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A POLICY FRAMEWORK FOR REVITALISATION OF COIR INDUSTRY IN KERALA

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[The origin of the present paper was a discussion note that we had prepared for Coir Workers Centre. We have benefited from a series of discussions with the trade union activities for which the above note formed the basis. Meanwhile the State Planning Board had appointed a Special Task Force on the Coir Industry in which one of the authors was actively involved. We have freely drawn from the deliberations in the committee. The comparative data on technological alternatives is largely on the basis of the evidences collected by the committee. The recommendations of the committee broadly concur with the approach adopted in this paper. While acknowledging our deep debt to the trade union activists and the members of the Special Task Force on the coir industry we wish to state that all errors of commission and omission and the rationale of the revitalization scheme that we have put forth is solely our responsibility.]

Section I

THE CRISIS AND THE POLICY STALEMATE

The coir industry, the source of employment to a quarter to half a million of Kerala's rural workers in the coastal belt, has been an arena of passionate and violent debates and actions. Underlying these fierce struggles have been two issues: the implementation of minimum wages and the choice of technology. The workforce drawn from the poorest of Kerala's poor have been the seed bed of militant trade unionism and collective efforts to improve the wages and labour conditions. The industrial response to these efforts have been two fold:

(a) to circumvent the organised worker's movement through fragmentation of the production units and informalisation of production and

(b) to reorganise the industry and to restructure the workforce on the basis of machine technology.

Given the low level of value addition in the industry, echanisation in order to increase the productivity has been held ut to be inevitable if the demand for higher wages is to be et. The trade unions, on the other hand, have always emphasised he paramount importance of protecting employment and, therefore, ave consistently opposed any move for mechanisation. Co- erative reorganisation of the industry and elimination of the merous middle men have been proposed by them as the path to sure a fair return to the workers at the existing level of oductivity.

Choice of Technology: The debate

The mechanisation school had no popular support in Kerala but had strong advocates amongst the policy makers both in the Commodity Board of the industry and the planning authorities. A formidable list of official and semi official studies (IIFT,1971; Planning Commission, 1973; State Planning Board, Kerala, 1973; Nair M.N.V., 1977; Pylee M.V., 1975 and UNDP, 1975) have vigorously advocated a comprehensive reorganisation of the industry on modern technological basis. Mechanisation has been held out as the key to reverse the decline in export demand, end the chaos in the raw material market and to usher in a new era of expansion of the industry. It has been held that mechanisation is necessary for the reduction in the cost of production, the diversification of output, the improvement in the quality of products, the expansion of industrial utilisation of husks, and finally, the improvement of working conditions of the labourers. It has been argued that the crisis faced by the European powerloom industry from the 'seventies and its willingness to transfer the advanced technology to the third world makes it an opportune time to plan for the mechanisation of the coir industry in Kerala. Failure to respond to this favourable opportunity for mechanisation, it has been warned, would result in the transfer of advanced technology to other countries with coir potential to the detriment of the coir industry in Kerala.

It is unfortunate that the protagonists of mechanisation have generally been insensitive to the basic macroeconomic

functio that the traditional industries pla in the regional economyof Kerala. Unlike the rest of India, only around half the workforce in the state of Kerala is employed in agriculture. There are severe constraints in increasing the labour absorption capacity of agriculture in Kerala. Therefore, unlike in other parts of India, it has been the traditional industries like coir that mainly played the role of residual employment sector accommodating the surplus population. This basic characteristic of the local economy has not been given any consideration in the pronouncements of the mechanisation schemes.

The large scale displacement of workers that mechanisation would cause have forced the powerful trade unions to oppose the moves for mechanisation. It has been forcibly argued that mechanisation would not result in any significant reduction in the cost of production compared to the manual process and that it is not necessary for improvement of quality or diversification of products. The techniques developed in the west are not appropriate to the factor proportions of the regional economy of Kerala. Each of the arguments in favour of mechanisation was countered with facts and figures (Thomas Issac T.M.and Parameswaran *M.P., 1985). The opposition from the trade union* movement and the grave rural unrest generated by the mechanisation forced the government to severely restrict the introduction of machinery in defibreing and weaving and to rule out experiments to mechanise the spinning of coir yarn. Surprisingly, the opposition to mechanisation received support from an unexpected quarter - the Central Planning Commission. A High Level Study Team of the Planning Commission virtually

endorsed the positions of the trade unions on the choice of technology (Sivaraman B., 1978).

The paradox of Kerala's development is that the trade unions, which were highly successfull in their efforts to increase the wages and improve the labour conditions, have to that extent also undermined the traditional structures that enabled these industries to play the role of residual employment sector. The wage rates in coir industry were less than the subsistence minimum required for the reproduction of labour power. But workers had continued to toil for this pittance, much lower than the marginal product, as any increment to their household income was a positive contribution against starvation. It may be considered akin to the situation of the self employed marginal farmer in Indian agriculture who continues to cultivate the land with increasing intensity as long as the return from the land remains positive. With the emergence of organised workers movement and minimum wages legislation the possibility of labour absorbtion at wage rate below the marginal product disappeared. Even the capitalist strategy of industrial involution as manifested in the tendency towards increased informalisation of the production structures has not been very successful (Thomas Isaac T.M. 1984). Thus the surplus population has ceased to be a guarantee for cheap labour. However, the response of the employers to reorganise production on a higher technological basis could not be socially accepted because of the surplus population and the high level of unemployment.

Development Schemes in the Past

Given the above situation the broad contours of the policies for the industrial development, that have been adopted in the successive five year plans, have broadly followed the approach advocated by the trade unions. The cooperative reorganisation of the industry has been accepted as the social framework for the channelisation of plan efforts. Besides the various direct financial support measures to the cooperatives, there have also been a number of important government interventions in the raw material and the product markets with the objective of making cooperative production viable, gurantee ing minimum wages to the workers and improving the quality of products. We shall not attempt any detailed critical examination of the past developmental schemes which have proved inadequate in practice and at times even misconceived.

They were often overtaken by the course of events such as dramatic shifts in the international demand, decentralisation of production structure, changes in the raw material market, emergemce of coir industry in other states and so on. Further in retrospect it seems that

(a) the funds provided for the implementation of the schemes were inadequate for the tasks set;

(b) many of the measure like the controls on the husk market were undertaken half-heartedly without adequate administrative back up, or without closely studying the complexities involved and

(c) worse still, many of the well meaning statements on product diversification or promotion of internal markets were

never actually followed up in action.

As a result, despite the various schemes the crisis in the industry has continued to aggravate. The coir workers continue to be the poorest of Kerala's poor facing severe underemployment and receiving not even the minimum wages legislated. The industry remains disorganised with more than three fourth of the production taking place in the unorganised sector. Product diversification has been an illusion. The foreign exports have drastically declined and the expansion of internal markets have failed to compensate for the reduction in the former. The periodic market gluts have become more severe. The production of coir in Kerala, which had been stagnating since the late 'sixties, has begun to decline in the 'eighties. The underemployment of the workers has worsened. They do not receive the minimum wages legislated. Even the cooperatives do not pay the minimum wage but only an agreed wage. Given the limitations of the possibilities of interventions in the raw material and product markets it has become evident that even within the cooperatives higher wages cannot be ensured without increasing the productivity. But the 'eighties have seen no new policy initiatives and the situation in the industry has continued to drift and ad hoc measures have become the rule of the day.

Changes in the Labour market

The present scheme is a package of proposals to break out of the above stalemate that the coir industrial development has been caught in the last one and a half decades. We have been

encouraged to take a fresh look at the issue of technological choice in the industry given the changes that have been becoming evident in the labour market of Kerala during the recent years. The increase in the educational level of the labour force has resulted in higher job expectations and decline in the supply of workforce to some of the traditional manual occupations. The most visible sign of these changes has been the migrant labourers from the neighboring states working in many of the relatively ill paid and burdensome occupations. Further, many of the coir production centres have also been beneficiaries of foreign remittance boom in Kerala. Our field enquiries reveal that at least in certain pockets, there is scarcity of labour for traditional coir work. The relative labour scarcity certainly has regional dimensions and cannot be generalised for the state as a whole. But still the above changes has emboldened us to think in terms of intermediate technologies in the coir industry that would not create severe displacement of labour but at the same time significantly reduce the drudgery of work and improve the quality of the products.

The external Threat

The growing threat to Kerala's traditional industry from the mechanised coir industry outside the state has added a sense of urgency to our proposals in this regard. The external threat to Kerala's monopoly in coir has been a bogey that has been raised from the 1920s (Government of Travancore 1934). But such threats never materialised. The growth of the industry outside Kerala was by and large complementary in nature. Kerala's

production has always been entirely white fibre extracted from coconut husks retted in brackish backwaters. The coir produced in the other regions has been mostly brown fibre from dry husks. The latter, dark in colour, brittle and springy, cannot be normally spun into yarn but is used for upholsteries, filters and other industrial purposes. The white and brown fibre have very distinct properties and end uses. The demand for brown fibre has been rising relatively faster than that of white fibre. But Kerala's monopoly over white fibre production has never been really threatened. The market has always accepted white fibre to be superior to brown fibre in colour, durability and flexibility.

The above secure situation is rapidly changing in the face of a simple product innovation. The coir fibre is being mechanically extracted not only from the dry husks as in the past but also from the raw husks. These latter fibers from the raw husks, is hardly distinguishable from retted husks fibre of Kerala in appearance at the time of extraction. In certain respects they can even claim superiority: the raw husk fibre has uniform colour while the colour of retted husks tends to vary with retting practices and ecological factors. The uniformity of colour would facilitate considerable saving of sorting charges to the manufacturers of coir products. However, the raw husk fibre upon exposure to air and light, tends to loose its golden colour and darken like the brown fibre over time. Its durability and flexibility is also reduced. But it has been opined that this deterioration can be prevented or significantly postponed if the raw husk fibre is soaked in water for a period immediately after it is extracted so that the tannin on the fibre is washed away.

The initial flexibility of raw husk fibre facilitates its conversion into yarn. And as we noted the yarn so made can hardly be distinguished from the retted husk fibre yarn. The most important aspect to be remembered in this context is that the cost of production of raw husk fibre yarn would be significantly lower than the traditional white fibre yarn because the entire cost of retting is avoided in the former process. Needless to explain, Kerala's white fibre yarn would find it extremely difficult to compete in the market. Going by the traditional wisdom, retted husk fibre should be superior to the raw husk fibre in terms of tensile strength, length of fibre, flexibility and durability. Therefore there would always be a certain specific demand for the retted husk fibre yarn whenever durability is an important criterion for the choice of hard fibre. But in the major segments of the yarn market, consisting of packaging and agricultural sectors, price rather than durability would be the main consideration. Even the coir weaving industry may opt for the cheaper raw husk fibre yarn for certain varieties of products. Further it may also be noted that the lower tensile strength disadvantage of raw husk fibre may be neutralised by improving the quality of yarn through mechanisation of the spinning.

Kerala's position in the market, both international and national, is being seriously threatened. In the international market Sri Lanka has been steadily displacing yarn from Kerala in the recent years. While Kerala's share in the world trade of coir yarn had declined from 90 per cent at the end of 1970's to 72 per cent in 1988, Sri Lanka has increased its share from less than 10

per cent to more than 25 per cent during the same period. Sri Lanka has been helped not only by the relative cheapness of its product but also by the uniform quality of its machine spun yarn.

Within the national market the potential threat from Tamil Nadu is looming at large. Mechanised fibre production centers like Pollachi has been rapidly expanding. For the present, the raw husk fibre production in Tamil Nadu has been catering to the fibre requirements of Kerala's spinning sector. In 1989-90, at least 10,000 tonnes of coir fibre has been transported from Tamil Nadu into Kerala. This fibre produced at less than Rs.200 per quintal is being sold in Kerala at around the same price as the retted husk fibre viz. Rs.500 to Rs.550 per quintal. The phenomenal trade margin has been a major factor in the rapid expansion of the fibre production in Tamil Nadu.

It is the absence of traditional skills in spinning coir yarn that has been standing in the way of Tamil Nadu itself directly converting its fibre into yarn. The skill barrier can be overcome through developing mechanised coir spinning. Experimental production of machine spun coir yarn has started in Pollachi and it will not be long before large scale spinning mills make their appearance. Such a development, if it materialises, would be disastrous for Kerala's coir industry. The machine spun raw husk fibre yarn would displace yarn from Kerala to a significant degree even from the national market as Sri Lanka has already accomplished in the international market.

The Broad Approach

The problem before us is fairly clear: Is it possible to reconcile the historical- residual employment sectoral role that the coir industry has been playing in the regional economy with the compulsions, both external and internal, to upgrade the technology, increase the productivity and reduce the cost of production?. We would answer in the affirmative in the package of proposals that follow. The product diversification and improvement of productivity are necessary not only to meet the threat from outside but also to provide for better wages to the workers. However, in the pursuit of the above goals, we shall not forget the paramount importance of security of employment to the existing workforce. The generation of employment will be the most important element in our scheme for reorganisation of the industry.

The Central objectives of the present development scheme may stated as follows:

(a) to provide 200 to 250 days of employment a year to the workers who are engaged in coir processing and manufacture as their primary occupation and

(b) to ensure that these workers receive the minimum wage for their work.

The expansion of industrial production to ensure 200 to 250 days of employment to the workers requires two preconditions:

(a) adequate husks have to be made available to the industry at reasonable prices and

(b) steps be taken to ensure that the increased production finds market outlets.

The Raw Material Market

Therefore in the next section we shall first take up the issues in the husk market (Section 2). A major problem that the industry faces today is the scarcity of husks. Controversies regarding the husk market have been one of the oldest in the industry. Traditionally the husk market was controlled by a small number of monopoly husk retters. According to our estimate around 95 per cent of the retted husks market was being controlled by the large commercial husk retters, numbering around 10 per cent of total retters in the early 'sixties. Due to the monopolistic control that these dealers in retted husks enjoyed in the market they were able to manipulate the husk prices so as to corner all the advantages that would have accrued to the producers from increases in the yarn prices (Thomas Isaac T.M. 1990). There was very significant correlation between the price of retted husk and that of coir yarn. Not surprisingly, the various coir enquiry committee reports were unanimous in their demand for the need to regulate the husk market to ensure fair return to the producers and reasonable wages to the workers (Tharakan, Mathew K.J. 1954; Kunjuraman N., 1963; Pillai V.R. 1955; Pillai Parameshwaran G., 1955). Under the pressure of militant trade union movement the government was forced to introduce a series of measures in the husk market during the early 'seventies. These measures included fixation of maximum prices for husk, licensing of husk dealers and transport restrictions on the husk. We shall not go into a detailed description of the failure of this regulated regime (Pylee M.V. 1975; Nair M.N.V., 1977; Sivaraman B., 1978). The government was finally forced to accept a system of partial control which sought to

ensure that at least a part of the husk was made available to the coir cooperatives at regulated prices. The contemporary levy system that these regulations have finally evolved into have failed to ensure adequate quantity of husk for the cooperatives. Further it has resulted in ruinously high price for the private sector (Thomas Isaac T.M., 1990).

Reacting to this situation the trade unions have been demanding monopoly procurement of husks by a state or cooperative agency for distribution among the cooperatives and the private producers in a equitable and efficient manner at fair prices. But given the unsettled conditions in the husk market and the elaborate administrative arrangements that need to be set up, the proposals for monopoly procurement have had little sympathetic response from the successive governments. Even we would prefer to avoid any such massive regulatory machinery that would be required to collect the husks from the lakhs of coconut producers and evolve norms for their equitable distribution among the producers of fibre and yarn. We would prefer to make utmost use of the market channels to ensure the collection and distribution of husks. Our discussion in Section 2 would draw attention to a very important dimension of the problem which has not been given adequate consideration by the policy makers viz. the regional dimension of husk availability and demand. The proposals, that we shall make, will also take into consideration the need for improvement in the technology of fibre extraction and the need for developing raw husk fibre production along with traditional retted husk fibre industry. The latter consideration would ease to a great extent the fears of environmental pollution hazards

that a major expansion scheme of white fibre industry would generate. The supply of adequate quantity of husks at fair prices is the first precondition for industrial expansion.

The Product Market

As we have already noticed the industry faces severe constraints on the demand side also. An important characteristic that the coir industry shared with the other traditional industries of Kerala was its export orientation. Traditionally more than three fourth of the coir production was exported to the foreign countries. During the post independence period the exports to foreign countries have steadily declined. As table 1 reveals, the foreign exports of coir from Kerala reached a peak level of around 77,000 tonnes during the first half of the 'sixties. Since then the exports have steadily declined to around 30,000 tonnes in the 'eighties. The coir yarn has been the hardest hit with exports declining to around a third of the level attained in the mid 'sixties. The exports of coir mat and matting have also declined by around 40 per cent of the peak level reached in the mid-'thirties. Is there any possibility of reversing this trend or is it the case that the coir floor coverings being a inferior floor covering is destined for extinction from the western markets and the coir yarn permanently displaced by its synthetic substitutes?.

Perhaps the more important issue is the home market for coir. The internal demand for coir within India has been steadily rising. According to the estimates of Food and Agricultural Organisation (FAO 1985),India today is the single largest

market accounting for 45 per cent of the world consumption of coir and coir products. The expansion of the internal market within India has occurred without any major market promotion measures. Is it possible to accelerate these trends in the internal market?.

As is evident from Table 1 the increase in rail movement of coir and coir products to other states in India has to a great compensated for the decline in foreign shipments. But from the 'eighties Kerala's exports to the rest of India has also started to decline. The decline has been sharp when we consider share of Kerala in the rapidly expanding inter state trade of

Table 1

Kerala's Exports of Coir Products (five year averages) (tonnes)

Year	Mat & Matting Shipments	Yarn & other Coir Products	Total Shipments	Shipments to Indian Ports	Rail	Total Coir Goods Moved from Kerala through Rail and Ship
1	2	3		5		7
1899-1904	n.a.	n.a.	41901			41901
1904-09	259	9663	48088			48088
1909-14	4524	54793	59317			59317
1914-19	2294	32637	43331			43331
1919-24	5911	35682	63846			63846
1924-29	12898	66273	79170			79170
1929-34	17548	57278	74826			74826
1934-39	22069	57478	79547	16131		79547
1939-44	12353	41642	53996	15449		53996
1944-49	16724	56091	72815	21210		72815
1949-54	19396	68206	87603	13997		87603
1954-59	18134	72136	90270	15505	23175	113445
1959-64	16977	63784	80761	3771	31185	111946
1964-69	17609	49217	66826	6241	40442	116268
1969-74	17392	33857	51249	1662	50380	90532
1974-79	16707	25090	41797	5	53794	95591
1979-84	14547	18252	32799	0	42632	75431

[Source: Thomas Isaac, 1990]

coir. It is seen that share of Kerala in the total rail coir traffic has declined from 75 per cent in 1981 to 60 per cent in 1986. It is indeed a disquieting trend.

Unless we are able to respond positively to these questions of demand in the external and internal markets any expansion of the production of coir would only result in the aggravation of the periodic gluts that the industry faces today into a state of permanant over production. The expansion of the market for coir products is the focus of our deliberations in section 5. It would require not only market promotion but also a time bound programme for product diversification to suit the changing tastes of the expanding market. These and other related problems of research and development are taken up in the same section.

Intermediate Technology and the Cooperative Structure

We have already indicated our approach to the issue of technological choice. Given the severe unemployment in the state a programme for mechanisation that would throw a large segment of the workforce out of employment cannot even be considered. But there is a need for introducing certain intermediate technologies that would increase the productivity without severe adverse impact on employment. They are required not only to ensure better quality of products and working conditions but also to ensure that the cost escalation caused by any increase in wages and prices for husk is held in check.

Other things remaining the same, any technological improvement would result in the displacement of labour to an extent. It would also result in an increase in both the productivity and quantum of the surplus generated. It is important therefore that the scheme of revitalisation of the coir industry emphasise an industrial organisation that would minimise the displacement of labour and ensure the maximum of the increased surplus accrue to the workforce. Cooperative industrial structure is the ideal one that would ensure that the sharing of the reduced work and the increased surplus to the maximum number of workers.

But the brief review of the coir yarn cooperatives we present in Section 3 while discussing the problems of coir yarn sector, may not instill confidence in the ability of the cooperatives to shoulder leadership role for modernisation of the industry. The cooperatives hardly account for 15 per cent of the industrial production even though they may boast of more than 2 lakh members in their fold. Despite this dismal performance in terms of industrial production the cooperatives have had a stabilising influence on the labour conditions. The higher wages in the coir cooperatives have become standard reference for the wage bargaining in the unorganised sector and have exerted a beneficial influence on labour conditions in general. The cooperatives may have failed. But they must succeed. The cooperative reorganisation of the industry continues to be the central organisational thrust of the present proposals also.

Section 2

THE HUSK AVAILABILITY AND FIBRE PRODUCTION

Husks are only a byproduct of coconuts and therefore their availability is dependent not only on the production of nuts but also on the harvesting and dehusking practices. The coconuts must be harvested and dehusked before the husks become dry and the raw husks must be steeped in water within two or three days for producing high quality white fibre. Further, due to the bulky nature of the husks and the scattered nature of production of coconuts the transportation costs are relatively high. A significant proportion of the coconuts which are dehusked in individual households for culinary purposes cannot be economically collected for industrial use. In short, the number of husks economically available to the industry is limited to the mature coconuts harvested and dehusked within the economic transport distance and to coconuts that are dehusked on a commercial basis.

The Regional Mismatch of Demand and Supply

The table 2 column 3 provides the district wise production of coconuts and the column 5, the number of husks that can be made available at economic prices to the industry. The annual average coconut production within the state of Kerala for the period 1980-81 to 1985-86 comes to around 305 crores of nuts. It is seen that for the state as a whole around 60 per cent of the husks i.e. 189 crores can be made available to the existing traditional retted husks fibre industry.

Table 2

Husk requirement in the Coir Industry (in lakhs)

District	Husk required for employment for 250 days	Coconut production (average of 1980-81 to 1985-86) lakhs	Percentage economically available %	Husk availability (lakhs)	Surplus, Deficit for 250 days (lakhs)
1	2	3	4	5	6
Trivandrum	2423	3530	70	2471	+ 48
Quilon (Pathanamthitta)	3837	3440	65	2236	-1601
Alleppey	4979	2840	75	2130	-2849
Kottayam	2214	1920	65	1248	- 966
Idukki	-	430	40	172	+ 172
Ernakulam	1553	3260	65	2119	+ 566
Trichur	1781	3400	65	2210	+ 529
Malappuram	533	4250	50	1125	+ 592
Palghat	-	750	40	300	+ 300
Calicut	1294	5490	60	3294	+2000
Wynad	-	40	0	0	0
Cannanore	110	3160	50	1580	+1470
Kerala	18724	30510	60	13885	+ 161

[Coir Board 1962, Coir Board 1968, Department of Economics and Statistics 1989]

Column 2 gives the district wise distribution of husk requirement for providing 250 days of employment to the workers. It is important to provide husks for 250 days of employment in order to guarantee at least 200 days of work because husk requirement per spinning unit is expected to rise with improvement in technology that we shall be suggesting in the next

section. The husk requirement of each district has been worked out on the basis of distribution of ratts in each district in 1965 (Coir Board, 1968). The daily husk requirement per ratt for each variety of yarn was estimated (Mohammed Kunju, 1967) and then the average husk requirement ratio for each district was arrived at giving appropriate weight according to the variety composition of yarn produced in each district. The husk requirement for the estimates of production of varieties of hand spun yarn in 1962 (Coir Board, 1962) has been assumed as the present day demand. Only in the case of rope yarn was the estimate of production scaled down.

The fact that we are forced to use the data base of the mid 'sixties is a sad reflection of the state of knowledge of the industrial situation today. Our demand projections would require modification in accordance with the changes in the total number of ratts in the state and in their regional distribution. But they are unlikely to be of such an order as to drastically change the picture that is presented in table 2. Another alternative would be to estimate the husk requirement on the basis of regional distribution of the number of workers. But even a cursory perusal of the widely varying estimates of employment that are available should be sufficient to curb any such temptation (Thomas Isaac T.M. and Chandan Mukherjee, 1981).

Despite the various limitations, the data presented in table 2 dramatically brings out a simple fact that has not been given sufficient attention in the earlier discussions: The husks than can be made available economically are sufficient to meet

the demand of the spinning sector. But there is a severe regional mismatch between the availability and requirements of the producing districts.

The four southern districts that produce 73 per cent of the coir yarn accounts for less than 40 per cent of the husk production. These four districts would have a deficit of 53 crores of husks if 250 days of employment is to be guaranteed. On the other hand the other districts have surplus of husks. Particularly, the districts of Calicut and Cannanore have a surplus of 35 crores of husks.

An examination of the district wise trends in area under cultivation, productivity and production of coconuts in the state unmistakably indicate that the above regional differences are likely to widen in the future (Narayana D., et.al., 1980). During the period from mid 'seventies the area under coconut cultivation and production has been declining in the southern districts while it has tended to expand in the northern districts. The southern districts particularly Kottayam, Alleppey and a major part of Quilon have been ravaged by the root wilt disease. In Kottayam and Alleppey more than 80 per cent of the palms are diseased. The root wilt disease not only depresses the yield per palm but also significantly reduces the fibre content of the husks. The declining production as well as the root wilt disease have contributed to the worsening of the raw material crisis in the yarn producing southern districts.

The relative differences in scarcity of raw material across districts is to an extent reflected in the relative price structure as shown in table 3. The differences between the notified price and open market price is one of the widest in Quilon which has the largest deficit. On the other hand in the northern districts the difference is much narrower.

Table 3

Notified Prices and Open Market Prices of Raw Husks, (April 1990, for 1000 husks, in Rs.)

Project Area	Notified Price	Open Prices
1	2	3
Chirayinkil	155	400
Quilon	152	350
Alleppey	125	NA
Vaikom	125	200
N. Parur	125	165
Trichur	125	165
Ponnani	115	145
Calicut	115	160
Cannanore	110	140

Source: Coir workers Centre.

Factors Restricting the Husk Utilisation in the Northern Districts

Viewed in this perspective the challenge of raising the industrial utilisation of coconut husks in Kerala resolves into an issue of potential for the development of coir industry in northern Kerala. Historically, for various reasons, the coir spinning industry has failed to develop in the north on any scale comparable to the southern districts. The spinning of yarn being a traditional skill it is unlikely that any large scale organisation of yarn spinning of required qualities can be activised in the north in the near future. Nor is it advisable to create such production capacity given the existing excess

capacity in the south. Therefore the task is one of encouraging the fibre processing industry in the north and efficient transportation of the surplus fibre to the spinning districts in the south. This process does indeed exist to an extent today. It has been widely reported that the handspinning in the northern districts has been rapidly declining in the recent years and the commercial production of fibre has been on the ascendency.

According to our estimate at present hardly 15 per cent of the coconut husks produced or less than a quarter of the husks that can be made available economically to the present retting sites in the northern districts are being utilised by the industry. As we have noted in Section 1, while the high price of coir fibre in the southern Kerala has started to attract fibre from production centres even in Tamil Nadu, the fibre production in the northern districts of Kerala has remained dormant. The central issue to be explained, therefore, is the failure of the current husk market mechanism to ensure the commercial utilisation of surplus husks on a sufficient scale as to resolve the severe scarcity of raw material that is being experienced in the southern districts. We hold three sets of factors have mainly contributed to this impasse.

(a) Lack of adequate retting facilities in northern Kerala

(b) Present regulation on price and transport of husks.

(c) Restrictions on mechanical defibring.

Raw Husk Fibre

Lack of adequate retting facilities has historically been an important factor that thwarted the attempts to develop

the coir industry in northern Kerala as in the south. It is not argued that there is no further scope for expansion of retting facilities in northern Kerala but the expansion of retting facilities by two or three fold, as would be required under our scheme of expansion of fibre production in the north is unlikely to be socially acceptable. Retting of husks is a highly polluting process and a major source of water pollution in Kerala. However, if we accept the statements on the raw husk fibre made in the introductory section, there is no need for drawing up a scheme for converting the entire husk potential of northern Kerala into retted husk fibre. Kerala, in order to compete with the cheap raw husk fibre production in the other coir producing states has got to develop a part of its husk potential on the same lines. Unlike the other states Kerala's raw husk fibre would have a decisive advantage. The plentiful water availability would provide Kerala's raw husk fibre producers sufficient soaking facilities for fibre and thus ensure superior quality of their products. Therefore our response to the first set of ecological factors that limit the utilisation of husk potential of northern Kerala is simple - remove the restriction on extraction of fibre from raw husks. How much of the husks should continue to be processed through the traditional retting should be left to the market forces to decide.

The Husk Control Orders

There is no economic rationale for the continuance of the regulatory mechanisms in the husk market in the northern districts. As we have already noted the sole aim of the regulatory mechanism in its present form is to collect a levy for

the coir cooperatives at notified prices. As can be seen from table 4 the levy collected in the four northern districts during the last three years averages only about one and a half crores of husks. The highest collection would be in the current year, around two crores of husks. If we assume that on the average these husks have been procured at a price of Rs.50 lower than the open market prices the total economic advantage that has actually accrued to the cooperatives through the elaborate regulatory mechanism is merely Rs.10 lakhs. In the process the traditional trade channels have been disrupted, arbitrariness and corruption promoted and, most importantly, overall husk utilisation in the northern districts reduced. The cooperatives, as well as the industry as a whole, would be better served if all the regulations in the northern districts were withdrawn and a direct cash support equivalent to the economic loss that the cooperatives would incur due to the withdrawal of the levy system be given to them. The cash subsidy may be operated on the basis of the yarn purchased by the Coir Marketing Federation (Coirfed) from the cooperatives. The quantum of the subsidy may be fixed for each district on the basis of differences in the open market price and existing levy price subject to six monthly revisions.

Table 4

Levy Husk collected according to Project Areas

Project Area	Single point 1.9.86 to 31.8.87	3 point levy 1.5.88 to 30.4.89	1.5.89 to 30.4.90
1	2	3	4
Chirayinkizhu	99,41,223	2,08,26,022	2,61,31,342
Kollam	27,90,705	1,14,56,451	96,85,450
Kayamkulam	27,13,810	1,05,25,963	82,76,526
Alappuzha	13,17,265	62,76,668	58,90,251
Vaikom	1,35,977	55,94,468	66,06,793
N.Parur	13,19,677	37,97,268	72,30,930
Trissur	10,44,226	56,27,369	14,33,075
Ponnani	8,28,500	11,20,520	20,06,707
Kozhikode	38,18,944	44,55,203	87,07,654
Kannur	11,74,422	3,74,955	13,52,755
Total	250,84,749	700,54,887	8,33,21,523

Source: Coir Directorate

Given the husk surplus situation and the low level of utilisation of husks in northern Kerala the rational course of action should be encourage the free flow of husks rather than obstruct it. Therefore all movement controls on husks in Trichur and other northern districts should be removed. Similarly the present price controls may also be removed. The coconut husks have an opportunity cost as firewood and with the increase in the firewood prices there is significant diversion of husk for fuel. While the index of firewood prices have increased seven and a half fold, the control price of husks has increased only 3 times between 1973 and 1986. The present notified prices of raw husks in many places is actually lower than the price of dry husk as firewood! More husks can be made available only by paying higher prices. It is best not to impose any ceiling price that cannot be implemented without the help of some kind of movement restriction and large administrative machinery and policing. Thus to the second set of limiting factors that restrict the

expansion of fibre production in northern Kerala our response is the deregulation of the husk market in the husk surplus northern Kerala and the institution of a compensatory price support scheme for the cooperatives in these districts.

Ban on Mechanical Defibreing

Our field enquiries have convinced us that the existing restrictions on mechanical defibreing should be removed in the northern districts for further development of the coir fibre industry. In 1975, while relaxing the prohibition on mechanical defibreing, the government notification had stated that such a relaxation is necessary till such time as is required for the traditional hand beating sector to step into the field and increase the production of coir fibre. It seems that the traditional hand beating sector never rose to such desired levels in northern Kerala. The manual defibreing has continued to decline since the mid 1970s and today survive largely in the cooperatives. In most of the coir centres we visited in the northern districts it was stated to us that there was great scarcity or even lack of manual workers for defibreing. Major changes seems to have taken place in the work preferences and the supply of labour in many of the coir centres in the north. More detailed investigations have to be conducted before definite conclusions can be reached in this regard. But it is incontrovertable that mechanical defibreing of husk must be encouraged in the northern districts if its husk potential is to be utilised. At present there are around 50 defibreing mills functioning in these districts and there is ample scope for an additional 150 to 200 defibreing mills in the region. Each of

the defibreing mills will be able to process around 10000 husks per shift.

The comparative figures of cost of equipment, productivity and cost of production of the manual process and the main mechanical fibre extraction processes are given in table 5. Data on decorticating machines refer to the mills that are today functioning in Kerala for extracting fibre from retted husk. Data on combing machines are calculated from modified cost schedules of combing mills at Pollachi. Normally the combed fibres are dried and baled before transport. But the baling work has not been considered for estimation of the conversion charges or the number of workers required so that the data is made comparable to the other processes. Besides combing machines there are also fully automated combing mills with conveyor systems that could very substantially reduce the labour requirements. Such purely labour saving arrangements are irrelevant in our content and therefore has not been considered.

Table 5
Technological Alternatives in Fibre Extraction

(1)	Manual (2)	Decorticating (3)	Combing (4)
Cost of equipment	Rs. neg.	50,000	2,50,000
Number of workers/10000 husks	65	28	16
Output/worker/day (no. of husks)	150	400	625
Wage/worker/day	Rs.18.50	Female 18.00 Male 31.00	30.00
Conversion charge/quintal of fibre	Rs. 1200	800	1260

Apparently, decorticating process is the most cost effective technology and less labour displacing than the combing process. It may be noted 20 out of the 28 workers in a

decorticating mill are engaged in peeling the exocarp manually from the retted husks which are fed into the decorticator. But when the raw husks are used, peeling of husks is not required and these female workers would be also displaced. The major drawback of the decortication process is that it results in severe deterioration of quality of fibre, particularly when fibre is extracted from raw husks. When raw husks are used, decortication also results in unacceptable levels of impurities in the fibre. Therefore the use of these machines should be discouraged and steps be taken to ensure that the new mills are based on combing technology that ensure higher proportion of longer fibers and much less impurities in the fibre. But in the combing technology the cost of production is nearly the same as in the present manual extraction method. However, it may be mentioned in this context that the cost of production of manual extraction is based on the actually prevalent piece rates and not on the basis of notified minimum wages and other fringe benefits. If the calculations are based on as the latter set of norms then the cost of production by the manual process would be much higher- around Rs.1960 per quintal of fibre. Combing technology ensures much higher wages to the workers. Most importantly, manual extraction of fibre from raw husks is not possible. There is no option but to adopt the combing machines if raw husk fibre is to be extracted.

Rehabilitation of Displaced Workers

In the seven northern districts there are nearby 10,000 workers who are engaged primarily in the manual extraction of fibre (Government of Kerala 1990). It may be cautioned that this

number probably does not include a large number of workers who combine their primary activity of hand spinning with defibreing. The manual defibreing workers are also localised in certain pockets such as Quilandy, Badagara etc. Displacement of the manual workers by the defibering mills would be a serious social problem that would have to be systematically tackled. A major part of this workforce will have to be given training in spinning and absorbed into the spinning sector. A part of them may be absorbed in the mechanical defibreing sector itself. A disturbing aspect in this connection is the peculiar gender division of labour that exists in the fibre industry today. While all the manual fibre workers are female, the mill work is a male preserve. The new jobs that will be created in the defibreing mills should be reserved for the displaced female workers if they are available in the locality. A special rehabilitation scheme should be drawn up to train the fibre workers for the spinning of coir yarn or alternatively in mill work. Compensatory allowances should be given to them during the training period.

Each of the defibreing mill working on one shift would require around 20 workers. Therefore one can expect additional employment creation of around 3000 to 3500 jobs in the mechanised sector. A significant part of these additional jobs may be outside the traditional coir villages at the sources of husk itself. Therefore apparently the number of displaced workers that can be absorbed into the mill sector is limited. Its scope can be enlarged if a system of rotation of work available can be instituted. Such work sharing arrangements and systematic

rehabilitation of the displaced workers is possible only if the cooperative sector in northern Kerala is further strengthened.

Coir Fibre Cooperatives

Though the existing private defibreing mills may be allowed to function the further expansion of mill capacity should be confined to the cooperative sector. The existing spinning cooperatives can itself establish defibreing mills or new defibreing cooperatives may be formed. The fibre cooperatives should be equipped with defibreing machines, retting or soaking yards (if required) and an independent husk collection system. The husk collection channels may be husk collection cooperatives or commission agents. There should be no geographical demarcation for the husk cooperatives for the collection of husks as the idea is to avoid inefficient monopolies and encourage competition.

Adequate financial provision has to be ensured for the fixed and working capital requirement of the cooperatives. Each of the defibreing unit would require Rs.2.5 lakhs for machinery besides an acre of land as workyard. There is possibility of getting subsidy under the Coir Board scheme of cooperativisation. A matching grant may be extended by the state government and the rest of the capital cost made available as loans. The working capital requirements of the fibre cooperatives for the procurement of husks may be assessed as half of the value of anticipated husk requirement. The working capital requirements for the production and disposal of the fibre may be taken as one fourth of the anticipated value of production. The Reserve Bank

of India should provide credit limits to the State Cooperative Bank at concessional rates to enable the cooperatives to meet these requirements. Special vehicle loans would also have to be given for the fibre cooperatives.

There should be, however, no restriction on private entrepreneurs to purchase and ret husks and have them defibred at the cooperative mills on a contract rate. In fact such entrepreneurship should be encouraged. To facilitate it, the cooperative defibreing mills should be considered as a servicing facility open to the non cooperative sector also. There should also not be any control on private traders for transporting fibre to the southern districts or to any other place.

But Coirfed is to be the nodal agency for the collection, transportation and distribution of the surplus fibre produced in the northern districts. Coirfed will supply fibre at fair prices to the needy spinning cooperatives and small scale producers and arrange for the transportation of the surplus fibre to the south. Coirfed should be given a subsidy to meet the transport cost of fibre from the northern to the southern districts and also the necessary warehousing facilities. Even though there would be no control on private traders transporting the fibre to the south, it would be difficult for them to compete given the economies of large scale operations of Coirfed with subsidised infrastructure. The predominant role of Coirfed would be a stabilising influence in the fibre market and a guarantee of supply of fibre to the spinning cooperatives at fair prices.

A major task in this respect would be the creation of an efficient and cheap transportation system for the movement of around 50 to 60 thousand tonnes of coir fibre annually from the northern to the southern districts. Lorries, though the speediest and the most flexible mode, would be relatively costlier. The flexibility of rail transport has increased with the opening of Alleppey coastal rail link. A regular wagon service for the transport of coir fibre may be planned. But in order to keep the transportation cost to the minimum level possible, waterways would have to be utilised. Tug pulled country boat convoys may be ideal. The inter modal transfer of goods may prove to a serious bottleneck. It is hoped that an amicable settlement of this problem can be found if there is sufficient political will.

Reforms in the South

Our proposals so far have been entirely confined to the northern districts. It is in a sense a reflection of the objective differences which exist between the two regions in terms of unutilised husk potential and relative supply of manual workers for defibreing. Though we are not proposing a drastic overhaul of the husk market and fibre production in the south it is hoped that the successful introduction of the reforms in the north would have its beneficial influence on the policies pursued in the south in the future. The existing three point levy system would be continued in the southern districts for the time being.

But there is a urgent need for creating cooperative agencies to procure the husks from the open market. The introduction of the scheme of fibre production discussed in the

last section would depress the open market prices of husks and make such a cooperative agency operation viable. The fall in open market prices would remove a number of raw husk traders who are today attracted into the business by possibilities of black marketing. The cooperative husk collection agencies should move into frontier coconut hinterland areas from where such withdrawals would initially occur. Panchayat level primary husk collection cooperatives may be formed from where husks are to be transported to the retting sites of the husk retting cooperatives. The husk retting cooperative membership shares would be open only to the actual workers of the retting cooperatives and the primary yarn cooperatives.

Even though we are not advocating a general policy of mechanical defibreing in the southern districts, it is evident that the situation is slowly changing in many coir villages in south also. In the recent years mechanical defibreing has been stealthily reappearing in the very same places which were once the scenes of most virulent machine-breaking agitations. It has been opined by knowledgeable sources that the illegal defibreing mills that are in operation in the southern districts would outnumber the number of mills in the northern districts. At the same time, it has also been observed that in certain villages the entry of machinery is already creating social unrest. Therefore we would advocate a flexible policy regarding mechanisation in the south. The decision to permit mechanical defibreing should be taken on tbe basis of close study of each locality.

The above programme of action would result in a significant step up of husk utilisation particularly in northern Kerala. The inflow of fibre into the southern districts would ease the scarcity of fibre and sharply bring down the open market prices. It would also enable Kerala's Coir industry to have a wider product spectrum of fibre qualities: brown fibre, raw husk fibre, soaked raw husk fibre and retted husk fibre. It is expected that the total coir production in the state would increase from around 120000 tonnes to more than 170000 tonnes.

Section 3

COIR YARN PRODUCTION

The fibre produced in Kerala, however, will continue to be predominantly retted husk fibre or its substitute, the soaked raw husk fibre suitable for yarn spinning. It implies that the absorption of raw materials by the yarn spinning sector has to increase in proportion to the expansion of fibre production. A situation of excess supply of fibre was impossible in the past because both fibre extraction and spinning were integrated in the same production units. But with the development of specialised fibre production units in northern Kerala there is need to consciously plan the output of the yarn spinning sector. There are two major problems that would have to be tackled for a successful expansion of yarn production in Kerala:

(a) price escalation of the coir yarn and

(b) the deterioration in the quality of coir yarn.

Price Escalation and Deterioration of Quality

Rise in husk prices, as well as labour charges, have both been contributing to the cost escalation of coir yarn produced in Kerala. There is no possibility of saving on the wage front because, as we have already noted, the current wages are already significantly lower than the notified minimum wages. Therefore the thrust of cost reduction measures would have to be on the raw material side. The expansion of fibre production that we outlined in the last section and consequent increase in supply would certainly dampen the present run away raw material prices. More importantly the substitution of the costly and time

consuming retting process by mechanical extraction of raw husk fibre would reduce the cost of raw material by around 30 per cent for a significant proportion of the fibre produced. It would enable Kerala to successfully compete with the cheaper machine spun brown fibre or raw husk fibre yarn from other states. At the same time Kerala would continue to enjoy its monopoly over the superior retted husk white fibre yarn for which there would continue to be a specific market demand.

Deterioration of the quality of yarn produced in Kerala has been a common and universal complaint in the trade circles in the recent period. As we have already noted the quality of yarn is crucially dependent upon the spinning practices. In the scramble for increasing the daily output by the spinner, given the low piece rates, the quality of yarn has been the major casualty. The uniformity of twist and thickness of yarn, for which traditional handicraft skills were once famous, are becoming scarce. Further, there is also severe dearth of skilled workers for splicing the short hanks of yarn that are produced on the traditional ratts into continuous lengths required by the end users. As a consequence the tensile strength of the yarn is reduced and they tend to break under stress at the weak points. Failure to provide yarn of adequate tensile strength has been a major factor that contributed to the loss of the market for yarn in hop cultivation in the west. Lack of uniformity also becomes a major handicap in powerloom weaving. It is said that the powerloom industry in Europe is able to get 25 per cent higher productivity by substituting Kerala yarn with machine spun yarn from Sri Lanka.

Traditionally workers entered the industry at childhood, acquired the necessary skills over time and grew in to full fledged skilled spinners. But the child labour is today rare in the industry and the age of entry into coir work has been rising. Lack of sufficient apprenticeship has also had a negative impact on spinning skills. Thus the future prospects of improving the traditional skills also looks bleak.

Mechanisation of Spinning

It is in the above context that the plea for mechanising the coir yarn spinning is being renewed by the trade circles. Proto types of automatic, self feeding spinning machines are already successfully operating on a experimental basis. Each such spinning unit consists of one willowing and slivering machine and 4 to 6 spinning heads which can be operated by around 4 workers. For the cost calculations in Table 6 and 7 we have taken a unit of 12 spinning heads. The machine set would require an investment Rs.2.7 lakhs. Each of the spinning heads can produce 35 kilograms of Quilandy type thicker yarn of 110 metre runnage in an 8 hour shift. The productivity would decline with the increase in the runnage. Thus for example in Anjengo yarn of 240 metre runnage the production per spinning head would be only around 15 kilograms. Relatively higher wages have been allowed for the mechanised sector workers in our calculations. The wage in the hand spinning sector is around one tenth and in the ratt spinning around one half of that in the machine spinning sector. Minimum statutory wages are not paid in the traditional process. But it would be unrealistic in the conditions of Kerala to assume the same wage in the mechanised factory sector as in

the traditional sector. Therefore it is evident that, given the relative wage structure, diff rences in the initial investment required and the present level of productivity, the Self Feeding Spinning Machine is not a viable technology in Kerala. The conversion charges of the automatic spinning machine is higher than both the traditional hand spinning as well as ratt spinning technique (See Tables 6 and 7). Even if a significant improvement in the productivity of automatic spinning machine is achieved and it becomes economically viable its adoption would not be socially acceptable in Kerala. Even as of now the ratio of labour productivity between manual spinning and machine spinning of yarn is around 1:20 in the case of hand spun varieties of yarn and around 1:5 in the case of ratt spun varieties. There is no doubt that three fourth of the existing number of spinners would be displaced if the spinning sector is mechanised.

However the challenge faced by the traditional coir yarn spinning sector of Kerala from the mechanised coir yarn spinning of the neighbouring states cannot be wished away. The superior quality yarn of the latter would enhance its preference. Further the wages for mechanised spinning outside Kerala would also be lower. For instance, in Tamil Nadu the wages of mechanised spinning is less than one fourth of the wages we have allowed for mechanised spinning in Kerala. Moreover, it may be noted that our costing of machine spun yarn was based on the assumption of one shift work. A two shift production process will be more realistic. Thus the challenge to Kerala's traditional product is both in quality and price.

Treadle Ratts

The above situation underlines the need for adoption of an intermediate technology which would improve the quality of yarn but would not result in large scale displacement of the workers. Treadle ratt holds out such promise. Treadle ratts are simple contrivances, where the fibre is fed through tubes, with nozzle tips fitted with appropriate controls to regulate the thickness of the strands, the twisting, doubling, drawing and winding machanisms and arrangements for coordinated operation on activisation of a treadle. Two artisans are required for the operation of a treadle ratt. The cost of this equipment is only around Rs.3000. There has not been much actual commercial field trials of treadle ratt. By conservative estimates output per day of treadle is 12 kilograms of Quilandy variety of yarn and 8 kilograms of Anjengo variety in a shift of eight hours work. At this level of productivity treadle ratts does not appear to be an attractive proposition not only in comparison with machine spinning but also the traditional spinning process. The conversion charges of treadle ratt is nearly as same as hand spinning in the case of Quilandy yarn and by around 25 per cent higher in case of Anjengo yarn.

Table 6

Comparison of Technological Alternatives in Spinning - Quilandy Yarn

		Hand spinning	Self feeding spinning machine	Treadle Ratt
1		2	3	4
Cost of Equipment	(Rs.)	0	266,500	3000
Number of workers		1	6	2
Output/day	(kg)	3.5	410	15
Output/worker	(kg)	3.5	68	7.50
Wages/day/worker	(Rs.)	4.50	42.90	9.00
Conversion charges/kg	(Rs.)	1.30	2.49	1.33

Table 7

Comparison of Technological Alternatives in Spinning - Anjengo Yarn

		Ratt spinning	Self feeding Spinning Machine	Treadle Ratt	Motorised Ratt
1		2	3	4	5
Cost of Equipment	(Rs.)	1000	266,500	3000	6000
Number of workers		3	6	2	2
Output/day	(kg)	12.2	180	7.6	15
Output/worker	(kg)	4.06	30	3.8	7.5
Wages/day/worker	(Rs.)	18.08	42.90	20.34	20.34
Conversion charges/kg	(Rs)	4.50	5.69	5.61	3.18

However, it must be cautioned that the output norms that we have used probably underestimate the potential productivity of treadle ratt. Refinements and improvements in the first generation prototypes that have been employed for

experiments are possible. Further, the productivity of workers would tend to rise as they gain experience and shed the craft inhibitions in using new equipments. Coir-textile technologists at the Central Coir Research Institute at Kalavoor are optimistic that the productivity of the treadle ratt can be improved by another twenty five per cent above the currently attained levels.

Therefore, there need not be two minds in recommending the introduction of treadle ratt in the hand spinning varieties of coir yarn. Even if the initial cost reduction may not be very significant what is important is that the treadle ratt would facilitate the spinners to double their wages from Rs.4.50 to Rs.9.00 per day and significantly improve the quality of yarn.

In the cases of ratt spun yarn, particularly superior runnage varieties like Angengo, the case for treadle ratt is not so self-evident. What we can utmost hope to achieve is a productivity level that reduce the cost of production to the level of traditional ratt. Therefore in the case of these varieties of yarn the possibility of substituting treadle by motor power has to be explored. A half horse power motor would be sufficient, but the ratt would have to be of sturdier construction. Therefore the equipment cost would rise to around Rs.6,000.

The out put per ratt can possibly be increased to 15 kilogram of Anjengo yarn per 8 hour day. The conversion charges in the case of motorised ratt would decline to Rs.3.18 per kilogram of yarn. Perhaps motorising the ratt is the only way to

meet the challenge of improving the quality of yarn and holding the cost escalation in check.

The Problems of Deskilling

Even though treadle\motorised ratts are not going to cause any severe displacement of workers there is one consequence that cannot be neglected viz. the deskilling of the coir spinners. With treadle\motorised ratts it is no more the traditional skills of the work that determine the runnage and scorage of the yarn, but the gear wheels in the feeding nozzle of the ratt. By simple adjustment or change of gear wheels, yarns of different fineness and twist can be produced on the same treadle ratt by any artisan. The workers would lose their craft control over the production process. There can be a locational shift of the industry to new regions where labour is cheaper and more docile to the detriment of the traditional centres. It is the fear of deskilling and loss of craft control over the industry that was responsible for the apparently irrational negative reaction of the workers to field trials of treadle ratts in the southern districts.

Even if such fears are unfounded the introduction of treadle ratt is going to undermine the traditional regional specialisation of coir spinning in Kerala. There are a dozen major varieties of coir yarn, each with its subgrades, distinguished from one another by the twist, thickness, colour, pith content, manner of bundling and so on. Though the regional specialisation is partly ecologically determined the chief factor is the handicraft skill of spinning. With some effort a worker

can acquire skills for spinning other varieties of yarn than the traditional yarn he is accustomed to. But it is very rare for any region to switch over to any non traditional variety even under severe pressure of market slump for its particular variety. Thus coir spinning in any region is interspersed with periodic idleness. In a sense this idleness is self imposed and apparently irrational. But it is a form of work sharing arrangement helping to distribute the available limited employment throughout the coir belt in a more equitable manner. The breakdown of the regional specialisation unless consciously regulated can result in serious regional disruption in the availability of employment. Such a social control can be exercised only if the new technology is introduced within the cooperative structure.

Reorganisation of the Co-operatives

Are the contemporary coir cooperatives capable of shouldering the new role as carriers of the new technology? It is an important question that has got to be faced squarely. Their performance has been far from enviable. As can be seen from Table 8 the number of registered societies and their membership has been steadily rising since the introduction of the coir reorganisation scheme in 1973. Apparentally around half the workforce in the industry is covered by the cooperative programme. But only 30 to 40 per cent of the members are normally employed by the cooperatives even on a part time basis. So much so that the share of the cooperatives in the total yarn production is a meagre 15 per cent or so. The total output of the cooperative sector has tended to decline in the recent years.

The decline in the yarn output is revealed even more sharply if per worker yarn production is considered. The yarn output worker has declined from nearly 4 quintals in 1975-76 to less than 1.5 quintals in recent years. The average wage paid to a worker in a month is less than Rs.50, around 15 percent lower than the peak in 1975-76, even on nominal terms. Of the 577 primary coir yarn societies only 423 are actually functioning. 82 are new societies registered a few years back but yet have to start functioning. The rest are dormant societies. Only 39 of the cooperatives are working profitably.

Table 8

Performance of Coir Primary Co-operatives 1974-75/1987-88

Year	No. of societies	No. of members ('000)	No. of workers ('000)	Husk procured (lakhs)	Yarn produced (tonnes)	Wages distributed (lakhs) Rs.	Yarn output per worker (Qtl)	Percentage of workers in the membership	Husk procured per worker	Wage per worker (Rs/month)
1	2	3	4	5	6	7	8	9	10	11
1974-75	194	81	23	1123	5516	66	0.50	28.13	4883	23.91
1975-76	211	106	33	1679	12729	222	3.91	30.71	5706	56.06
1976-77	243	125	59	1542	14743	237	2.52	46.93	2631	33.67
1977-78	354	156	62	1265	13461	212	2.19	39.37	2056	28.99
1978-79	401	158	65	1496	13024	226	2.00	41.14	2305	28.97
1979-80	409	196	66	1570	15087	274	2.29	33.67	2379	34.60
1980-81	415	198	69	1609	12473	283	1.81	34.17	2331	26.37
1981-82	462	215	89	1900	16016	299	1.80	41.40	2135	28.00
1982-83	464	218	89	1786	15860	301	1.78	40.83	2006	28.18
1983-84	464	218	85	1139	11501	281	1.35	38.99	1340	27.54
1984-85	544	231	102	1667	10797	340	1.06	44.16	1634	27.78
1985-86	555	246	103	2170	9589	351	0.93	41.87	1161	28.40
1986-87	577	222	150	1264	9589	375	1.28	33.78	1685	41.66
1987-88	577	222	73	1338	10298	421	1.41	32.80	1833	48.05

(Thomas Isaac, 1990)

The achilles heel of the cooperatives has been their inability to compete in the husk market with the private sector who pay lower wages. The various regulated husk market regimes

have so far failed to solve the problem. It has been estimated that for a cooperative to meet its establishment charges and earn 6 per cent return on its capital would require an annual turn over of 1500 quintals of yarn. Even if one considers only the working societies, it is seen that in 1987-88 the average turnover of a society was less than one sixth of the optimum. The failure to provide husks in sufficient quantity for viable production is the chief reason for 90 per cent of the cooperatives to be running on financial loss. There is a positive relationship between the size of the cooperative in terms of turnover and the proportion of cooperatives working on profit (see Table 9). The average number of workers and their proportion to the total membership also is seen to rise with the turnover.

Table 9

The performance of cooperatives by turnover size groups

Size class (qtls. of yarn)	No. of coopera-tives	Average number of workers	Percentage of workers to member-ship	Annual produc-tion per worker (qtl)	Percentage of societies working on profit
<250	274	123	28	1.93	7
251 - 500	94	239	38	2.90	10
501 - 750	29	413	81	2.91	24
751 -1000	9	486	56	3.41	23
>1000	16	560	53	5.00	13
Total	422	193	35	2.35	9

(Pyaralal Raghavan 1990)

The fibre production and transport scheme that we outlined in section 2 would ensure sufficient fibre for the viable production and capacity utilisation in the cooperative

sector.

The focus of attention in the immediate future should be to revitalise the loss making cooperatives and strengthen the existing cooperative structure rather than their numerical expansion. The dormant cooperatives should either be revived or liquidated. In the process of revival amalgamation of small cooperatives should be carried out wherever practicable. The cooperatives that have been registered 3 years back and not yet started production should be liquidated. There undoubtedly is need for a thorough overhaul of the cooperative structure. Many cooperatives, too small to be potentially ever viable, have been started primarily as pocket boroughs for aspirants to the leadership of Coir Marketing Federation. There is an urgent need for delimitation of dual membership and removal of non coir worker members from the membership. The very low husk-fibre out turn of many of the cooperatives cannot be explained away by the inferior quality of levy husks. It is also indicative of corruption in husk transactions, wastage and mismanagement in the cooperatives.

Without a comprehensive rectification campaign to reorganise and reform the cooperatives all our proposals may very well flounder. Therefore a Special Enquiry must be constituted modelled on the Theyyunni Menon Commission of 1957 for a through going enquiry into the functioning of the cooperatives. The committee should take public evidence in all coir centres and publish the summary evidence and findings. The recommendations of the Committee can form the basis of reorganisation of the cooperatives.

Once the rationalisation of the cooperative structure is completed the entire loss of the cooperatives should be wiped off by giving an outright grant in order to enable them to make a fresh start and avail themselves of institutional finance. Adequate working capital should be provided for the coir cooperatives. The working capital requirements of a primary spinning cooperative society for procurement of retted husks must be valued at three fourths the value of anticipated annual husk requirement and one third of the annual value of production. The credit limits provided by the Reserve Bank of India should be accordingly raised. Similarly, the technological upgradation of the cooperative production that we have been advocating also will not materialise unless it is accepted as an important component of the cooperativisation scheme and equipment subsidy and loans are adequately provided.

There are certain unrealistic imposts that fall on the cooperatives due to their organised nature. Thus, for example, coir cooperative are liable for Employees' State Insurance (ESI) contribution. But the coir workers do not receive any medical benefit since they do not meet the minimum number of annual days of employment required under ESI norms. The co-operatives may be therefore exempted from the purview of ESI scheme.

There is also need for revamping the cooperative structure. The fact today is that each of the coir yarn primaries are directly linked to the hierarchy of the Coir Directorate and have no horizontal contacts with each other. Further Coirfed, the apex body of the coir primaries, is only a

marketing agency that has no other organisational link to the functioning of the coir primaries. Therefore it is proposed that cooperative unions of coir yarn primaries may be formed at a compact regional levels, preferably at the present coir inspectorate level. Thus there would be 42 coir primary unions. The husk societies of the yarn primary cooperatives would be formed at the level of coir primary unions. Such regional unions would also facilitate greater coordination of the yarn primaries in collection of levy, production and labour welfare measures. However care should be taken that the creation of primary unions do not result in the escalation of overhead charges. The personnel for the coir primary unions must be raised from the present staff of the Coir Directorate at the project level and the existing staff of the primaries. Steps should also be taken to develop the Coirfed as the mother society to coir yarn primaries. As an initial step, a monitoring cell in the Coirfed to effectively monitor the activities of the coir cooperatives may be set up.

Section 4

MANUFACTURE OF COIR FLOOR COVERINGS AND OTHER PRODUCTS

The ceiling on industrial expansion in the fibre and yarn sectors is set by the husk availability. Even under most optimal conditions we cannot hope for the expansion of fibre yarn production beyond 30 to 35 per cent of the present level. They represent the ratio of maximum utilisation of husk potential possible. Rapid expansion of the coir manufacturing sector is the only way for further expansion of the industry. More importantly such an expansion is also necessary to provide market for the additional yarn production.

Weaving of coir floor coverings was the premium manufacturing industry in southern Kerala in the pre-independence period. From an industrial structure dominated by large scale manufactories, the industry has over time transformed itself into one dominated by cottage units. The erstwhile manufacturer-shippers have increasingly withdrawan into trading activities and today are mostly merchant exporters subcontracting their orders to the cottage units. The above structural retrogression of the industry was a response to the militant trade union movement and the wide wage differentials between the organised and unorganised sectors. Even though a decision to mechanise one third of the matting capacity had been taken in early sixties, serious efforts to utilise the licensed capacity and upgrade the technology became evident only by the mid-seventies in the background of the spread of trade union movement into the small scale sector, the emergence of organisations of small scale manufacturers and the

consequent erosion of the cheap labour basis of handlooms even within the small scale sector [T M. Thomas Isaac, 1984].

The initiatives for mechanisation came for the leading manufacturers who had sufficient foreign contact to get the technical know-how for powerloom from the west. The powerloom weaving techniques were being rendered obsolete by the rapid technological changes that were taking place in European floor covering industry. Therefore the European powerloom interests were anxious to transfer their technology to the third world countries on very easy terms. However there was severe opposition from the trade union movement in Kerala to any further machanisation of the weaving sector. Even the Coir Board itself was against introduction of powerlooms in the mat sector. But a leading manufacturer was able circumvent the barriers and import the entire looms from a large scale powerloom factory in Netherlands that was being closed down. Because of the serious resistance to mechanisation in Kerala, the factory with 25 matting looms and 13 mat looms, of 10 lakh square meters of production capacity, was set up in Kanyakumari District in Tamil Nadu. There was a furore over the circumstances of establishment of this factory; but it has since then been accepted as a fait accompli and allowed to produce mat and matting for the export markets. Including this factory in Kanyakumari, there are today 5 powerloom units with around 70 looms and production capacity of around 18 lakh square meters.

Even though the comparative cost of production on

powerloom and handlooms have always been a matter of dispute (Srinivasan B.,1978) it is quite clear today that the existing powerlooms have a definite cost advantage over the handlooms. The conversion charges of handloom matting is around Rs.7.25 per square metre in the organised sector while the conversion charges for a comparable matting quality on powerloom is only around 5.40 per square metre. The handloom can survive only within the decentralised sector by substantially reducing the labour charges.

Despite the cost advantage enjoyed by the powerlooms the foreign export performance of powerlooms have been rather dismal. The foreign exports of powerloom coir products declined rather steadily from around 1500 tonnes in 1977 to less than 500 tonnes in 1985-86. The exports of powerloom products constitute around 10-15 per cent of the total matting exports from India and around 10-12 percent of the installed powerloom matting capacity. It is indeed a paradox that the products of a technology that has been promoted ostensibly for export promotion today largely caters to the internal market while the much maligned handlooms continue to be the basis of coir exports from India. We are not able to provide a satisfactory explanation for the above paradox. Perhaps it underlines the fact that the handicap of Kerala's export to developed countries has never been its higher cost relative to the European powerloom products. The decisive advantage of European powerlooms lay in the diversified nature of their products, superior quality, better packaging and finishing

Table 9

Table 9

Technological Alternatives in Matting Weaving

(one shift only)

	Handloom	Semi Automatic loom	Automatic Powerloom
1	2	3	4
Cost of looms (im) Rs.lakhs	0.12	0.8	35.0
Number of workers required for weaving 850 sq.m/day	65	40	15
Productivity/loan/day (sq.m)	25	40	150
Productivity/worker/day (sq.m)	13	21	57
Wages/Worker	62	70	78
Conversion charges/sq.m (Rs.)	7.55	7.47	24.28

and the superior marketing network. A cost reduction achieved in India, that would have only a marginal impact on ultimate retail prices in Europe, would not confer any decisive advantage to Indian exports. Whatever be the reason the failure of powerloom exports is a matter that requires further probing.

At any rate powerloom has today ceased to be a viable technological option for the industry in Kerala. For various reasons there has been a phenomenal cost escalation of powerloom machinery and the import price of a new loom is estimated to be around Rs.35 lakh. The cost of depreciation and interest on the outlay on capital equipment of powerloom matting production would be more than double the entire conversion charges of a square metre of handloom matting. It is for this reason that the conversion charge of per square meter of powerloom matting is Rs.24.28 while that of handloom matting is only Rs.7.55 (see table 9). Powerloom would displace around 80 to 85 per cent of

the existing handloom weavers. Thus a policy of promotion of powerloom is not only inappropriate to our factor endowments but also do not enable us to reduce the cost of production.

The challenge to traditional handloom arise from an intermediate technology that has been indigenously developed. It is essentially a motorised handloom. Motor power is used for treadling and beating but, unlike in powerloom, the weft yarn movement is not automatic. It is therefore known as semi automatic loom. Cost of a loom would be around Rs.0.8 lakh. While a one matting handloom employing two weavers would produce 25 square meters of matting on a eight hour shift the production capacity of a semi automatic powerloom operated by a single weaver is 40 square meters. The conversion charges of a square metre of matting would decline marginally from Rs.7.55 to Rs. 7.47 if semi automatic loom is adopted. But semi automatic loom would result in significant improvement in quality by removing the problem of buckling that plague handloom production and ensure weft consistency. Edge problems of powerloom weaving can also be avoided in the semi automatic looms. The labour displacement will also be much lower than in the case of automatic powerlooms. Semi automatic loom is still an infant technology but holds out prospects of significant future improvements.

Kerala can ignore this technological innovation only at peril to its weaving industry. Unlike in the case of powerloom there is no import barrier to semi automatic looms nor is the fixed capital investment prohibitive. Since semi automatic looms

removes to a significant extent the craft control over production, it can be relatively easily adopted by the other coir producing states. Therefore it is important that Kerala introduces semi automatic looms in a phased manner into its matting sector. The handlooms would continue to survive in the decentralised sector. But semi automatic looms would lay the basis for the emergence of a modern organised sector in the coir weaving industry.

A special employment and rehabilitation scheme for the displaced handloom matting weavers will have to be drawn up. Majority of them can possibly be absorbed within the semiautomatic matting weaving sector itself whose production is likely to significantly expand in the near future or in the other new industrial units in and around Alleppey. Since the number of workers that could be involved in the rehabilitation scheme is unlikely to exceed 2000 or so it is possible to formulate and implement an action plan for the purpose.

Unlike the matting there is no scope for mechanisation of mat weaving but for the creel mat sector. The mat sector is almost entirely in the decentralised cottage units and therefore characterised by old and dilapidated looms which is a major hinderance to quality control and improvement. The entire worn out and outdated looms should be replaced with improved standardised handlooms designed by the Coir Board. These standardised mat looms with improved lever fittings can increase the productivity by around 20 to 25 per cent and reduce the physical drudgery of coir mat weaving.

We have so far been dealing with the traditional coir floor coverings produced in Kerala. But there is an urgent need to take steps to develop a non traditional and modern coir products sector. Latex backing and rubber edging for coir matting/mat and rubber backing of mat/mattings by hot pressing/calendering have already entered Kerala's production spectrum. But there is scope for more improvement in quality in all these products. Establishment of `Foam Mattings Ltd.' has been a step in the right direction. This pioneering venture in the product diversification of the industry has been going through the common travails of the public sector units in Kerala. Revival and expansion of this unit is important to enhance the climate of industrial confidence. Rubberised coir products from brown fibre is an area where the potential scope has not been utilised in Kerala. Special incentive assistance under the Coir Development Scheme should be provided for private industrialists who are willing to set up modern industrial units for product diversification.

Kerala has so far neglected the potential for development of brown fibre production fearing adverse consequences for its white fibre industry. The combing mills that are sought to be established for extraction of raw husk fibre can equally well extract brown fibre if green husks are not available. Therefore even without any special promotion effort brown fibre production in Kerala would also be increasing. The brown fibre by itself is a relatively low value product but has great industrial potential. Steps also should be taken for the promotion of modern rubberised product industries in Kerala.

Coir pith is another byproduct that is being wasted today. Major portion of the pith is today dumped into the backwaters contributing to water pollution and silting. Attempts for commercial utilisation of the pith has not been successful. The major technical snags have been the high moisture, salt and mud content of the husk pith. With the extraction of fibre from raw husk there would be a considerable amount of pith free of these problems. Possibilities of using coir pith for manufacturing briquettes and pith based plant growing media for use in nurseries must be explored.

The introduction of new technology and improvement of technology would halt the process of decentralisation of production and industrial disorganisation that has characterised the coir production in the post independence period. But the cottage unit sector would continue to coexist for a considerable period in the future. Therefore it is important to develop common service facilities for the decentralised sector. The centralised large scale dyeing facilities that have been created to service the small scale sector has been largely unutilised because of high transportation charges to the central dye house and the minimum size loads that have to be dyed at a time. Either smaller modern dye houses should be established at vantage points in the coir belt or a transport subsidy must be given to the small scale manufacturers to bring their yarn to the central dye house. Dyeing and other treatments of the yarn are highly important to ensure the quality of coir products. Similarly there are possibilities of establishing common facilities for mechanised beaming/filling, mechanised stretching and rolling

device for mattings or other finishing works.

For the successful functioning of these common service facilities and to introduce an element of regulation in the decentralised sector it is important that small scale manufacturers be brought into the cooperative fold. These cooperatives of small scale producers would not be direct production units but marketing and service societies. Cooperative intermediation would also enable the small scale producers to realize better price for their products.

There also exists a worker cooperative sector in the coir manufacturing. There are 18 working manufacturing cooperative societies of which 8 are working on a profit. Many of these units have been established by the retrenched workers of the erstwhile large scale coir manufacturers utilising the same old premises and equipments. Thus many of them are endowed with sufficient infrastructural facilities to play an important role in the industrial revival. The semi automatic looms as well as new coir products should be introduced within the cooperative sector.

Section 5

MARKETING AND RESEARCH

We have already outlined in the introductory chapter the major trend in the market for coir and coir products. The foreign exports had been the driving force behind the rapid growth of the industry in Kerala. The internal market in India was only a subsidiary market absorbing excess production over export requirements. A flexible price mechanism and compromises in quality standards helped to absorb the excess supply within the Indian market. The established exporters by and large neglected the internal market. The Indian market became synonymous with inferior quality products, export rejects and informal trade channels. The exports dramatically declined from mid 'sixties and the internal market became the major claimant on coir production. But the old notions of residual nature of the latter market and attendent neglect of any comprehensive internal market development policy persisted. The result was that the internal market, which is the worlds largest market for coir, continues to be the least quality conscious and unorganised.

Campaign for Product Awareness

Till recently there was no knowledge what so ever, even within the commodity board for the industry, on the nature of internal market viz., its potential capacity, regional differences or end uses. The Coir Board's efforts in developing the internal market was confined to a small number of show rooms distributed in major urban centres and accredited dealers through whom standardised quality products were sought to be promoted.

Of late cooperative and public sector agencies have also entered the market. But their overall share and influence in the market have not been significant. Because of the unorganised nature of the trade, even amongst the private trading circles, the knowledge of the internal market remains fragmented and limited.

The only sources of information on the internal markets are the two market survey reports commissioned by the Coir Board in the 'eighties. We are not attempting to review the vast amount of information marshalled in these reports regarding the characteristics of various regional markets, consumer preferences, marketing channels etc. Both the reports underline the vast untapped internal market potential for coir in India. They also reveal an equally important but disturbing aspect of the Indian market: "The significance and clear understanding of `white' features of coir and coir products by dealers and end users outside Kerala particularly in the North Indian market is absent ..... The internal market by and large has been evolved over years on the basis of commercial interests rather than on technical aspects..... (Consequently) the market is more prone to compromise on quality rather than accept higher prices". (Ramesh,G., Taghat, Vaidyanathan,R. 1982)

It is particularly so for the purchases made by the rural household sector for agricultural purposes and the urban customers for construction and packaging purposes. These end users constitutes 60 to 70 per cent of the urban and rural offtake of coir yarn. Only for special purposes like charpoy stringing quality is insisted upon. In the coir product market

mattings are mostly purchased by institutional buyers. The demand from the household sector is almost entirely for door mats and the quality has been on discount except for the urban upper middle classes.

Since Kerala had a virtual monopoly of coir production there was no competitive compulsion in creating product awarneness. Consequently price rather than the quality has become the major determinant for consumer preferences. With the entry of machine made brown fibre and raw husk fibre substitutes in the markets the above situation is proving to be severely adverse to the traditional superior quality products of Kerala. It is evidenced by the declining share of Kerala products even within the internal markets in recent years.

The experience of the rope market is instructive in this regard. The coir ropes made from retted husk fibre in Kerala is undoubtedly the best quality that is available today. But the rope industry in Kerala has been very rapidly declining and coir rope has become synonymous with Salem in Tamil Nadu. The Salem ropes prepared from brown fibre or inferior fibre and highly adulterated with mud have virtually pushed Kerala rope out of the major markets in India.

It is going to be an uphill task to compete with the cheaper substitutes in a price conscious market that has hardly been cultivated on quality. It is in this context that an aggressive marketing campaign highlighting not merely the generic qualities of coir but the superior quality of Kerala's white

fibre becomes vitally important. A conscious attempt must be made to establish product diff .entiation according to the nature of fibre viz., fibre from retted husk, raw husk and dry husk. Today even in the export trade where standardisation of quality is implemented raw husk fibre products are substituted for the traditional retted white fibre products. Coir Board should amend the quality specification of fibre, yarn and products to incorporate to specify raw husk fibre. At the same time our proposals for the diversification of Kerala's production to include raw husk and dry husk fibre would enable Kerala to have a product spectrum to successfully complete with the cheaper quality products in the markets. While making available cheaper varieties of coir products in its product range care must be taken to differentiate between the various types of coir. What must be resisted at any cost is the present tendency to mix raw husk and retted husk fibre in order to reduce the cost.

Another related task that has to be addressed urgently is the need to standardise the product sold in the internal market. Today there are hundreds of qualities of coir yarn that serve no purpose other than bewilder the customer and facilitate the smooth passage of adulterated inferior products. The qualities of coir yarn and products should be limited to a narrow standard range.

Organisation of Marketing

At present the intern market is largely controlled by private traders who pay little attention to the quality of the product. Internal marketing should be transformed, from the individual trade activity, into an integrated properly planned and coordinated marketing strategy. The research, development and production should be coordinated with the potential requirement of the market. All these require a major reorganisation of the present marketing structure which would not eliminate the present private traders but would integrate them into an organised network.

The first prerequisite is the coordination of the marketing agencies within Kerala. Besides the private dealers and Coir Board, Coir-fed, Coir Corporation and primary manufacturing societies are involved in the supply of coir and coir products. A consortium of Coirfed, Coir Corporation and the Coir Cooperatives may be formed to avoid unhealthy competition and to constitute a nodal agency for marketing. The consortium of cooperative and public sector units should also closely interact with the private dealers from Kerala.

After a careful study taking into account the nature of regional demand, transport network and geographical factors the internal market should be divided into regions of viable size each with a regional showroom directly managed by the consortium. The existing direct showrooms of the Coir Corporation and the Coirfed should be amalgamated and rationalised. The regional showrooms should take the initiative in covering the regional

market with a network of accredited dealers and agents preferably drawn from the present existing dealers of coir and coir products. A special rebate should be paid for the products sold through the sales outlets of these accredited dealers and an attractive package of incentives be offered to ensure their loyalty. Though regional showrooms though may be continued as direct sales outlets, they would have to play an important role as promotional centres and the coordinators of dealers and agents. There should be sufficient stockholding at the regional headquarters. The prices of the accredited dealers and showrooms should be uniform to avoid mutual competition. The regional managers should undertake periodic market audit and planning and should be permitted to evolve their own promotional measures and marketing strategies.

The regional showrooms should withdraw from retail sales in a phased manner in order to avoid competing with its network of accredited agents and dealers and concentrate on coordination of supplies, study of markets and supervision of sales promotional activity. The regional centres would also concentrate on institutional contacts to increase the awareness of the product and to supply the bulk customers. The various state and central government organisations and departments, particularly, the Director General of Supply and Disposal are important source of demand. It is important that government organisations be persuaded to effect the purchase of their requirements from the Coirfed.

The above scheme would imply strengthening of the regional showroom with trained experienced cadre of managerial personnel, adequate warehousing facilities, sufficient stock of a wide variety of coir products and showrooms in attractive commercial locations.

Foreign Exports

The decline in the exports of coir floor coverings has not been as severe as in the case of coir yarn. In fact, from the late 1970's, there has been a recovery in the market for coir floor coverings. This expansion in market has almost entirely been captured by the modern coir industry in Netherlands. More than the price factor it has been the lack of product innovation and poor quality and packaging that have been responsible for the failure of Indian exports. With adequate steps taken to combat these deficiencies there are possibilities for recovering some of the markets in foreign countries.

The increasing environmental consciousness is reviving the demand for natural fibres like coir inspite of the cheaper synthetic substitutes available. There could be a revival of coir yarn for the agricultural purposes in the West if proper quality can be ensured. Further a new market for coir fibre seems to be opening up in the geo-textile sector.

So far our attention has been entirely focussed on the West European countries and North America the traditional markets for coir products. The East Europe and the middle income developing countries are areas where greater attention has to be

bestowed. Though there has been reduction in trade barriers in the West, the tarrifs on coir continue to persist in most of the developing countries. Besides, the tariff problem, the lack of adequate shipping facilities have always been a major handicap to the coir exports from Kerala. Cochin being the last port of call for West bound steamers, the bulky coir products tend to be left out due to exhaustion of shipping space. Failure of timely supply has been a major problem and perhaps can be taken care of only through establishing a large warehousing facility in a central place in Europe for stocking and supplying coir products to the European markets.

While Kerala government could perhaps do little directly within the foreign market it could play a very important role in developing new commercial uses for coir in India. Two major non conventional uses to which coir fibres may be put are (a) geotextiles and (b) roof cooling material. Coir has been proved to be very effective medium for preventing soil erosion on embankments and slopes. But its commercial utilisation has been very low. Kerala government as a matter of policy could advocate utilisation of coir fibre for lining the embankments for the proposed national waterway in Kerala instead of the normal concrete embankments. If the commercial viability of coir as a geofabric can be demonstrated through such a bold measure the resultant market potential that would open up would be immense. Similarly, coir sandbags have proved effective against sea erosion. It is another avenue for demand for coir fabrics. Again another experimental success which awaits commercial application has been the use of coir for cooling buildings by

roof surface evaporative technique. All these point to possibilities of use diversification and expansion of the market into non conventional areas.

Research Support

Product diversification and technological upgradation are two themes that have been recurring in our discussions. Both require incorporation of modern science and technology into the production process and involve substantial research input. The past record of the industry in this respect is rather dismal. The traditional handicraft, basis of production and the compulsion to maintain it did not provide much scope for incorporation of modern science and technology. But surprisingly there has been no innovtive venture even into non traditional areas. Within the traditional sector the industry has exhibited little dynamism to change the patterns and designs of products to suit the changing tastes. A major reason for the total lack of initiative from private entrepreneurs in the research and development activities is the eclipse of manufacturer - exporters from the industrial scene. Most of the present day exporters are purely middlemen with little or no permanent manufacturing stake in the industry. Consequently the research, design and development expenses by the private sector has been negligible. Coir Board has therefore been the only agency undertaking technological research in coir. Its involvement began in 1955 with the appointment of a coir technologist as a prelude to the establishment of a full fledged research institute. The Central Coir Research Institute started functioning in 1961. Since then the research on coir has been intimately connected with this

institution. A review of the research activities at CCRI in the first one decade of its existence reveals an impressive record. It played an important role in setting up the data base of the industry, standardisation and quality control of product and initiating experiments on softening coir, development of dyes, dyeing techniques, pre- treatment of coir yarn for dyeing, methods to reduce the period of retting etc. It also developed protypes of treadle ratts and semi automatic looms. Improved and standardised handlooms were evolved. A nodal plant for powerloom experiments was also started. (Coir Board, 1978)

For various reasons the initial momentum was not maintained and the research direction also deviated. Thus while the treadle ratt has remained at the prototype stage itself during the last two decades, the automatic spinning machine with self feeding machanism was successfully developed. There was no attempt to standardise the mechanical defibreing technology. The product diversification has been largely confined to the activities of the Design Centre. Retting continues to be a riddle as in the past and no viable technology for the commercial utilisation of husk has been evolved.

The general hostile atmosphere to modernisation as well as the usual bureaucratization of research may have contributed to the above stagnation. Whatever be the exact reasons, the present lethargy of this nodal institute has to be shed if the modernisation of the industry that we have proposed is to succeed. There are three areas where effective research and development work has become a matter of utmost urgency.

(a) Commercial development of intermediate technologies: As we have noted the productivity of the treadle ratt has to be improved if it is to be a viable alternative. Semi automatic looms also require improvement and extension, particular, into three shaft looms and creel mat looms. The fibre extraction machinery has to be standardised ensuring maximum quality of fibre.

(b) Product diversification and alternate uses: Continuous experimentation and development work is required if the potential of coir as geotextile and insulation material are to be reaped. Utilisation of coir pith, development of coir polymer composites and rubberised products are also priority areas. Modern technology for new products such as coir tiles have to be acquired and adapted.

(c) Characteristics of coir fibre and possibilities of increasing its versatility: The introduction of green husk fibre calls for a reexamination of comparative advantages of various types of processing. Experiments to increase the versatility of raw husk fibre is also important. Given the increasing environmental consciousness and the fact that traditional retting process would continue in the southern Kerala for the foreseeable future, experiments to reduce the retting period and control the retting pollution have their relevance.

Though it would be undesirable to have any more research institutions for coir, the existing facilities should be expanded and strengthened. But as complementary to the activities of CCRI, the Kerala government may constitute a coir development fund for sponsoring research and development activities utilising

the expertise available at the various research institutes and laboratories in the country. The fund may be used for providing matching grants to the research and development activities undertaken by the manufacturing concerns. A conscious effort must be made to involve the coir entrepreneurial talents into research and development activities. It would facilitate easier commercial diffusion of the research output in the industry. A major step up of supportive research and development activity is an important precondition for the successful implementation of the modernisation of the industry.

Section 6

CONCLUDING COMMENTS

In this paper we have attempted to present the broad policy framework for the revitalisation of the coir industry in Kerala. The present government schemes have reached a dead end: Coir production has been declining in the recent years. Kerala's share in the world market as well as the internal market in India has been declining. Not only has the available quantum of work reduced but the relative wages in the industry have also declined. It has become impossible to guarantee minimum wages even in the cooperative fold. All these call for a new approach. Our proposals differ significantly from the currently accepted policies for coir development in many respects:

(a) In order to increase the utilisation of husk potential of Kerala we have proposed deregulation of the husk market in the husk surplus northern districts.

(b) We have argued for removal of restriction on mechanical defibreing in the northern districts and for a flexible policy in this regard in the southern districts.

(c) Instead of the present policy of discouraging the extraction of fibre from non-retted husks we have argued for positive encouragement to raw husk fibre extraction in the northern districts and areas outside the economic hinterland of the retting sites in the southern districts. Fibre production would be developed as a specialised industry in these areas.

(d) Though we have reaffirmed the present ban on powerlooms in weaving and automatic spinning machines in spinning, we have emphasised the need to introduce certain intermediate

technologies which would improve the quality and increase labour productivity to an extent.

(e) With respect to marketing we have shifted the emphasis of the strategy towards a systematic development of the internal market within India.

By itself the technological upgradation that we have proposed would displace the labour to an extent. But the attendant proposals for diversification of products, increasing the husk utilisation, reducing the cost of production and expanding the markets would result in 30 to 35 per cent increase in overall production and enable a minimum of 250 days of employment to workers in the industry. We have suggested a planned rehabilitation programme for the displaced workers into the expanding sectors of the industry. Finally, the technological upgradation is sought to be implemented within the cooperative framework which would facilitate a more equitable distribution of the work and the benefits of the increased productivity to the workforce. The removal of the husk regulatory mechanism will not adversely affect the functioning of the cooperatives since a compensatory price support system in lieu of the levy is sought to be given to them. The reorganistion and strengthening of the cooperatives is central to our revitalisation scheme. It is this organisational structure that guarantees the reconciliation of the apparent contradiction between the residual employment sectoral macro economic function of the coir industry and the contemporary compulsions for the upgradation of technology.

References

Coir Board (1962) — Report on the Economic and Statistical Survey of the Coir Industry, the author, Ernakulam.

Coir Board (1968) — Survey Report on Coir industry: Retting, Spinning, Manufacturing, the author, Ernakulam.

Coir Board (1978) — A Review of the Research and Development Effort and the Work Programme of the Central Coir Research Institute, (Mimeo), CCRI, Kalavoor.

Department of Economics and Statistics (Government of Kerala) (1989) — Statistics for Planning, the author, *Trivandrum.*

FAO (Food and Agricultural Organisation) (1985) — Supplly Lemand and Trade Projections 1990, FAO/?CP/HF/85/5

Govt. of Travancore (1932) — Travancore Depression Enquiry Committee Report, The author, Trivandrum.

Government of Kerala (1990) — Survey of Coir Workers, (Mimeo), Coir Directorate, Trivandrum.

IIFT (Indian Institute of Foreign Trade (1971) — Survey of Indian Export Potential for Coir based Products, the author, New Delhi.

Kunjiraman, N. (1963) — Report of Minimum Wages Committee for Manufacture of Coir, Government of Kerala, Trivandrum.

Mathew Tharakan K.J. (1954) — Report of the Minimum Wages Committee for Manufacture of Coir, Government of Kerala, Trivandrum.

Mohammed Kunju K. (1966) — Coir Yarn: A Study on Different types of Coir Yarn in India, Coir Board, Ernakulam.

Nair, M.N.V. (1977) — Coir Industry: A Study of its Structure and Organisation with Particular Reference to Employment in Kerala, Indian Institute of Management, Bangalore.

Narayana, D. et.al. (1980) — Development in Kerala - An Expost Evaluation Study, (Mimeo), CDS, Trivandrum.

Pillai Parameswaran G. (1955) — Report of the Committee on Coir Mats and Matting Manufacturing Industry, Gover ent of Kerala Trivandrum.

Pillai, V.R. (1955) — Report of the Coir Advisory Committee, Government of Kerala, Trivandrum.

Planning Board (Govt. of Kerala) (1973) — Report of the Study Group on Mechanisation of Coir Industry in Kerala, the author, Trivandrum.

Pyaralal Raghavan (1990) — The Coir Cooperatives in Kerala - A study of their Growth and performance (unpublished) Centre for Development Studies, Trivandrum.

Pylee M.V. (1975) — A Study of Coir Industry in India: Problems and Prospects, Coir Board, Ernakulam.

Ramesh G. Taghat, Vaidyanathan R. (1982) — Study of the Market Potential for Coir and Coir Products in India, Indian Institute of Management, Bangalore.

Sreenivasan B. (1978) — Report of the Study Team on Husk Levy System, (Mimeo), Government of Kerala, Trivandrum.

Sivaraman B. (1978) — Report of the High Powered Study Team on the Coir Industry, (Mimeo), Planning Commission, New Delhi.

Thomas Isaac T.M. and Chandan Mukherjee (1981) — A Review of Estimates of Production and Employment in the Coir Industry, (Mimeo), Centre for Development Studies, Trivandrum.

Thomas Isaac T.M. (1984) — Class Struggle and Industrial Structure - A Study of Coir Weaving Industry in Kerala 1859-1980, Ph.D. thesis submitted to JNU at Centre for Development Studies, Trivandrum.

Thomas Isaac T.M. and Parameswaran M.P. (1985) — Withering Coconut (Mal.), KSSP, Trivandrum.

Thomas Isaac T.M. (1990) — Evolution of Organisation of Production in Coir Yarn Spinning in Kerala, Working Paper No.236, Centre for Development Studies, Trivandrum.

UNDP (United Nations Development Programme (1975) — Transfer of Advanced Coir Processing Technology from Developed to Developing Countries, UNDP/UNCTAD/GATT.