,000 million nuts. While in good crop years, the crop rises above 2,500 million nuts (which was the case in 10 years); in bad crop years the crop drops below about 2,200 million nuts (which was the case in 7 years).

These crop variations are primarily a result of natural factors, — rainfall and other climatic factors. Export supplies have moved up and down along with these crop fluctuations. However, the extent of variations in export supplies has been

tic consumption takes precedence over exports in the utilisation of the coconut crop in a given year. The major component in the domestic consumption is food nuts and, in general, the prices of food nuts is higher than what the export producers could pay to procure nut supplies. In this context, the excess over the domestic consumption (which represents the export supply) would get sharply reduced in a bad crop year and would sharply rise in a good crop year. Almost the entirety of the crop change (rise or fall) will be reflected as a change in export supplies leaving the domestic consumption relatively unchanged. The shocks of crop fluctuations are almost en-

million nut equivalents was as much as three in the 1970's as against none in the two earlier decades. Similarly, while in both previous decades there were two years when the export level rose above the 1,300 million nut equivalent level, there was not a single such year in the 1970's. In the 1970's, both the peak and the bottom levels of the export supply cycle were substantially lower than those of the previous two decades. It is obvious that if these trends continue in the future that export supplies would be totally wiped out in a matter of a few years, since domestic consumption would rise eventually to absorb the entire crop.

Table 9. NUMBER OF YEARS IN EACH DECADE WHEN THE CROP WAS WITHIN VARIOUS RANGES

| Crop Range (Mn nuts) | 1950-59 | 1960-69 | 1970-79 | Total number of years |
|----------------------|---------|---------|---------|-----------------------|
| 2500-3000 | 2 | 6 | 2 | 10 |
| 2200-2500 | 5 | 4 | 4 | 13 |
| 2000-2200 | 2 | Nil | 3 | 5 |
| 1500-2000 | 1 | Nil | 1 | 2 |

Table 10. PRODUCTION AND EXPORT TRENDS
(Five Year Averages)

| | Estimated Production | Export Volume | (2) as % of (1) |
|---------|---------------------------------|---------------|-----------------|
| | Annual Averages in million nuts | | |
| 1950-54 | 2237 | 1244 | 55.6 |
| 1955-59 | 2344 | 1202 | 51.3 |
| 1960-64 | 2644 | 1343 | 50.8 |
| 1966-69 | 2517 | 1053 | 41.8 |
| 1970-74 | 2403 | 808 | 33.6 |
| 1975-79 | 2230 | 612 | 27.4 |

Copra exports which had accounted for about 20 percent of the total export supplies (of kernel products) in the early part of the 1960's with an average annual export volume of about 5,300 metric tons), had fallen to less than one percent of the export supplies by the latter half of the 1970's. The share of coconut oil in the total export supplies had fluctuated between 50 and 60 percent. There was a decline in the average annual export volume from about 80,470 metric tons in the 1960's to 44,208 tons in the 1970's which represents a decline of about 45 percent. The share of desiccated coconut has shown a steady improvement from around 27 percent in the early part of the 1960's to almost 50 percent in the latter part of the 1970's.

What factors caused these changes in the composition of exports of kernel products? The central factor is of course that of declining supply availabilities for export; the country had to choose among various possible export items — what to export and in what quantities? During the decade of the 1970's, when the export supplies dwindled, in many years, the de-

creates adverse consequences for the country's livestock (one ton of coconut oil produces one half-ton of poonac as a by-product). Hence the interests of the oil milling as well as the livestock industries demand the suspension of copra exports in periods when the coconut crop is low. Copra exports, if any, will be confined to superior edible varieties which fetch premium export prices and milling copra will cease to be an export item. When there is a serious shortage of copra for domestic milling, there have been occasions when even the small quantity of edible copra exports (about 1000 tons per annum) is either suspended (1973) or the exported quantity is replaced by an import of an equal amount of milling quality so that the country realizes the price premium available for edible copra without a reduction in the copra supplies available to the domestic oil millers (1974 and 1977).

The next question is why have DC exports received priority over oil exports in the determination of the export product mix? When export supplies are inadequate to maintain both items at high levels, why are oil exports allowed to drop and DC exports given priority? In so far

equivalent of DC was 42—73 percent higher than that of oil. (In 1977 when the oil exports were reduced drastically the premium for DC was as high as 156 percent). Moreover, unlike the oil milling industry, which is only partly an export industry (a substantial portion of the oil production goes into domestic consumption), DC is a fully export-oriented industry. There is virtually no local consumption of DC. Hence, unlike in the case of oil, suspension of DC exports would mean the closure of an entire industry throwing into unemployment a work force of about 6,000 directly engaged in DC processing. Furthermore, there are serious long-term consequences of even a temporary suspension or cut-back in DC exports. Sri Lanka is a major supplier of DC to the world market, and there is competition between Sri Lanka and Philippines (the major producer) in the export field.

In some countries such as UK, Sri Lanka DC is preferred by the consumers because of its better flavour compared with the Philippine DC. Given the fact that the Philippine DC industry has considerable unutilized capacity, Philippine producers would be quick to make up for any short-falls in Sri Lanka exports. If markets are lost to Philippines, it would not be an easy task to recover the lost markets when Sri Lanka's supply position improves. In this situation, the long-term interests of the industry requires the maintenance of DC export supplies to major markets without an interruption. In the case of coconut oil, however, entry into the world market after a suspension of exports is easier since Sri Lanka is a minor supplier in the world market and also coconut oil in any case has to compete with a number of other (substitute) oils and fats to find a market. So long as prices are competitive there is no difficulty in disposing of Sri Lanka's supplies in international markets. There is a further factor which operates to reduce oil exports in times of declining supplies. This is the fact that coconut oil is an important item in the local consumer budget and hence there are strong pressures on the authorities to prevent any sharp rise in the price of oil to the domestic consumers. The usual policy adopted in this kind of situation is to curtail oil exports and through this mechanism raise the supplies available in the local market. (An additional factor is that since coconut oil is an important raw material in the local soap industry, a rise in the domestic price of oil leads to a rise in the price

Table 11. KERNEL PRODUCTS EXPORT VOLUME
(Five Year Average)

| | Export Volume (In M.T.) | | | Relative Shares in Total Kernel Products Exports | | |
|-------------|-------------------------|-------|-------|---|---------|----------|
| | Copra | Oil | D.C. | Copra (%) | Oil (%) | D.C. (%) |
| 1950-54 ... | 30197 | 92394 | 51366 | 12 | 59 | 28 |
| 1955-59 ... | 46970 | 73155 | 56842 | 20 | 47 | 32 |
| 1960-64 ... | 52359 | 90710 | 51748 | 19 | 54 | 27 |
| 1965-69 ... | 23963 | 70229 | 53828 | 11 | 53 | 35 |
| 1970-74 ... | 16071 | 51113 | 46351 | 10 | 51 | 39 |
| 1975-79 ... | 944 | 37384 | 45407 | 1 | 49 | 50 |

isions on the composition of kernel product exports were largely taken by the government and implemented through the Coconut Marketing Board. It appears that a conscious attempt was made by the authorities to prevent any substantial outflow in oil exports.

There are strong economic reasons for suspension of copra exports in times of a poor coconut crop. Copra is the raw material of the domestic oil milling industry; as well as for DC. When there is a shortfall in the coconut crop, the milling industry will be starved of copra supplies and the activity in the milling sector is reduced resulting in unemployment. Moreover, a decline in oil production will reduce the supply of poonac and this

as the livestock industry is concerned, it is the oil exports which are more advantageous since higher oil exports would mean higher oil production and hence a higher supply of poonac. As against this, however, there are a number of factors which weigh heavily in favour of DC exports. As seen in table 12 below, the average export value per nut equivalent of DC exports has been considerably higher than that of oil which makes DC exports relatively more attractive from the point of foreign exchange earning. Even when an allowance is made for poonac losses entailed in DC exports, foreign exchange earning capacity (per nut equivalent) of DC exports remains higher than that of oil. During 1976—79, for example, the average export value of a nut

of soap which is another important consumer item). In this way, consumer interests have played an important role in limiting oil exports in a bad crop situation.

The composition of kernel exports, therefore, is determined by the size of the export surplus which in turn depends on the size of the coconut crop. In a good crop year, when the exportable surplus is high, the export of all three items (copra, DC and oil) can take place without an opportunity cost (without sacrificing the export of another item or the domestic consumption).

The DC industry will find an adequate supply of coconuts to keep the mills in full operation; the oil milling industry could get an adequate supply of copra; and there will also be some copra available for export.

Milling copra exports are a vent for a surplus over and above what the oil millers could normally absorb (which would depress the local price of coconuts if allowed to remain in the domestic market). In a bad crop year, however, a choice has to be made as to what items to export and in what quantities, that is the best possible product-mix for export. The government has decided on this product-mix by balancing the various interests in the coconut industry — the domestic consumer interests, oil milling interests, the livestock industry and the export interests. The experience of the past decade (1970's) has been that in times of declining export sup-

plies, copra exports will be the first to disappear followed by a cut back in oil exports, and DC exports have been allowed to continue without a major decline.

In the case of kernel products, the factor that most limited exports is the supply deficiency rather than any demand limitation. Demand constraints could have been an important factor in the 1950's and 1960's when the export supplies remained relatively high, but this was no longer the case in the 1970's when the supply constraints became all important.

In the case of coconut oil, Sri Lanka was a very minor supplier to the world market in the 1970's. As against the total world export supplies of about 1.5 million tons of coconut oil per year in the 1970's, Sri Lanka's average annual exports were only about 44,000 tons; that is, about 3 percent of the world total. Sri Lanka's position falls into further insignificance when it is noted that today it is no longer possible to treat the market for coconut oil as a separate one independent of the others fats and oils. Today, out of the total world export supplies of oils and fats amounting to about 16-18 million tons, the share of coconut oil is only about 8 percent. These developments have reduced coconut oil to a position of one among many other oils.

The degree of substitutability or interchangeability among these various oils is very high. In the 1950's Sri Lanka's principal markets for coconut oil were Western Europe (UK., Germany, Netherlands and Italy) and Canada. These markets absorbed about 70 percent of the country's exports of coconut oil. Since about the early 1960's this pattern of trade underwent an important change with the entry of China and USSR as major buyers. In some periods such as during 1968-72 the imports by these two countries absorbed about one-half of Sri Lanka's total exports of oil. In the 1970's the principal markets were China, USSR, Canada and West Europe. In addition Pakistan and Bangladesh were also regular importers of fair quantities each year.

Desiccated coconut is an important input in the confectionery industry (chocolates, biscuits and cakes) of the developed countries in Europe and North America. The total world export demand for DC in the 1970's has been in the range of 120,000 to 130,000 tons per year. The total demand has remained somewhat static without signs of any clear growth trend over the years. The attraction of DC as an input in the confectionery industry lies in the fact that it is a cheap filler for various confectionery products in contrast to alternative fillers such as almonds or cashew nuts which are quite expensive. In view of the fact that alternatives to DC are expensive, the demand for DC appears to be somewhat price inelastic. This is illustrated by the fact that although the London Market price of DC has risen by over 400 percent (from £150 to £750 during 1972-77) there was no substantial impact on the total usage and consumption of DC in developed countries.

Sri Lanka and Philippines are the two principal exporters of DC, and of the total world exports, Sri Lanka's share has been around 40 percent while the Philippines holds the balance 60 percent. Philippines has traditionally held a monopolistic position in the US market while Sri Lanka holds the major share of the European market. Sri Lanka has traditionally catered to well over two-thirds of the European market. During 1977-79, however, when Sri Lanka's exports declined (reflecting the bad coconut crop) her share of the total world market as well as the European market fell sharply. Taking advantage

Table 12. AVERAGE EXPORT VALUES OF COCONUT (KERNEL) PRODUCTS

| | Average Exports per metric ton in Rs. | | | Average Export Value per nut equivalent in Rs. | | | D.C. value as % of oil value |
|------|--|-------|-------|---|------|------|---------------------------------|
| | Copra | Oil | D.C. | Copra | Oil | D.C. | |
| 1960 | 1007 | 1414 | 1280 | .20 | .18 | .19 | 106 |
| 1961 | 856 | 1145 | 970 | .17 | .10 | .14 | 100 |
| 1962 | 882 | 1082 | 1120 | .18 | .14 | .17 | 121 |
| 1963 | 896 | 1202 | 1220 | .18 | .15 | .18 | 120 |
| 1964 | 934 | 1286 | 1180 | .16 | .16 | .17 | 106 |
| 1965 | 1166 | 1636 | 1550 | .24 | .20 | .23 | 115 |
| 1966 | 1160 | 1465 | 1320 | .24 | .18 | .19 | 106 |
| 1967 | 1154 | 1293 | 1290 | .23 | .16 | .19 | 119 |
| 1968 | 1560 | 2075 | 2330 | .32 | .25 | .34 | 131 |
| 1969 | 1344 | 1924 | 1690 | .27 | .24 | .25 | 104 |
| 1970 | 1464 | 2005 | 1990 | .30 | .25 | .29 | 116 |
| 1971 | 1377 | 2108 | 1940 | .28 | .26 | .29 | 112 |
| 1972 | 1167 | 1524 | 1600 | .24 | .19 | .24 | 126 |
| 1973 | 1276 | 1465 | 2940 | .26 | .18 | .43 | 239 |
| 1974 | 2234 | 6469 | 5900 | .45 | .81 | .87 | 107 |
| 1975 | 4760 | 3448 | 3250 | .97 | .43 | .48 | 112 |
| 1976 | 5484 | 3101 | 3900 | 1.11 | .39 | .57 | 145 |
| 1977 | 7900 | 4400 | 9620 | 1.60 | .55 | 1.41 | 256 |
| 1978 | 10734 | 10640 | 15930 | 2.18 | 1.33 | 1.30 | 173 |
| 1979 | 15120 | 15590 | 19180 | 3.07 | 1.95 | 2.82 | 145 |
| 1980 | | | | | | | |

Source: Customs Data as reported in Central Bank Annual Reports.

Table 13. SRI LANKA'S SHARE OF THE WORLD D. C. EXPORT TRADE

| | Total World Exports | Sri Lanka's of the World Total % | Total D.C. Exports to Europe (Thousand tons) | Sri Lanka's share of the European Market % |
|------|---------------------|----------------------------------|--|--|
| 1971 | 130 | 42 | 50 | 75 |
| 1972 | 127 | 38 | 60 | 67 |
| 1973 | 118 | 33 | 52 | 63 |
| 1974 | 106 | 40 | 50 | 72 |
| 1975 | 117 | 44 | 52 | 84 |
| 1976 | 127 | 36 | 55 | 70 |
| 1977 | 130 | 24 | 60 | 41 |
| 1978 | 125 | 33 | 55 | 56 |
| 1979 | 125* | 30 | 55 | 50 |

* 1979 figures are estimated

Source: Coconut Marketing Board

of this situation the Philippines was quick to expand her exports to the European market. In 1977 when Sri Lanka's exports to the European market fell substantially, Philippines was able to more than double her exports to this market. In the subsequent two years (1978 and 1979) with the improvement in the export supplies (DC exports rose from about 30,000 tons in 1977 to 40,000 tons in each of the two subsequent years) a part of the market lost to Philippines was recovered. But a fuller recovery requires a further improvement in export supplies. In 1979, Sri Lanka's share of the European market was little more than 50 percent as against a share of well over two-thirds enjoyed by Sri Lanka in earlier years.

Coir Fibre Exports

The coir fibre export volume, on the other hand has shown a clear upward trend in the last three decades. From an annual average of nearly 70,000 tons in the 1950's, the export volume rose to about 84,500 tons in the 1960's and further to about 91,000 tons in the 1970's. Thus at a time when the kernel product exports were declining (as was the case in the 1970's), coir fibre exports have continued at a high and growing level. This situation reflects two factors, namely the existence of a sizeable excess (unutilized) supply capacity in the brown coir fibre industry and a rise in the export demand.

With the petroleum price hike in 1973 the world demand for coir became stronger. The expanded demand was largely for twisted or curled fibre and hence a considerable expansion in twisted fibre exports is seen in recent years.

Coconut Shell Products

Coconut shell exports comprise shell pieces, shell flour, charcoal and activated carbon. Of these charcoal is the major export item with activated carbon gaining importance. Coconut shell charcoal exports became an important export item only in the past two decades. Prior

to 1960, the export volume was minor (below 5,000 tons per year). In the first half of the 1960's the average annual export level rose to about 10,000 tons, and in the 1970's an annual average of about 28,000 tons has been recorded. This change reflects the rising export demand for charcoal in US, Europe and Japan with increasing emphasis placed by these countries on anti-pollution activity. Charcoal is an important purification agent used in various refining and anti-pollution activities. An important development in recent years is the shift to a more processed export namely coconut shell activated carbon, the export of which commenced in 1974. The export volume has expanded from 40 tons in 1974 to 700 tons in 1978. Activated carbon exports are capable of enhancing the export value of charcoal by over 50 percent. As against an export price of Rs. 2000-2500 per ton of charcoal, a ton of activated carbon (equivalent to 3.3 tons of charcoal) fetches export prices in the range of Rs. 11,000 to 12,000.

As in the case of coir fibre, the coconut shell products industry also has a considerable unutilized supply capacity which enabled exports to continue at a high and growing level despite the fall in the coconut crop. Exports utilize only about 25 percent of the total supply of shells in a normal year.

Domestic Consumption

Coconut is an important item in the dietary pattern of the Sri Lankan people. In the 1970's, the domestic consumption (in the form of kernel and oil) absorbed an average of about 70 percent of the coconut crop. In the earlier decades, 1950's and 60's, (when the average annual crop was higher than in the 1970's) the average domestic consumption was about 50 percent of the crop. This characteristic makes the coconut industry quite different from the other two plantation crops which are almost wholly export-oriented, (over 90 percent of the

crop, being exported. Coconuts satisfy some basic food needs of the community. Exports constitute the surplus over and above local consumption. In a bad crop year, this surplus could drop sharply and even get almost completely eliminated; but domestic consumption continues without an interruption.

The domestic consumption of coconut is increasing with population growth and rising income levels. If we assume a population growth of 1.5 percent per annum for the 1980's, and a fixed per capita consumption level of 125 coconuts, the increase in coconut consumption would be in the range of 30 million coconuts per year in the 1980's. Quite obviously, an increase in annual consumption of this magnitude would eventually cause the exportable surplus to disappear altogether unless the coconut production is raised substantially. Productivity improvements through rehabilitation and replanting with high yielding varieties would be the principal methods of raising the production. Meanwhile measures are needed to reduce waste and introduce a measure of efficiency into coconut consumption and to develop substitutes such as soya milk, acceptable to consumers.

Need for Replanting

The acreage under coconut cultivation has been stagnating since the 1930's. Among the many constraining factors is the non availability of suitable land. The history of coconut plantation expansion from the 1870's to the 1920's also suggests that a good extent of land under coconut cultivation now has palms of fair vintage. These features make it imperative that if coconut production is to be increased or for that matter maintained at present levels, systematic programmes of replanting with improved genetical varieties of seedlings are necessary. The first recognition of this need for replanting was made by the Coconut Commission of 1948. Since then the state has shown a continued awareness of the problem and made attempts to encourage and service a replanting programme.

The State with its awareness of the need for replanting, initiated a coconut replanting programme from 1949. The programme mainly consisted of the issue of seedlings at subsidised prices. Since 1955, the Coconut Research Board, the State Institution that handles the issue of seedlings, had issued nearly 32 million seedlings. The Coconut Research Board has maintained about 15 nurseries scattered over different parts of the island.

A criticism of the replanting services provided by the Coconut Research Board in the early years was that location of nurseries served well only the big plantations which had the necessary transport facilities to collect the seedlings and whose seedling requirements were also in bulk and consequently the cost of transport per seedling was low.

The smallholder on the other hand who required only a few seedlings at a time found it irksome and transport costs exorbitant to collect the seedlings from the distant nurseries. In the 1970's the Coconut Development Authority and the Coconut Research Board recognised this difficulty and set about to decentralise the nurseries in order to bring the source of distribution closer to the smallholder. These nurseries with about a 5,000 plants capacity were installed in about 35 Agriculture Productivity Centres in the coconut growing areas under the guidance of the Coconut Research Board. The C.R.B. supplied seed nuts at a 50 percent subsidy to these centres and also bore the cost of transporting them to the centres. There were another 75 APCs willing to establish nurseries, but due to the shortage of seed nuts and lack of transport facilities it was not possible to bring them into the re-planting programme. Even the limited programme with the 35 APCs came to a premature end when with the reorganization of the APC centres they ceased to run the nurseries. Consequently the Coconut Cultivation Board established few nurseries at regional level. With the increased transport costs transporting seed nuts to these nurseries, scattered in various parts of the island, has become prohibitive. Thus at present if decentralisation is to be continued effectively suitable nuts as seed material should be obtained in the vicinity of the nurseries to reduce or eliminate the rising transport costs.

Fertilizer Needs and Practices

The replanting programme that had taken place in the past does not adequately compensate for the loss of palms due to senility and other causes. While this may have affected the production trends, it does not wholly explain the striking drop of production in the 1970's. This has been variably attributed to climatic changes, decline in fertilizer application, lack of remunerative price for the producer; dislocation caused by Land Reform and also the loss of palms due to senility and other causes. Among these factors affecting production climatic factors and fertilizer application appear crucial.

The frequency and the intensity of droughts have increased in re-

cent years. The drought adversely affects the fertilizer practice and retards the replanting programme, so that in addition to the shortfall in current production, a drought seriously affects production in the ensuing years as well. The cumulative effect of the past droughts could be considered a major contributory factor to the persistent decline in production in recent years. The reduced rainfall, particularly during the south-west monsoon, is not an isolated phenomena of a few erratic years; it is a new emerging pattern in rainfall, and thus a factor to be taken into account. The average production during the period 1973/77 had been less than 2,200 million nuts, compared to an average production of over 2,500 million nuts in the previous five year period.

The application of fertilizer has declined since 1971, and there seems to exist a strong co-relation between the decline in the application of fertilizer and the decline in production.

Cultural Practices

Another course of action that can be taken to improve productivity is the adoption of cultural practices. Among cultural practices recommended for coconut plantations are moisture and soil conservation techniques such as husk burying; husk mulching; establishment of contour drains; weeding; drains for removing water logging; establishment of terraces and bunds; pest and disease control; cover-cropping, ploughing etc. Practices such as cover cropping and ploughing are not very relevant in Sri Lanka, while stone terraces and bunds are important only in terrain with slopes to prevent soil erosion.

Inter Cropping

Equally important in any effort to maximise income generation from coconut lands is the introduction of suitable intercropping with coconut. At the national level the case for intercropping gains added importance because of two factors. Firstly, coconut occupies 29 percent of the cultivated land in this country, and indeed ranks next to paddy in land use. Yet it contributes less to the national economy, relative to other plantation crops. Secondly, labour use of coconut plantations is very low when compared to tea and rubber, and provides the least employment opportunities when compared to tea and rubber. Tea requires about 2.2 labour units per acre and rubber about one unit per acre per year, whereas in the case of coconut, one acre requires 1/10 of a labour unit per acre. Thus a vast potential exists in intensify-

ing the land use in coconut, generating higher income and for providing more employment in the sector.

Intercropping appears to be the appropriate method to attempt this. Inter-crops such as banana, ginger, turmeric and betel were the traditional crops grown in coconut small holdings. Recently passion fruit and pine-apple too have become popular for inter cropping with coconut on a larger scale. Some sort of animal husbandry had also been practised with coconut. But there is scope for practising intercropping and animal husbandry on a larger scale than is done now.

Irrigation Necessary

All this suggests that a fundamental change in the concept of coconut cultivation is essential if the full potential of the coconut lands were to be realised. At present there is a wide variation in the yield per acre, ranging from about 1,800 nuts from unfertilized land to about 5,000-6,000 from well managed lands an ideal soil and moisture conditions. Our objective should be to raise the average yield per acre to above 4,000 nuts. To achieve this goal we would have to explore the new concept of growing coconut under irrigated conditions.

It is only under irrigated conditions that the full benefits of fertilized application could be realised. Moreover, the fertilizer could be applied in split doses instead of the present practice of applying it only once during the year. Smaller doses of fertilizer applied at reduced intervals will prevent leaching and maintain the nutrient concentration of the soil at a higher level. With more frequent application, the efficiency of utilization will increase, and the benefits will be distributed more evenly between the bunches.

The full potential of the genetic improvements too could be realised under irrigated conditions. Hybrids are capable of yielding at least 8,000 nuts per acre under intensive care and in conditions free of moisture stress. At present, the hybrids would only be grown in a limited area in the wet zone, where these conditions can be met.

A further benefit is the possibility of growing intercrops under coconut on a more extensive scale than is practised now. At present intercrops can only be grown under coconut if there is no moisture or nutrient competition. Obviously maximising land use and optimum income per acre is greater under irrigated farming.

MAJOR ISSUES AND FUTURE POSSIBILITIES

The distinguishing feature of the coconut industry is the predominance of the smallholder. Another important feature is the inter-play of adverse and often conflicting interests which has rendered decision making in the coconut industry a complex task. Generally, the interests of the domestic consumer have figured prominently; while other interests such as those of government finance (export duties), processors (oil and DC millers) the trade (buyers and shippers) and the livestock industry have all exerted pressures to influence government policy in the coconut industry. In the attempt to balance or harmonise these divergent interests, the growers' interests have often suffered in that a remunerative price level for coconut producers has failed to emerge.

Subsidised inputs (such as fertilizer) have failed to compensate the producer for lack of a remunerative price. Of the three plantation crops, coconuts yield the lowest return per acre. The incentives available have not proved attractive for the growers to maintain the coconut lands in a manner that ensures high productivity. The result has been a long-run stagnation, if not decline, in the country's output.

In the decade of the 1970's, the coconut output in most years was below the historical average of 2,500 million nuts; only in two years did it rise above this average level. The export volume fell drastically in many years and by 1980 had reached a record low of 242 million nut equivalents. The average annual export volume which was over 1,200 million nut equivalents in the 1950's and upto mid-1960's, had fallen to less than half this level in the second half of the 1970's. A long-run stagnation, if not a steady decline, has set in in production trends. A continuation of these trends would not only wipe out what remains of the export supplies but also carries the danger of reduced per capita supply for domestic consumption.

Declining production has been the result of a number of factors some of which are of a short term character and others longer in operation.

Adverse weather (drought) was an important factor in the production decline of several years in the 1970's. Apart from the direct effects of reducing the crop, adverse weather also led to lower fertilizer application. Uncertainty and dislocations in management caused by Land Reform was a further factor in the reduced fertilizer application, and neglect of maintenance of a part of the coconut lands; namely the estate sector. Escalating fertilizer prices after the petroleum price hikes of

1973 and reduction of producer incomes (as a result of the poor harvests) were other factors that led to a drop in fertilizer use from an annual average of over 60,000 tons during 1968-71, to an average of 27,000 tons during 1972-77. Replanting which averaged about 25,000 acres per annum during 1968-71, also dropped to around 15,000 acres during 1972-75. Absence of a remunerative price and hence the relatively poor returns was the central underlying factor in the long-term neglect of productivity. These factors bring into sharp focus the urgent need for the rehabilitation of the coconut industry through a package of measures.

A Rehabilitation Package

One principal element in the rehabilitation package should undoubtedly be a remunerative price for the coconut grower. The concept of a remunerative price has to be based on coconut growing as a monoculture; intercropping could serve as an additional method to enhance producer incomes. According to the calculations made in the recent People's Bank study, the average cost of production in an acre of coconut land which uses the recommended agricultural practices and inputs amounts to nearly Rs. 1,200 per year (at 1980 prices). In order to earn a rate of return of around 20 percent on the capital value of the land (a rate almost equivalent to the current interest rate on savings), the producer must realize a price of Rs. 1,600 per 1000 coconuts. A producer price of Rs. 16 — would mean a market price in the range of Rs. 1,800—Rs. 2,000 per 1000 nuts. The wholesale market price of coconuts has moved up successively from around Rs. 600 per 1000 nuts in 1977 to Rs. 1,200 — Rs. 1,300 in 1980. This price level is still inadequate to yield a remunerative return for the coconut grower.

Fertilizer and cultural practices are two other important elements in a package to rehabilitate the coconut industry. Fertilizer use bottomed out in 1977 but thereafter a recovery is observed. However, not more than 220,000 acres or 20 percent of the total coconut lands had ever been fertilized and this too is mainly the estate sector. The practice of fertilizer application among smallholders is extremely low. A remunerative price for coconut is crucial to provide an incentive for fertilizer use. Even at the subsidised prices, fertilizer accounts for about one-third of the average cost of production in an acre of coconut (at the recommended dose of 4 kg. of fertilizer per palm per annum). Available studies have clearly established that high returns are available from fertilizer application. The annual yield can rise well over 4,000 nuts per acre in well maintained

Declining Trends

The export of poonac had been banned since 1966 in order to provide for the needs of the livestock industry and the export of commercial grade copra had been banned since 1973, because of the short fall in the supply.

The coconut oil industry works at considerable under-capacity. The utilised capacity of the oil milling industry in 1979 was only 35 percent. In 1978, for example, of the total of 57 mills registered with the Coconut Processing Board, only 42 mills worked throughout the year.

The major constraint to modernisation of the oil mills is the shortage of copra which prevents mills from working up-to capacity. About half of the country's oil production comes from small mills with 1 to 4 ton capacity, low pressure expellers. It would be uneconomic for these small mills to invest in high pressure expellers, because of the inability to work at full capacity. Hence in the small mills, the room for improvement is very limited.

Almost 95 percent of the mills are located in the coconut triangle. The distribution of the total production among the districts has varied in proportion to the number of mills in that district. In 1978 only about 4 percent of the mills produced over 1000 metric tons. There is marked variation in the production of mills, which shows that they operate at under-capacity, and are capable of expanding production during favourable years. Another marked feature in the industry is that there has been a decline in the number of mills in operation. There had been 86 mills registered with the Ceylon Coconut Board in 1971, of which 9 mills were not in operation in that year. By 1976, the number of operating mills declined to 67 and these continue their operations to date. Almost all the mills are over 50 years old, and few items of equipment have been replaced within the past 20 years. Most of the equipment has been financially written off, which gives the operators a cost advantage but has the operational disadvantage of frequent breakdowns and difficulties in obtaining spare parts.

and fertilized lands (as against the national average of below 2,000 nuts in recent years) and at such productivity levels the fertilizer cost would amount to less than 10 per cent of the price of nuts (1980 prices). However, fertilizer application needs to be maintained consistently year after year if the best returns are to be obtained.

The additional exportable surplus that would accrue from increased production resulting from fertilizer application could well compensate the foreign exchange cost of the fertilizer. Prospects for increasing the coconut crop in the short and medium term lie largely in enhanced fertilizer use, even at a lower dose than the recommended. This would inevitably mean an extension of the fertilizer practice to the smallholder sector by improving distributional facilities and extension work at the grass roots level.

Some important cultural practices recommended for coconut lands are moisture and soil conservation techniques such as husk burying, establishment of contour drains and drains for removing water logging, establishment of terraces and bunds, weeding, pest and disease control, ploughing and thinning of excess palms. Surveys conducted in various districts have revealed the scant attention paid, by smallholders in particular, to such cultural practices. Adoption of more intensive cultural practices would open up more employment avenues in the coconut industry and hence increase the labour intensity of the industry. Given the incentives in the form of a remunerative price, such practices can be promoted by widespread advisory and extension services and the organisation of smallholders for this purpose.

In many years of the 1970's, the coconut crop has been severely affected by the drought. The drought, in addition to its direct effect in reducing current production, adversely affects future production by reducing fertilizer use and by retarding replanting. The frequency and intensity of droughts have increased in recent years. The reduced rainfall, particularly during the S.W. monsoon, is not an isolated phenomenon. It is a new emerging pattern in the rainfall over the country and thus becomes an important factor to be taken into consideration in planning for the development of the coconut industry. Persistence of droughts requires some rethinking on the traditional concept of coconut cultivation and we may thus have to accept a new concept of coconut cultivation under irrigated conditions. The economics of coconut under irrigation has yet to be studied. Irrigating coconut would involve ground water surveys, deep well dig-

ging and major diversion schemes which involve a considerable amount of capital. No serious analysis has so far been done on this aspect of coconut cultivation.

Areas of Prime Concern

In the long-term, the development of the coconut industry requires extensive replanting of the existing low-productive coconut lands with high-yielding varieties. The economic life of a coconut palm is not clearly established but it is generally believed that senility sets in after about 60-70 years. So far, the hybrid seedlings developed by the Coconut Research Institute are suitable for use only in certain agro-climatic zones accounting for less than one-fourth of the coconut land area in the country. On an average about 2,000 nuts more per acre could be realized from hybrids and the considerable potential for increased output available from replanting with hybrids is clear. Calculations made in the Bank's study show that replanting with hybrids and progressive removal of old palms results in substantial economic returns. In addition to the estates, a potential area of replanting with hybrids is the homegardens in the wet zone since the plants can be well looked after and even watered during drought periods.

Some potential for expansion of coconut cultivation into new lands exists in the Mahaveli Project area, mainly as a homegarden crop. It may be noted that five or six trees are sufficient to meet the coconut requirements of a family for food purposes. Encouraging home garden cultivation is an important method of maintaining the marketable surplus of the estate sector for exports.

In view of the dominant position occupied by the small holder, the future development of the coconut industry requires that the smallholder play a dynamic role in raising coconut output. Hitherto the smallholder had remained largely unresponsive to numerous policy measures introduced by the government. In short, government policies have failed to reach the small producer. The productivity of smallholdings remains low; fertilizer use and cultural practices have not spread into smallholdings; replanting has not made much headway; and the small producer continues to receive low prices given his dependence on the middlemen-traders.

Producer exploitation is a marked feature of the smallholder coconut sector. Smallholders are caught in a vicious circle of low producer prices and low productivity. An important question confronting the coconut industry is: how can this vicious circle be broken? The answer has to be sought in mobilising the small producers to organise them-

selves in order that they may raise their bargaining strength. An organised group is in a better position to break the dependency links with middlemen-traders and obtain enhanced prices for the produce of its members. Moreover an organised group has a better receiving capacity to benefit from various services and facilities offered by the government to the coconut producers.

Maximising the returns from coconut lands requires not only application of fertilizer, intensive cultural practices, and genetic improvement, but also intensive use of land by diversified farming; that is, by inter-cropping and animal husbandry. Some intercropping and animal husbandry has been traditionally practised under coconut, particularly by smallholders. But the potential available for diversified farming has not been exploited. For successful performance of intercropping it is necessary that there is no moisture competition or nutrient competition between coconut and inter-crops and that the intercrop receives adequate sunlight. In addition to the agronomic factors, there are a number of socio-economic constraints to intercropping such as price instability, marketing problems, lack of initial capital and organisational problems. For a successful intercropping programme, an efficient service organisation for the supply of inputs, purchase of produce at guaranteed prices, and a credit support scheme are essential pre-conditions. Calculations presented in the Bank's study show that perennials (eg. bananas, pineapple, papaw, etc.) yield higher margins compared with annuals (such as yams, ginger etc.) but would require a higher initial capital investment. Combination of pasture farming and cattle rearing is another promising variant of mixed farming under coconut. If coconut lands are capable of multiple uses, then the social costs and benefits of various alternative possibilities (intercrops and animal husbandry) need to be calculated in order to decide on the optimal land utilisation.

Coconut oil and desiccated coconut are the principal processed products of the coconut industry. While the oil industry caters to both domestic and export markets, the DC industry is a fully export-oriented one. In recent years, the principal constraint confronting these two industries has been the raw material supply situation. The declining coconut crop and the resulting raw material shortages has created a situation where the majority of oil and DC mills operate at low capacity levels and the reinvestments in these industries has also remained low. The utilised capacity of the oil milling industry in 1979 was

Coconut Export Duty

The duty structure for coconut exports has governed the price of coconut in the local market and influenced the margin of profit of both producer and trader. There is no doubt that the coconut industry has been a highly taxed sector in the economy and various interests in the coconut industry have brought pressures for an adjustment of the duty structure.

An important determinant of the local market prices (and hence producer prices) of coconut products is the export duty system. A sliding scale of export duties, with periodical revisions, had been in operation since 1962. This duty system was at first based on the price of Singapore coconut oil in the London Market, and later in 1964 the basis of duty computation was shifted to the price of Philippine copra in the London Market. The objective of using a foreign price (rather than the actual f.o.b. export price realized by exporters) was to prevent the local exporters from manipulating the export prices to pay lower export duties. With the setting up of the Coconut Marketing Board in 1972, this rationale no longer existed as the Board required the exporters to obtain prices at least equal to the minimum levels daily declared by it. Accordingly, an export duty structure based on the actual f.o.b. export prices fetched by the exporters was devised and implemented effective from June 1975. However, in November of the same year (1975) the government decided to abolish the export duties on coconut kernel products and instead an administrative levy was made operative on desiccated coconut exports in order to absorb a portion of the high profit margins realized by exporters. This was channelled to a Coconut Development Fund. With the devaluation of the Rupee in November 1977, it became necessary to reintroduce the export duty system in order to siphon off a portion of the higher rupee incomes that resulted from the devaluation. Accordingly, a 60 percent duty on the f.o.b. value was levied on desiccated coconut exports and the Coconut Marketing Board continued to collect an administrative levy on coconut oil exports. These were adhoc measures pending a fundamental change in the export duty system in August 1978.

In 1979, the export duty revenue (including the administrative levy) amounted to Rs. 720 million constituting some 55 per cent of the export value of kernel products. The export duty per nut equivalent of exports amounted to Rs. 1.34. Thus the export duty system has served to keep the local prices below the international market levels by a substantial margin. Local prices could, however, go above the international levels in periods of scarce supplies. But in a normal supply situation, the export duty system creates a depressing effect on local prices. The question may be asked: how much of the export duty revenue goes back to the coconut industry by way of government expenditure on subsidies and other development activity in the coconut industry? In other words, how much of the export duty revenue is ploughed back to the coconut industry? In 1979, the total contribution by the government from the Consolidated Fund to the coconut sector was nearly Rs. 30 million. When the fertilizer subsidy for the coconut industry is also added this figure would rise to about Rs. 90 million. This amount is equivalent to 12.6 percent of the total export duty revenue in 1979. For 1980, the contribution to the coconut sector from the Consolidated Fund will be about Rs. 60 million, and when the fertilizer subsidy is added, the total government contribution to the coconut industry amounts to about Rs. 120 million. This amount would equal about 17 percent of the anticipated government revenue from coconut export duties in 1980. These figures clearly show that the coconut industry is a highly taxed sector in the economy.

In view of the pressures from the growers, processors and trade, the government has now appointed an official committee to evaluate the present export duty structure on coconut products and to recommend an alternative duty structure.

The objective of this Committee's task will be to frame a duty structure that will permit our coconut products to freely and effectively compete with products of other producers in the world market; to help to provide a remunerative price to producers and maximise coconut production locally; to include a built-in incentive to value added products; and to ensure a reasonable margin to processors and shippers.

estimated at 35 percent; while in the DC industry it was 44 percent. Hence there does not seem to be a need for an increase in the overall capacity of the processing industries. The problem rather is the inadequate supplies of raw material, reflecting the poor coconut crop. In the case of the DC industry there is a need to modernise the majority of the existing mills in order to improve the quality of the product. This is vital if Sri Lanka is to maintain her competitiveness and hold in world markets.

Coir fibre products and coconut shell products are the principal by-products of the coconut industry, and both are important export items. The market for the former has suffered a severe setback in recent months. In the case of both, however, their future development lies mainly in increasing the value-added locally; that is, exporting products with a higher processing content. Activated carbon in place of coconut shell charcoal, and brushes and carpets in place of coir fibre are examples of developments that have already taken place in this direction.

State policy on the coconut industry in the last three decades reflects a mediating role in the network of interests that operate within the coconut industry, though the political economy of the country has made such policy give greater weightage to consumer interests. The export duty system is symptomatic of the underlying factors that influence state policy. (See Box). State policy, however, in the coming years will have to take increasing cognizance of the need to arrest the declining trend in production and exports. If the oil and DC production trends or kernel products export trends for the first quarter of this year are an indication of the state of the industry (as the tables below show) the current situation can give cause for alarm.

COCONUT OIL AND DC PRODUCTION JANUARY - MARCH (In metric tonnes)

| Year | Coconut Oil | Desiccated Coconut |
|------|-------------|--------------------|
| 1977 | 10,211 | 8,719 |
| 1978 | 13,253 | 5,796 |
| 1979 | 8,467 | 7,895 |
| 1980 | 10,214 | 4,677 |
| 1981 | 7,086 | 3,950 |

EXPORT OF COCONUT (KERNEL) PRODUCTS JANUARY - MARCH

| Year | Volume | Value |
|------|--------------------|-------------|
| | Mn. nut equivalent | Rs. Million |
| 1977 | 69.96 | 80.0 |
| 1978 | 93.84 | 172.3 |
| 1979 | 90.03 | 203.9 |
| 1980 | 50.08 | 146.6 |
| 1981 | 28.71 | 93.0 |

Source: Marketing Division, Coconut Development Authority.