

POSSIBILITIES OF COIR DEVELOPMENT

REPORT OF THE COIR BOARD STUDY TEAM

**COIR BOARD.
COCHIN-16
1970**

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Report on the Study Team
for development of coir industry
in the State of West Bengal-1968.

P R E F A C E

The cultivation of coconuts in India is concentrated for the most part in Kerala where industries based on the use of the coconut fruit as well as coconut husk, are well established. Though coconut is being cultivated on a fairly extensive scale in the other coconut growing regions of India, the byproduct of the coconut industry, namely, the coconut husk, is not being exploited in these areas to commercial advantage to any appreciable extent. With a view to examine the prospects for development of coir industry in these areas, a study was sponsored by the Coir Board and this report covers the findings of the Study Team on the subject.

The Study Team visited the States of Mysore, Maharashtra, Tamilnadu, Andhra, Orissa and the Union Territory of Goa. West Bengal has also substantial areas under coconut cultivation. However, as the scope for development of coir industry in West Bengal has already been conducted by the Board in November 1967, the present study was confined to the other States only. In the course of the visit to the different centres in the States, the study team made special efforts to collect data on the area under coconut cultivation, concentration of coconut plantation in the different districts, the yield of coconuts, the periodicity of harvesting the nuts, the price range of the raw material in the different centres, the present outlets for the husk produced, the present pattern of the industry and such other factors which are relevant for assessment of the potentialities for coir development. The Study Team had discussions with coconut cultivators, coconut husk processors. The findings of the Study Team are recorded in the following pages.

The report of the Coir Board Study Team for West Bengal is also supplemented to this report to make available the results of the studies conducted earlier in one publication.

While presenting these papers, I have to record with profound regret the untimely demise of one of the members of the Study Team, namely, Shri M. M. Krishna Marar, Director, Regional Office, Coconut Development, Ernakulam. The vast knowledge of Shri Marar and his sharp insight have been immensely helpful to the Study Team to assess the prospects for coir development in the proper perspective. The Study Team and the Coir Board take this opportunity to place on record their appreciation of the services rendered by Shri Marar in this context.

Cochin-16,
Date: 26-2-1970

Sd/-
Col. V. V. DEV,
Chairman,
Coir Board.

I INTRODUCTION

The Coir Board at its meeting held on 24th June 1968 decided that a small team of experts may go round the important coconut growing States of India and make an on-the-spot study about the progress so far made and the future possibilities of development of Coir Industry in the States concerned. The Study Team was constituted with the following personnel:

- i) Col. V. V. Dev, Chairman, Coir Board
(Leader)
- ii) Dr. E. K. Madhavan, Member, Coir Board
(Alternate Leader)
- iii) Shri M. M. Krishna Marar, Director,
Regional Office, Coconut Development
and Member, Coir Board
(Member)
- iv) Shri G. N. Prabhu, Director, Central Coir
Research Institute.
(Member-Secretary)

It was decided that the Study may cover the States of Mysore, Tamilnadu, Maharashtra, Andhra, Orissa and Union Territory of Goa. The study team completed the tour to the States. The observations of the Team in relation to the coir industry as at present in the States and indicating the possibilities of future development are furnished in the following pages.

II SUMMARY OF OBSERVATIONS AND RECOMMENDATIONS

i) Potentialities for Coir Development.

In the States of Mysore, Tamilnadu, Maharashtra and Union Territory of Goa, coconut cultivation is being carried out on an extensive scale in selected areas. The production of coconuts in these States is of a substantial order. The nuts are harvested periodically at the intervals of about two months on an average, though the actual period of harvesting varies from place to place. Only a small proportion of the nuts are dehusked in the green stage, bulk of the production being dehusked after the nuts are stored for varying periods, ranging up to a few months.

Retting of coconut husks is being carried out extensively in the Kanyakumari District of Tamilnadu and on a very much limited scale in the other States in areas where accessibility of water from the sea or rivers could be depended upon. The availability of suitable sites for natural retting of coconut husks in these States is far too restricted and therefore, the possibilities for expanding the retting sector of coir industry seems to be remote. All the same, there is scope for improving the conditions of retting in the areas where fibre extraction by the retting process is being practised at present. Proper selection of the sites for retting, screening of the raw material as it goes to the retting pit to eliminate dry and immature husks, improvements in the lay of the retting pits to ensure efficient disposal of the effluents and greater control in further processing of the retted husk for extraction of fibre would go a long way to improve the quality and quantity of the fibre extracted in these areas.

The scope for development of coir industry in these States is, however, great, because of the fact that

the quantity of coconut husks actually used for extraction of fibre at present is estimated to be less than ten per cent of the production potential. All the same, since the raw material available is largely dry husks, the prospects are for development of the industry for extraction of fibre by mechanised processes and manufacture of products based on the use of mechanically extracted fibre.

For mechanical extraction of coir, machinery with different capacities are available. The plants of larger capacities would require about 10,000 coconut husks per machine for 8 hour work, whereas plants with medium capacity would require about 500 husks for keeping the machine engaged for the same period. Plants of larger capacities are suitable for adoption on a factory scale in regions where husk supply of the specified order could be depended upon for its continued operation. This restricts the choice of installation of the machine to large scale coconut plantations, where the husks could be collected at a central place at a reasonable cost. For adoption in the rural sector, the medium type plants run by individual motors are much more suitable. These plants have an advantage in that the capital investment needed is of a low order compared to the investment needed for large scale plant. The incidence on transport of husks would also be very limited in this case. Dispersal of the medium type units in the rural sector would provide part time employment for the agricultural labour in the off season as well and from this point of view, adoption of the medium type machines for coir development appears to be a worthwhile proposition.

In all the States, notably in Mysore, the Governments have come forward to establish mechanical defibering units to function as fore-runner for many such units to come into existence under the private, co-operative and public sectors. This is a healthy development and should be encouraged for advantageous exploitation

of the raw material and also for the betterment of the living conditions of the people in the area.

It would be ideal to develop the industry through well organised co-operative societies, restricting the membership mainly to workers. Every care has to be taken to ensure that the activities of the Societies cover all aspects of the industry from collection of coconut husks to marketing of the finished products. Supervision and management of the Societies should be entrusted to trained, competent personnel devoid of vested interests.

From an overall review of the Coir Co-operatives presently functioning in the States, it is observed that the Societies do not work satisfactorily. For efficient functioning, efforts have to be directed to reorganise and reorient the activities of the Societies. While efforts for furthering the co-operative movement should be continued, it is desirable to encourage private entrepreneurs to take up the development programmes in the small scale sector, for expeditious development of the industry. The move of the Government of Mysore in this regard appears to be a step in the right direction.

ii) Training

At present, schools for training personnel in coir manufacturing programmes are functioning in all the States visited by the Study Team. Some of these schools are functioning as training-cum-production centres, whereas a few others function only as training centres. The training-cum-production centres are making efforts to function on sound economy; however, lack of organised channels to market the production of the units is hampering the progress of these units. In Mysore, formation of the Mysore State Central Coir Marketing Co-operative Society has considerably helped coir manufacturing units under the public sector, for disposal of the production of

the units functioning under the patronage of the Government.

As far as the training institutes are concerned, most of them are at present taking up candidates on stipend and imparting training in spinning of yarn from retted coir fibre and manufacture of products, for periods of specified duration. The candidates who are selected for the training have little or no background of the Coir Industry, nor are they inclined to engage themselves in efforts aimed at development of coir industry on completion of the training. The lack of follow-up programmes to retain the trained personnel in the industry is responsible for this situation to a certain extent. As such, the training programmes presently followed only serve very limited purpose. In the opinion of the Study Team, the training programme requires thorough revision—in the content of the training programme and also in the selection of the candidates for training.

As for the content of training, it would be highly desirable to have the same covered for two cadres of personnel - i) Managerial and Supervisory and ii) Artisan. The training for Managerial and Supervisory personnel has to be somewhat exhaustive covering the extraction of fibre, manufacture of products and marketing. The programme for artisan training need cover only the practical aspects of coir extraction and manufacture.

Facilities for training the personnel for Managerial and Supervisory cadre could be afforded by the Coir Board at the National Coir Training & Design Centre, Alleppey. Such personnel should be literate with ability to take up independent charge of coir extraction units in their home States on successful completion of the training course. They should also be in a position to take up understudies for being trained in the training schools of which they are to be in charge.

In the opinion of the Study Team, facilities for training artisans could be best afforded by the respective State Governments in their own schools, with the Managerial and Supervisory personnel trained at the National Coir Training and Design Centre of the Board as in doing so, the artisan trainees could be instructed in the languages in which they are conversant.

iii) Marketing

Organisation of coir extraction and manufacturing units in the different States could be achieved in public, co-operative or private sector with patronage from the Government or private agencies. But the major problems that would be faced by the coir extraction units are the difficulties in finding expanding markets for mechanically extracted coir and coir products and an efficient system of marketing. The production of the units which are functioning at present is only of a very nominal order and even the comparatively better organised industry in Mysore is now facing difficulties in marketing the products. An export market for mechanically extracted fibre is yet to be found. Even in the home market, the scope for continued off-take of mechanically extracted fibre from different sources require to be established. Since the problems to be faced by the mechanised coir extraction units in all the States are likely to be similar, the Study Team is of the opinion that measures for centralised action in this behalf can be considered for implementation.

It is understood that with the present cost structure of the mechanically extracted fibre in India, there are formidable difficulties in finding export markets for this material. Unless the fibre is offered at competitive rates with that of Ceylon, the possibilities for finding export markets are practically remote. Therefore, the question as to how the cost factor of the indigenous fibre could be whittled down is a matter to be looked into in

detail for appropriate action. For exploring export markets it is highly desirable to send a sales team consisting of representatives drawn up from the different sectors of the industry in the States concerned. For boosting up internal sales, it would be highly desirable to explore the possibility of making standing arrangements with organisations who are likely to use this material on bulk scale, such as, Railways, Road Transport Corpn: Hospitals, upholsters etc.

17) Assistance from the Board.

Assistance from the Board for developing coir industry in the different States is solicited by all the States. Proposals that have been put forward to the Study Team by the local interests are the following:-

- a) Coir Board should arrange to give equipments to entrepreneurs at subsidised rates.
- b) Coir Board should assist mechanical coir extraction units for putting up plants for manufacture of products for which the local fibre is most suitable.
- c) Coir Board should move the State and Central Governments for exempting coir goods from payment of Sales Tax, Octroi etc. wherever these taxes are being levied.
- d) In case of the Accredited Dealers of the Board in the Co-operative Sector, the subsidy should be increased.
- e) Guarantee of minimum sales performance for accreditation by the Board, should be relaxed to a certain extent for depots run by the co-operatives.
- f) For local publicity for coir products, the accredited dealers of the Board must be subsidised for expenses incurred for advertisement in local dailies.

- g) Coir Board should move the Government of India and the Reserve Bank of India to advance loans at subsidised rates of interest on terms similar to that extended to the Handloom sector of textiles.
- h) Floor prices and quality control should be enforced for sale of coir and coir products within India also.
- i) The finance for coir development programme should be routed through District Co-operative Banks.
- j) Being an Agro-industry, electrical energy should be made available at lower tariffs for the mechanised coir units.
- k) Coir Board should establish a regular channel for providing trained personnel needed for developing Coir industry in the States.
- l) The Board should arrange for making available skilled administrative personnel having a knowledge in the different aspects of coir industry for organising co-operatives in the States.
- m) The Board should associate with the State Governments for investigating problems of interest to the mechanical coir extraction units and also render them necessary technical guidance in the matter.



III DETAILED REPORT

I. MYSORE STATE.

1.1 Coconut production and husk potential.

Mysore State has a total area of about 1.24 Lakh hectares under coconut cultivation with an estimated production of 344 million nuts per annum. The concentration of cocount plantation indicating the area under coconut cultivation is furnished hereunder:

District wise area under cocount cultivation

| District | Hectares | Production in million nuts. |
|-----------------|----------|-----------------------------|
| 1. Tumkur | 34,627 | 125.1 |
| 2. Hassan | 26,418 | 72.3 |
| 3. South Kanara | 18,929 | 29.2 |
| 4. Chitradurga | 11,466 | 23.6 |
| 5. North Kanara | 7,441 | 20.9 |
| 6. Chikmagalur | 11,881 | 14.3 |
| 7. Mysore | 7,571 | 9.4 |
| 8. Other areas | 5,394 | 48.6 |
| Total | 1,23,727 | 343.4 |

In Mysore State, on an average, coconuts are harvested six to eight times in an year. 50 per cent of the nuts are collected as fully mature and ripe nuts which fall from the tree and are used for preparation of ball copra. The nuts are stored for 8 to 10 months before these are dehusked. At present only a small proportion of the dry husk goes for extraction of fibre,

the remaining part being consumed locally as fuel. Of the remaining 50% coconuts, which are harvested in green ripe stage, about half (ie. 25% of the total) is dehusked immediately and part of this husk is utilised for retting in the coastal areas of Kanara. The remaining part of the husk (ie. 25% of the total) is partially utilised for extraction of fibre by mechanised processes, the remaining quantity being used as fuel. On the whole, only about 8 to 10% of the husk is estimated as being utilised for fibre extraction, the remaining part not being put to industrial use.

The cost of green husk in the State ranges from Rs.10/- to 30/- per one thousand at the collection point in Kanara and for dry husks from Rs.6/- to 20/- per one thousand ex - factory. Cost of retting husks in the coastal area of Kanara is reported to be about Rs.50/- per one thousand and cost of fibre about Rs.65/- per quintal.

1.2 Present pattern of coir industry and future prospects

As referred to already, coir is being extracted by the traditional method of retting in the coastal areas of South and North Kanara districts, where only retting facilities are available to some extent. In the hinterlands, extraction of fibre was not being attempted on any appreciable extent till recently when the Government came forward to organise departmental units for extraction of fibre by mechanised processes. Of late, private entrepreneurs are also taking interest in putting up units in the rural sector. The Departmental units are reported to produce about 2 tonnes of coir fibre a day (8 hours) by the mechanised process. It has not been possible to assess the output of fibre by the retting process, as reliable data in this behalf is not available; however, the indication is that the production is likely to be about 5 tonnes per day.

With a view to furthering the coir industry in the State, the Government has so far organised 34 coir co-operative societies including the Mysore State Central Coir Marketing Co-op. Society, Bangalore. The State has extended assistance to the extent of Rs. 8.89 lakhs during the 2nd & 3rd Plan periods to these Societies in the form of grants and loans under the State Plan Programme. Most of these Societies, though they are intended to work as production-cum-sales Societies actually function as Sales Societies only. Only very few Societies have any manufacturing programme and those having manufacturing programme do not exercise proper control to ensure that the cost elements are held in check, with the result that they have accumulated losses and have become either dormant or defunct. Unless the production programme is also taken up as part of the work of the Societies and sufficient control is exercised to obtain the maximum output of fibre and yarn, it may not be possible for the Societies to function on sound economic lines.

The potential for extraction of fibre from retted husk is limited to the coastal areas of the State, where only retting facilities exist. In the hinterlands, only mechanised extraction is possible and for this 26 mechanised units have been organised in different sectors—9 units in the public sector, 2 in the Co-operative sector and 15 in the private sector. Of the 15 units in the private sector, 3 are having imported machines (DC 3, Japanese or Thorvald Classen's) and the remaining are indigenous drums of Ceylon type.

In the State Plan Programme already Rs. 14 lakh has been spent during the 2nd and 3rd Plan Periods as grants / loans for implementation of coir schemes, including the Co-operative Societies. The assistance rendered by the Government covers provision of funds for starting mechanised units for extraction of bristle and mattress fibre, organisation of coir sales emporia etc.

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It is understood that a sum of Rs. 15 lakh is provided for in the 4th Plan for Coir development programme in the State as per the allocations indicated hereunder:

Fourth Plan outlay for development of Coir Industry
in Mysore

| Head of Account | Outlay (in lakhs of rupees) |
|---|-----------------------------|
| i) Assistance to Coir Coops. | 0.25 |
| ii) Mechanised units for manufacture of bristle and mattress fibre (existing units) | 3.00 |
| iii) Assistance to Central Coir Marketing Co-op. Society. | 1.00 |
| iv) Coir Emporia | 0.15 |
| v) Publicity and Propaganda | nil |
| vi) Strengthening the staff of Joint Director's Office. | 1.00 |
| vii) Assistance to new Co-op. Societies | 1.00 |
| viii) Share Capital to new Coir Co-operative Societies. | 0.10 |
| ix) Starting of new Coir Emporia and Central Depots. | 0.50 |
| x) Starting of additional Coir Mechanised units. | 5.00 |
| xi) Supply of mechanised units to individual entrepreneurs as assistance to Joint Stock Companies & Associations. | 3.00 |
| Total | 15.00 |

During 1966-'67 and 1967-'68, the State has spent Rs. 2 lakh for development of Coir industry under

the Plan Programme. An additional Rs. 2 lakhs was proposed to be spent during 1968-69. Four Coir Emporia have been organised in the different districts—at Bangalore, Mysore, Mangalore and Hassan. The trained personnel for the Coir development programme is provided by the Artisan Training Institutes functioning in the State.

At present, the private entrepreneurs engaged in the production of mechanised coir are exploring to find markets for bristle, spinning and mattress fibre on their own. The production of the mechanised units under Government control is being sold through the Mysore State Central Coir Marketing Co-operative Society. Bristle fibre constituting 15 to 20% of the total production has been observed to find sale at the rate of Rs.1800/- per tonne, spinning fibre (consisting of 40% of total fibre content) at the rate of Rs. 725/- per tonne and mattress fibre (consisting of 40% of total fibre content) at the rate of Rs 660/- per tonne. It is estimated that about 20% of the total output of coir is consumed as fibre in Mysore State and another 20% as yarn and rope. The remaining 60% has to find sale outside the State. Concerted efforts are being made to dispose of the fibre in the indigenous markets and action for finding an export market especially for mattress fibre is also being pursued.

1.3 Remarks and recommendations.

Reviewing the position as a whole, it is observed that there is a great potential for mechanical extraction of Coir in the State of Mysore - at least in seven districts. Extraction of Coir by the traditional retting process is being carried out in the private sector in the coastal areas of Kanara. Preparation of yarn and ropes is being attempted in the Co-op. Societies, however, due to lack of proper attention and control, most of these units in the Co-operative Sector are not functioning satisfactorily. These units should take up production also as a major

item on their programme if they are to survive in the long run.

With the vigorous efforts pursued by the State Government, mechanical extraction of coir has made great strides in the State within a relatively short period of time. A particularly happy feature noted is the move to put up mechanised coir extraction units on a decentralised basis in the rural sector and that too in the gardens of coconut growers. Almost all the units are situated in areas where cocount husk could be had in abundance at reasonable rates (with the minimum incidental charges for transport of the raw material) Dispersal of the industry in the rural sector is providing gainful employment for agricultural labour, especially in the off season. For efficient functioning of the units to capacity, it is essential to ensure markets for the fibre output and this is a matter which has to be given urgent and serious consideration. The limited quantity of fibre that is being presently produced in the Departmental units is likely to find sale indigenously; but, efforts have to be pursued to ensure that an expanding market is found for the fibre that is to come out of the mechanised units, presently in existence as well as those that are to come up in the near future. The scope for finding an expanding indigenous market is rather limited at present. It is therefore, essential to tap the export potential. For this purpose, it is worthwhile to send a small sales team to foreign countries with the members drawn from the Central Marketing Co-operative Society a high ranking Government Official and a representative of the industry in the private sector engaged in the mechanical extraction of coir.

While pursuing action for finding markets for the fibre, action could also be pursued for exploring the possible use of the fibre on an industrial scale for manufacture of products which are likely to have a market potential within India and outside, eg. Coir brushes for

general purpose use, needed pads for thermal insulation, acoustic control etc. It would be desirable to progressively expand the activities of the mechanised units in this line, making a beginning with the formation of a unit for taking up the activities on an exploratory scale and pursuing the programme further based upon the response of the preliminary attempt

To build up a market for coir within the State and also for furthering the Coir Industry in the region, the proposals that have been put forward to the Study Team by local interests and which in the view of the Study Team merit consideration are the following:-

i) Coir Board should move the State and Central Governments for exempting coir goods from payment of Octroi and Sales Tax.

ii) In case of accredited dealers of the Board in the Co-operative Sector, the subsidy should be increased.

iii) The guarantee of minimum sales performance for accreditation by the Board should be relaxed to a certain extent for depots run by Co-operatives in areas where there is competition from established private dealers in the line.

iv) To induce more dealers to take sale of coir and improve the volume of business the rules for accreditation by the Board should be liberalised.

v) For local publicity for coir products, the accredited dealers of the Board must be subsidised for the expenses incurred for advertisement in local dailies like 'Navabharat', 'Kannada Prabha', 'Prajavani' etc.

vi) Funds for Co-operative Societies towards working capital for sale of coir products should be made available on concessional rates.

vii) The Coir Board should move the Government of India and the Reserve Bank of India to advance loans at subsidised rates of interest on terms similar to that extended to the handloom sector of textiles.

viii) Floor prices and quality control should be enforced for sale of coir and coir products within India also.

ix) The finance for coir development programmes should be routed through District Co-operative Banks.

x) Being an Agro-industry, electrical energy should be made available at lower tariffs for the mechanised coir units.

A suggestion for establishment of a Research Station in Mysore for investigation on problems of the mechanised coir industry has also been proposed. The Study Team is of the view that problems of extraction of coir by mechanised processes and further processing and use of the extracted fibre need investigation, but, the question as to whether for the investigation of these problems a Regional Research Station should be organised is a matter for detailed examination. Standardisation of the details of processing the husks, grading of fibre, etc. could be carried out by reorienting the activities of one of the departmental units. The programme of work at such units could also be extended to cover pilot projects for use of the fibre - brush making, needled pads etc. General problems relating to mechanical extraction of coir- improvement in colour of extracted fibre could be investigated at Central Coir Research Institute also. In the circumstances, scope for organising a Regional Research Station under the Board appears to be very limited at present. All the same, for extension of the developmental activities, technical guidance could be given by the Board. The question as

to whether any financial assistance could be rendered in this behalf is also a matter for consideration.

To maintain the tempo of development programmes and for efficient functioning of the units in position, the problem of great importance requiring immediate attention is exploitation of markets to dispose of mechanically extracted coir, especially mattress fibre and towards this end, extension of assistance and incentives from the Board are highly desirable. Besides endeavouring to organise sales depots in important centres in Mysore State and elsewhere in India, the proposal for exploring export markets has to be vigorously pursued. If this is not done, there is likely to be a glut in fibre production with the consequent adverse repercussions on the progress of the projects.

2 TAMILNADU

2.1 Coconut production and husk potential

Tamilnadu has an area of 90,230 hectares under coconut cultivation with an estimated production of 843.6 million nuts per annum. The district-wise area under coconut cultivation and the production per annum is furnished hereunder:

Area under coconut cultivation and production of coconuts per annum in Tamilnadu.

| District | Area in hectares. | Production in million nuts. |
|----------------|-------------------|-----------------------------|
| Thanjavoor | 18,130 | 208.1 |
| Kanyakumari | 19,220 | 98.2 |
| Coimbatore | 8,670 | 95.5 |
| Tiruchirapally | 6,040 | 95.0 |
| Salem | 6,800 | 86.3 |
| Madurai | 4,260 | 78.0 |
| North Arcot | 5,850 | 44.2 |
| Ramanathapuram | 5,710 | 34.9 |
| Chingalput | 4,120 | 18.0 |
| South Arcot | 1,390 | 15.1 |
| Tirunelveli | 2,610 | 9.9 |
| Other areas | 7,430 | 60.3 |
| Total | 90,230 | 843.5 |

As could be observed from the data furnished above, the concentration of coconut cultivation and production in Tamilnadu is in the Thanjavoor and Kanyakumari districts. Extraction of coir by the traditional method is well established in Kanyakumari where sub-

stantial quantity of the green husks are reported to be in use for fibre extraction. Use of coconut husk for extraction of coir in other areas is very much limited. On the whole, the quantity of husk that is being utilised for fibre extraction is assessed to be not more than 10% of the total. Except for Kanyakumari district and a few selected areas like Cuddalore where green husks are available in sizeable quantities, the bulk of the husks available in Tamilnadu is of the dry variety. This is because of the fact that in most of the districts coconuts are dehusked only after seasoning the nuts for two to three months after harvesting for sale of the nuts when the market is high. In the process of dehusking dry coconuts, part of the fibre is allowed to remain on the coconut itself and therefore, the fibre content of these husks is somewhat less than that of the usual figure for full husks. The cost of green husk is reported to vary between Rs. 25/- and 45/- per 1000 and that of dry husks between Rs 10/- and 20/-

2.2 Present pattern of coir industry and future prospects.

Activities for development of coir industry in Tamilnadu are being pursued under the co-operative and private sectors. Under the Co-operative Sector, there are 33 Primary Coir Workers Industrial Co-operative Societies and two district Central Coir Marketing Co-operatives. The Primary Societies undertake retting of green husk, extraction of fibre from retted husks and manufacture of yarn, rope etc. from the extracted fibre. The two Central Marketing Co-operative Societies functioning at Salem and Nagercoil, serve the Primary Coir Societies as well as individual small coir producers by supplying the raw materials to the primaries, advancing loans on security of goods pledged and marketing the products. At present, the Societies do not undertake manufacture of mats and coir mattings, however, two

sanctioned schemes for extending the activities in this behalf at Cuddalore and Nagercoil with an outlay of Rs. 1.68 and Rs. 2.66 lakhs are pending implementation. By and large, the Societies do not seem to be functioning on sound economy though five Societies are understood to be working with profit.

A scheme for organisation of mixed-fibre mill at Pattukkottai in the Co-operative Sector, with a total financial outlay of Rs. 3.50 lakhs has also been approved by the Government and is in the process of implementation. A pilot plant for the manufacture of bristle and mattress fibre has also been established at Tenkasi in Tirunelveli District and is in the process of trial production. At present, this unit is producing mixed fibre only.

To aid the development of coir industry in the State, a training school has been functioning at Ethamozhi in Kanyakumari District since November 1961, with a recurring expenditure of about Rs. 75,000/- per annum. Admission to the school is restricted to a maximum of 40 trainees per year on a stipend of Rs. 30/- per trainees per month for training course ranging over a period of two years. It was expected that the trained personnel would take to the coir industry; however, it has been indicated that only about 10% of the trained personnel are actually engaged in coir manufacturing programme. The Government have also sanctioned three schemes to impart training in improved methods in the manufacture of coir products - at Uthukuli, Kapilamkarai and Periyapatnam at a total cost of Rs. 60,000/-, besides according approval for training programmes in 5 Co-operative Societies in the Salem District.

Apart from the units in the public and Co-operative Sectors, quite a large number of individuals are

engaged in the extraction of coir and its further processing. This is particularly so in Kanyakumari District where the units have specialised in the manufacture and supply of Muppiri yarn which has considerable demand in the indigenous market. Another important centre of coir production in the private sector in Tamilnadu is the Salem District, where the local workers have specialised in the manufacture of ropes, using retted fibre got down from Kerala. Salem Coir ropes are noted for quality and have a good internal demand. Ropes worth about rupees three crores is reported to be produced in the Salem area alone.

At Kumbakonam in Tanjore District, a private entrepreneur has set up a defibering plant of Japanese make. This appears to be the only mechanised unit in Tamilnad working in an organised way in the private sector. Extraction of fibre is being carried out at this unit on a commercial scale. While efforts are being made to dispose of the bristle and mattress fibre to prospective buyers in India, the unit is also engaged in the utilisation of mechanised coir in the preparation of yarn for local disposal.

A perusal of the data on acreage and production of coconuts in Tamilnadu would seem to suggest that Tanjavur district might offer good scope for development of coir industry on the traditional lines; however, the prospects are to be the contrary, because bulk of the husk available is dry, with only part of the fibre content of the coconut as some quantity of fibre is allowed to remain on the coconut itself while dehusking. In areas of Pattukkotai and Adiramapatnam green husks are available to a certain extent; but the local labour are averse to take to coir extraction as a profession because of the low wages that are likely to accrue to them from this industry, while there are plenty of opportunities for engaging themselves in much more remunerative occupations in agricultural operations.

2.3 Remarks and recommendations

In Tamilnadu, coir industry based on retting of coconut husk and use of the fibre extracted from retted husk has developed to a certain extent. The possibilities for further development in this line seem to be rather limited; however, it is necessary to devote attention to ensure that the units functioning at present in the Co-operative sector are working on sound economy. Most of these Societies do not function properly due to lack of control from the collection of husk to the manufacture and sale of the finished products. Instances have come to the notice of the Team wherein coir fibre of good quality which could be processed for making coir yarn and rope of acceptable standards is discarded as waste in the routine course of work in a Society. Laxity of the type referred to has led to avoidable losses. If greater attention is devoted by the officers in charge of these units on the spot, to check and eliminate the waste, the Societies should be able to function much more effectively and advantageously.

For the Societies engaged in rope manufacture, notably at Salem, it is reported that the fibre is being got down from Kozhikode district, of Kerala State. Instances of shortage in weight of the raw material supplied have been pointed out to the Study Team by the Officers-in-charge of the Primary Societies. This is a matter to be looked into for evolving a foolproof arrangement to ensure that the quantity contracted for and billed for is actually received by the Society. Posting of a Fibre Purchase Officer for the Societies in the area from which fibre supplies are being effected is likely to offer a solution to the problem.

Enquiries made as to why fibre is being obtained from Kerala for production of ropes in Salem when there are possibilities for producing coir fibre in Tamilnadu itself, elicited the information that the fibre from

Kerala being of longer staple and having good colour is much more suited for rope manufacture, as against the fibre from Tamilnadu which is of shorter staple length and of inferior colour. The demand for fibre from Salem is reported to cause rise in price in the producing area resulting in difficulties for local entrepreneurs and also pushing up the prices of ropes produced in Salem, thereby affecting the competitive position in rope markets. Increased demand for coir from Salem is also reported to adversely affect the production and prices of the Calicut yarns. Therefore, it is necessary to investigate whether alternative sources of fibre for manufacture of ropes at Salem could be found in Tamilnadu itself. The possibilities of utilising mixed fibre produced in the mechanical decorticating plants installed in the State is worthy of examination.

The Societies should also have some arrangements for canvassing orders for sale of their products. In areas where other Co-operative institutions are functioning, the question as to whether some arrangements could be made in this regard on mutually agreed terms is a matter for examination. As a beginning, a depot of an accredited dealer of the Board could be opened at Coimbatore. The Salem Central Coir Marketing Co-operative Society itself could pursue this matter.

One factor which appears to stand in the way of increasing sales of coir ropes from Tamilnadu is the levy of central sales-tax. Being an Agro-industry, in the rural sector on the cottage set up, every encouragement has to be given to ensure progressive development of the industry. From this point of view, the suggestion for exemption of coir sales from Central Sales Tax merits consideration for favourable action.

The industry based on mechanical extraction of coir is in the nascent stages in Tamilnadu. It would

be highly desirable to ensure that the existing units function to capacity on sound economy and that adequate marketing facilities are provided for the sale of fibre before proceeding with establishment of additional units in this line.

3. MAHARASHTRA

3.1 Coconut production and husk potential.

The area under coconut cultivation in Maharashtra is estimated at about 8,735 hectares with a production of 31.8 million nuts per annum, the concentration being in the districts of Ratnagiri and Colaba as per the following break-up.

Area under coconut cultivation and the annual production of coconuts in Maharashtra

| District | Hectares | Production in million nuts |
|----------------------------|----------|----------------------------|
| Ratnagiri | 7,143 | 21.1 |
| Colaba | 750 | 7.0 |
| Thana and Bombay Suburban. | 842 | 3.7 |
| Total | 8,735 | 31.8 |

In Maharashtra it is understood that coconuts are mostly harvested when they are fully ripe and that nuts are dehusked in the dry stage. As such, bulk of the husk available is of the dry variety. Green husks of the type used in Kerala are also being produced on a limited scale in the coastal areas of Ratnagiri and a fraction of this husk potential is finding way for extraction of fibre by the traditional retting process.

Reliable data on the extent of husk that is being utilised for fibre extraction is not available; however, based on the assessment of fibre output at 100 tonnes per annum, the quantity of husks that are utilised for fibre extraction works out to only about 5% of the total output of coconuts.

3.2 Present pattern of the industry and future prospects.

At present, for the most part extraction of coir is being carried out in Maharashtra in the coastal areas of Ratnagiri district in Vengurla, Kudal, Malwan, Savantwadi and Deogad Taluk by private individuals for local sales as fibre, yarn and rope. Except for the departmental units in the region, there is hardly any unit functioning in the State in an organised way. Even the government run organisations like Coir Schools, factories and other training centres are not functioning efficiently. In the Coir Schools, trainees are taken on stipend for a period of one year. The trainees are mostly children with no background in the profession. It was expected that after the training, the trained personnel would engage themselves in activities aimed at development of coir industry in the area; however, at present, trainees who engage themselves in the manufacture of coir and other products after the training course, is rather very nominal. Therefore, the training schools seem to be serving very limited purpose.

The Departmental Coir Factory at Vengurla is engaged in the production of yarn and the manufacture of products. Giving due allowance for the inferior grade of fibre, the products turned out by this Institution are of reasonably good standard; however, the unit is not functioning on sound economy.

The cost of fibre in the area is reported to be Rs 110/- per quintal; the cost of green husk being in the range of Rs 20/- to 25/- per thousand. In relation to the cost of green husk, the cost of fibre appears to be prohibitively high. The product made out of this fibre are of a quality inferior to that produced by the traditional coir industry of Kerala and as such, the products are not likely to withstand market competition against the products from Kerala. Unless the cost of the local product is heavily subsidised, these products would find formidable difficulties in marketing.

The analysis of the cost elements contributing to the cost of the processed fibre indicates that an abnormal share of the sale price of fibre goes to the dealer engaged in retting the husks and extraction of the fibre. The fibre content of the husks in this area is reportedly about 65 kg. per one thousand husks and therefore, for producing 100 kg. of fibre the husk requirement works out to 1600. Conceding a cost of Rs. 25/- per thousand husks at the point of procurement, and providing reasonable allocation for transport of husk to the retting site, wages for handling the husk for retting and fibre extraction, the cost per quintal of fibre works out to Rs. 75/- only, while the fibre is being sold reportedly at the rate of Rs. 110/- per quintal leaving an abnormal margin of Rs. 35/- per quintal of fibre to the dealer engaged in retting the husk and production of fibre.

Therefore, unless arrangements are made to ensure supply of fibre at reasonable rates, the departmental units are not likely to function on a balanced economy. In the existing circumstances, the way out appears to be to organise units for extraction of coir either departmentally or as co-operatives to ensure that the cost elements at every stage are maintained at reasonable levels. It is understood that a scheme to bring retting in the Co-operative sector is under consideration of the Government of Maharashtra. Functioning of such a unit on sound economy would go a long way to give a positive boost to the development of coir industry in the area.

As at present, mechanical extraction of coir is confined to the Departmental unit at Walaval, where a full complement of Ceylon Type Defibering drum consisting of three openers and six dressers, procured from M/s. Pappu Veeranna and Sons are in operation. All the drums and ancilliary machinery like sifter are operated by line shaft, run by 40 HP motor. Presently, coconut

husks subjected to natural retting process (for a period of about 8 to 10 months) are processed on this machine for extraction of bristle and mattress fibre. With the progress of retting, it is possible to ensure efficient extraction of fibre on processing the retted husk on the combing drums. However, the output per set of 3 drums (one opener and two dressers) is reportedly of the order of 500 husks only per day. The fibre extracted is less resilient compared to the bristle fibre obtained from dry/semi-dry husks - the colour of the fibre being dirty grey. As such, the sale value of the fibre is likely to be much less compared to that of the bristle fibre extracted from dry husks. The high cost of the processing and meagre output is not likely to be balanced by the realisable return on the sale of the fibre.

It might be recalled in this connection that the machinery installed at Walaval is designed primarily for extraction of bristle and mattress fibre from dry/semi-dry husks. Though retted husks could also be processed on this machine, there are much more efficient machines, with much larger capacity which could be advantageously adopted for the purpose. As such, it is preferable to use the machines installed for processing dry husks only. To facilitate extraction of fibre dry husks require to be crushed to an optimum extent and soaked for a limited period ranging up to a week or so, before they are fed on to the combing drums, as otherwise the fibres are likely to be cut in the process of extraction resulting in the production of a higher proportion of short fibre, besides rendering separation of pith from the fibre inefficient. Therefore, the unit has to be supplemented by a crusher as one of the component items of machinery.

For working a set of three drums consisting of one opener and two dressers, a minimum of 500 husks have been assessed with possibilities of attaining a target

of 750 husks per 8 hour shift. On this basis, the requirement of dry husks for the unit of three drums works out to 1.5 to 2.25 lakhs or 4.5 to 6.75 lakhs husks for the installed machinery consisting of three openers and six dressers. It would appear that husk supply of this order cannot be anticipated in the region and therefore, it would be preferable to separate the existing machinery into three units - each consisting of one opener drum and two dresser drums. With the addition of a crusher for each units, the machinery may be dispersed in areas where the supply of mature husk of good quality could be had in quantities of the required order at reasonable rate. The necessary tanks for the soaking of crushed husks have also to be provided for each unit.

It is understood that the bristle fibre extracted from the units could find ready sale in the Bombay market and therefore, disposal of bristle fibre is not likely to pose much of a problem. As an alternative, the activities of mechanised units may be extended to cover manufacture of coir brushes, which are also reportedly in good demand in the Bombay market.

The spinning fibre could perhaps be utilised for the preparation of coir yarn and ropes for local disposal. The yarn spun out of this fibre could also be utilised for the manufacture of inferior grades of hollander mats, chain mats etc., with the use of the minimum quantity of coloured coir yarn of better quality obtained from the retting process to add on the sales appeal of the product.

3.3 Remarks and recommendations.

While considering the prospects for development of coir industry in Maharashtra it may be observed that the present pattern of the industry does not have a sound organised set up. It would be highly desirable to devote attention to reorient the activities to ensure that

the existing units are run on a balanced economy, before taking up new ventures in the line.

Broadly, action for development of coir industry in the State could be taken up in two parts - (i) for organising coir industry based on extraction of fibre by the traditional retting process and use of the extracted fibre and (ii) for organising units for extraction of coir by mechanised processes and use of the extracted fibre. Under (i) the scope for development of coir industry in the State is very limited. Availing of the limited possibilities, it would be ideal to organise Co-operatives to cover retting of coconut husk, extraction of fibre, spinning of yarn, manufacture of ropes and products. It might perhaps be difficult to form co-operative society covering these processing aspects in the initial stage itself; and therefore, it would be preferable to have them organised initially as Departmental units under the control of a Government Official. After the scheme sets in operation on satisfactory lines for a minimum period of two to three years, the labour engaged in the unit could be absorbed as active co-operators, supplementing the membership by adding on interested public who could devote themselves for working in the Society.

As for the mechanical extraction of coir from coconut husk, it is understood that there is a proposal to put up a second mechanical defibering unit in the Fourth Five Year Plan. It would be preferable to reorganise the unit at Walaval by dispersal of the machinery in areas where supply of husk of good quality could be depended upon in sufficient quantities at reasonable cost and observe the progress of the decentralised units before fresh ventures are made for adding on additional units for operation under Government control. If, however, private entrepreneurs are coming forward to put up additional units in regions where coconut husks could be had in sufficient quantities at

reasonable rates, they may be permitted to do so and given all necessary help and guidance.

While concentrating departmental activity for reorganising the existing units, efforts have also to be pursued for disposal of the production of the units. No organised efforts seem to have been made so far in this regard. The products could be disposed off through the sales depots of the Directorate of Industries and Commerce of the State, wherever such depots are functioning at present. In addition, it would be worthwhile to examine how far sales depots could be organised in selected areas like Kolahapur, Sholapur, Poona etc. for the disposal of the material, as adjunct to the Departmental Stores, Stores of Town Co-operative and Consumer Societies or by arrangement with private entrepreneurs by persuading to add on a wing for sale of coir materials to their normal establishments. The possibility of extending assistance by the Coir Board, by according accreditation to Depots on the usual terms and conditions may be considered. As accreditation by the Board would entail the dealer to avail of certain benefits from the Board for sales promotion of coir materials, the move is likely to find response from local interests. Whether some incentives could be extended for sales promotion by the State Government is also a matter for consideration and appropriate action.

For healthy development of the industry, it is highly desirable that the people engaged in the industry are given proper training. The training could be for different cadres,

- i) Managerial/Supervisory
- ii) Artisan.

Training for the Managerial / Supervisory cadre could be extended from the National Coir Training and

Design Centre, Alleppey. As for the Artisan cadre, it would be preferable to organise a training institution at a suitable place within the State, eg. Vengurla, under the charge of personnel already trained in the line. Deputation of the personnel of lower grade to Alleppey may not serve much of a purpose. For the Schools functioning in the State, the candidates selected at present are mostly children without any back-ground of coir industry with the result that on completion of the training they go over to other avocations without making use of the training for the benefit of the coir industry. It is therefore, necessary to recruit the coir workers for the training and give them all possible assistances and encouragement to engage themselves in the coir industry after the training is over. Individuals having financial resources of their own can be given incentives to start the coir units. In case of others, the trained personnel could be absorbed as active members of Co-operatives and the Societies may be given sufficient financial and managerial assistance by the State Government to take up work covering all sectors of the industry from collection of husks to the marketing of the finished products.

4. ANDHRA

4.1 Coconut production and husk potential.

The total area under coconut cultivation in Andhra is estimated at about 34,400 hectares, with an estimated production of 221.5 million nuts per annum. The district wise area under coconut cultivation and the output of coconuts per annum are furnished in the following table:

Estimated area under coconut cultivation and production of coconuts in Andhra

| Region/District | Area in hectares. | Production of nuts in million |
|-------------------------|-------------------|-------------------------------|
| Andhra Region. | | |
| Anantapur | 155 | 1.0 |
| Chittoor | 802 | 5.2 |
| Cuddapah | 27 | 0.2 |
| East Godavari | 21,017 | 135.2 |
| Guntur | 59 | 0.4 |
| Krishna | 240 | 1.5 |
| Kurnool | 63 | 0.4 |
| Nellore | 149 | 1.0 |
| Srikakulam | 5,842 | 37.6 |
| Visakhapatnam | 1,710 | 11.0 |
| West Godavari | 4,330 | 27.8 |
| Telengana Region | 38 | 0.2 |
| Total | 34,432 | 221.5 |

East Godavari, Srikakulam and West Godavari account for about 90% of the production of coconuts. In Andhra, coconuts which are dehusked in the green stage are estimated to form less than 20% of the total,

bulk of the production being stored for varying periods before dehusking, in keeping with the demand for coconuts.

The raw material available in this area consists of shreds of coconut husks - Exocarp with only thin layers of the fibre component of the husk, substantial quantity of the husk portion having been left on the coconut, in the process of dehusking. Green husks are available to a very small extent in selected areas. The cost of the husks vary depending upon the quality of the husks. Shreds of husks are reported to cost Rs. 5/- per 1000 at the collection point.

Reliable data about the quantity of husk that is being utilised at present for fibre extraction is not available; however, the indications are that this would be in the range of 2 to 5 per cent only.

4.2 Present pattern of the industry and future prospects.

In areas where green husks are available, women labour who cannot find more profitable avocations, are engaged in extraction of coir by retting the husks for brief periods on the banks of rivers, canals or marshy areas along the sea coast and subsequent beating of the retted husks for separation of the nonfibrous matter. The quantities of fibre so produced find way for preparation of yarn, mostly by hand spinning and to a very small extent by ratt spinning. Coir ropes are being produced by further processing of the yarn on hand operated contrivances. The yarn and ropes are consumed locally for towing of barges, tethering cattle and also for cartage and general purpose use in agricultural farms. Private entrepreneurs have not taken much interest in engaging themselves for extraction of coir and its further processing on an industrial scale. In

Razole area and also Pedapatnamlanka mattress fibre is being extracted from the remnants of husk portions left on the coconut in the process of dehusking. The raw material of this variety is collected by processors from vendors of coconuts, at nominal rates and the same is processed on combing drums for separation of the fibre. The stock of fibre so produced is reported to fetch a price of Rs. 555/- per tonne F. O. R. Rajahmundry. Coir yarn of the Fine Unsoaked type is also being spun from this fibre on the ratt. The price of yarn of this variety F. O. R. Rajahmundry is reportedly Rs. 750/- per tonne.

Organised efforts for extraction of coir are mostly confined to the Departmental units at Gannavaram, Baruva and Narsapur. In the departmental unit at Gannavaram and Baruva bristle and mattress fibre are being extracted using the Ceylon type defiberizing machines. These units are collecting full coconut husks @ Rs. 15/- to 20/- per thousand from the dealers and transporting the same to the defiberizing units by bullock carts paying a cartage of about Rs. 10/- per cart-load (about 600) of husks. The yield of fibre from 1000 husk is reportedly 85 kg. on the average - 10 kg. bristle; 35kg. milo (spinning) and 40 kg. mattress. The price realised for the different grades of fibre is reportedly Rs. 2.25 per kg. for bristle, Rs. 1.25 per kg. for milo and Rs. 0.80 per kg. for mattress.

These units have been organised to function as production cum-training units. The training aspect is being covered by these units fairly well; but from the production point of view the defiberizing units have to devote greater attention as the units are not working on balanced economy. This is probably due to the fact that optimum production is not being attained in daily routine. The facilities for soaking the husks, as available at present are far from satisfactory. The husks are soaked in stagnant water in pits dug out in

the ground, with arrangement to draw in water from irrigation channels. There is no facility for periodic discharge and renewal of the liquors from the soak pit. For realising optimum output and efficient separation of the nonfibrous matter, it is necessary to crush the husks suitably and soak the crushed husks in tanks with facility for renewal of the liquors periodically. For this purpose, the units have to be provided with crushers, better soak pits with pipe fittings connected to a well and pump. The layout of the soak pit and machines have also to be revised to restrict the handling of the material at all stages of processing to the essential minimum. The units should also be provided with adequate finance for purchase of raw materials and meeting the contingent expenses.

With a view to develop the coir industry in the State, the Department has drawn up schemes for establishment of units for extraction of fibre by the natural retting process and mechanical decortication and also for further processing of the fibre into yarn, manufacture of mattings, rubberised coir etc.. These are ambitious projects; however, the successful functioning of these projects would depend upon the favourable local conditions in regard to the supply of raw material of good quality at reasonable rates, the availability of suitable sites for retting, and the scope for marketing the products. Extraction of coir by the retting process could be attempted in a few selected sites in the coconut growing districts, eg. Narsapur, Mogalthur, Turputallu, Komaragiripatnam, Bodaskuru, Muramalla, Baruva, Borivenka, Kusumpuram, Jagati, Kaviti etc. where facilities for steeping the husks could be had on the bank of the rivers, canals in regions within the tidal action of the sea. In view of the limited monetary returns that are likely to be realised by the personnel to be engaged in extraction of coir by the natural retting process and also because of the limitations regarding

the colour of the fibre produced in the area, there appears to be limited prospects for development of the industry based on the retting process. All the same, it would be worthwhile to pursue action to take advantage of the limited retting facilities and explore the possibilities of organising at least two or three Co-operatives at Bodaskuru and Baruva and at a selected place in West Godavari, with the participation of the local artisans who are already engaged in the extraction of coir as a part-time occupation. The activity of the Society could be extended to cover spinning of yarn and manufacture of ropes and selected type of products like hollander mats, chain mats, rope mats etc. which could find local sale.

The scope for development of coir industry in Andhra is more for organising units for extraction of fibre by mechanised processes. For success of these ventures, it is essential to ensure that the incidence on the transport and handling of the material is maintained at the minimum. From this point of view, it would be preferable to channelise the efforts for establishment of mechanical defibering plants in areas where the supply of raw material in keeping with the optimum requirement of a defibering plant could be depended upon at reasonable rates. The following types of units could be considered for adoption in the area:

- 1 Small scale bristle and mattress fibre plants with husk requirements of the order of 2,500 per 8 hour work per day.
- 2 Large scale bristle and mattress fibre plants with husk requirement of the order of 5000 per 8 hour work per day.
- 3 Mixed fibre extraction plant with husk requirement of the order of 10,000 per 8 hour work per day.

The plants have to be established in regions where raw material in keeping with the requirements of the unit could be procured all through the year. As a complement to the defibering units, it would be worthwhile to put up a few units, which could manufacture different products using the mechanically extracted fibre. For the smooth functioning of these units, the prospects for marketing the products have also to be explored. Towards this end it would be worthwhile to examine the arrangements that can be made with the sales depots of the Industries Directorate, Sales Depots of the Accredited Dealers of the Coir Board and business establishments who may be interested in the line.

4.3 Remarks and Recommendations.

Andhra has substantial area under coconut cultivation and the production of coconuts of at least three districts, namely, East Godavari, Srikakulam and West Godavari suggest that there is some scope for development of coir industry in the area. Though efforts for extraction of coir by the traditional method are being followed at the village level by the local artisans and by mechanised processes in selected areas like Gannavaram & Baruva besides a coir goods factory at Narsapur, under the auspices of the Government, Coir industry has not made any impact on the industrial life of the State. On a review of the position in relation to the local factors, it would appear that prospects for development of coir industry based on the traditional pattern of retting coconut husk and use of the retted fibre for manufacture of yarn and other products is only of a limited order. In areas where facilities for retting could be had, eg. places like Bodaskuru, Baruva Borivenka, Kusumapuram, Jagati, Kaviti etc., the possibilities of organising Co-operatives which could take up work from collection of husks to the manufacture and marketing of products with the local artisans as the active co-

operators could be considered. In other areas it would be worthwhile to induce local entrepreneurs to put up mechanical fibre extraction machines at suitable centres where husk supplies of the required order could be had at reasonable rates. In view of the demand for coir yarn and ropes in the area, it would be preferable to devote attention for extraction of mixed fibre and spinning of yarn and manufacture of ropes. However, before starting upon the venture in a big way, it is essential to make an assessment of the husk potential and also the likely local demand for coir products to formulate the development programme in a planned way. It would also be preferable to conduct a pilot test to examine the quality of fibre that could be obtained by processing the local raw material in the Down's type defibering machine. Perhaps, the coir extraction unit at Tenkasi of the Government of Tamil Nadu or M/s. Kumar Industrials, Tiptur could be of assistance in this regard. If the local entrepreneurs are not forthcoming for taking up the commercial venture, the units may be organised and run departmentally for an initial period of two to three years, the fibre from the Government unit being given to Co-operatives for manufacture of yarn and rope for local disposal.

For mattress and bristle fibre extraction, the units with medium output can be established in the coconut farms itself. In doing so, entrepreneurs would be able to utilise the husks from their own plantations supplementing the requirements, if necessary, from the adjoining areas, engaging their own farm labour for operation of the machines. As most of the cultivators/farmers have their own conveyance—bullock carts—for transport of agricultural crop, the conveyance could be utilised for transport of husk as well, without much of an additional expenditure.

The major problem to be faced on organisation of the Co-operative and Private units is the arrangement for the sale of fibre, yarn, rope and other products. Towards this end, Governmental assistance would be highly desirable. The much favourable course would be to organise a Central Sales Organisation for the sale of the products of all the units. This organisation could be an autonomous body with the participation of the entrepreneurs under the private, Co-operative and public sectors. To ensure a steady demand for the products, the Sales Organisation should take up measures for increased sales of the products within Andhra itself, simultaneously pursuing efforts for sale of materials in other parts of India, as well as in foreign markets. If the fibre, has to be converted into curled ropes, this can be arranged with parties already having curling plants or alternately, a few curling plants could be installed in some of the coir extraction units. As for local disposal, arrangements could be made for the same through the Sales Depots of the Industries Directorate, Sales Depots of the Accredited dealers of the Board (the existing ones and the additional ones that could be organised) and private business establishments in existence in the line.

Facilities for training in coir extraction and further processing has been demanded by local interests. As suggested elsewhere in the report, it is preferable to have the training organised for two cadres of personnel, (i) Supervisory and managerial and (ii) Artisan. For trainees of cadre (i), facilities could be afforded at the National Coir Training & Design Centre. For cadre (ii), it is preferable to provide the facilities at a selected centre in Andhra itself, under the supervision of personnel already trained at the National Coir Training & Design Centre as otherwise, the language difficulties are likely to come in the way. Training of the artisans locally in Andhra will also enable them to acquaint themselves with the details of processing in relation to

the local raw material and therefore, this has to be particularly favoured for artisans as they are to have a decisive role in the functioning of these units. It would be preferable to establish a model factory in the area, covering all aspects of the industry for which the husks of local supply are suitable. Any area where husks in the required quantities could be procured will be suitable for this model factory. Being centrally situated in an area where coconut is densely cultivated, Amalapuram appears to be an eminently suitable location for the model factory, which may be set up by the State Government.

To enthuse the local entrepreneurs to take to mechanical extraction of coir and acquaint them of the potentialities, it would be useful to conduct a small group of personnel (interested in devoting themselves to further the interests of coir industry in Andhra) with one or two Senior Government Officials connected with the development of the Coir Industry forming part of the Team, preferably with the Senior Most of the Government Officials as the Leaders, for a study tour to a few Coir extraction units, spinning centres and factories manufacturing different products.

5. ORISSA

5.1 Coconut production and husk potential:

In Orissa, coconut cultivation is concentrated mostly in the coastal districts of the State—Puri, Ganjam, Cuttack, and Balassore. Statistics indicate that coconut palms are spread over an area of about 8,500 hectares, with an output of 31 million nuts, per annum. The districtwise area under coconut cultivation and the annual production of coconuts are furnished in the following table:

Estimated area under coconut cultivation and production of coconuts in Orissa:

| Region/District | Area in hectares. | Production of nuts in million |
|-------------------|-------------------|-------------------------------|
| 1. Puri | 3587 | 16.7 |
| 2. Cuttack | 3177 | 11.5 |
| 3. Balasore | 1136 | 1.3 |
| 4. Ganjam | 635 | 1.5 |
| Total | 8535 | 31.0 |

Puri district stands first in coconut cultivation, the number of trees in this district alone being estimated at 1.56 million with an annual yield of 16.7 million nuts. More than 60 per cent of the nuts are reported to be going out of the State by rail for edible purposes. From Sakhigopal area, considerable quantities of coconuts are reported to be going out of the State by lorry transport also. To ensure safe transit and storage of the coconuts, the larger portion of the fibre content of the coconut husk

is allowed to remain on the coconut, the husk available for fibre extraction being, so to say, 'peels of husk' with only very limited quantity of fibre component of the husk. Full husks are available to a limited extent in Gopalpur-on-Sea; however, the bulk of the husks available in the district consists of 'husk peels'. The cost of full husks is reported to vary in the range of Rs. 15/- to 25/- for full husks and Rs. 3/- to 5/- per 1000 for the 'husk peels'. At present coconut husk is not being used to any appreciable extent for fibre extraction, the quantity of the husks that are utilised having been assessed to form less than 5 per cent of the total.

5.2 Present pattern of the industry and future prospects.

As at present, extraction of coir and further processing is not being practised in Orissa on an industrial scale. On the initiative of the State Government, efforts for development of the coir industry have been pursued by organising a few Co-operative Societies. Except for the coir Industrial Co-operative Society at Gopalpur-on-Sea, the other Societies do not seem to be devoting much attention towards activities connected with the extraction of the fibre and manufacture of the products. Even at the Gopalpur Industrial Co-operative Society, though extraction of coir by the retting process, spinning of yarn and manufacture of mats and mattings etc. are being attempted, concerted efforts are not being made to make the unit economically viable.

The only other centre where some activity for coir development is reportedly being pursued is the Training-cum-Production Centre at Teisipur. At this Centre trainees are being engaged on monthly stipend; but probably due to the lack of follow up action for coir development, the trainees have not found way to further the cause of the coir industry in the area. From this point of view the training programme has served only very limited purpose.

In regions like Sankhigopal in Puri district, where coconut is being cultivated on an extensive scale, it would appear that prima facie, there is good scope for development of coir industry, in the mechanised sector. Enquiries made at the Regulated Market at Sakhigopal, through which the agricultural produce of the area is marketed, revealed that the monthly off-take of coconuts through the Regulated Market is about 10 lakhs, the daily off-take being in the range of 20,000 to 40,000. Bulk of the husks of the nuts that are being disposed through the Regulated market are of green type and are available with wholesale coconut vendors in the area. Examination of the raw material, however, indicates that the husks parts available are in effect peels of husks, with only very little fibre content. The 'husk peels' are partly dried and hardened due to exposure to sun and atmosphere. It would therefore appear that the raw material as available at present is not very much suitable for fibre extraction. The prospects for development of coir industry in the State would therefore, depend upon the availability of full husks or shreds of husks having bulk of the fibre component.

The Fourth Plan proposals of the State Government envisage expansion of the coir development programme under the co-operative sector; however, in view of limitations regarding the supply of raw material of right quality lack of adequate retting facilities etc., the move is not likely to give much of an impetus for development of coir industry in the State. In the context of the present position of the industry in the State, it would be preferable to devote attention for intensifying the activities of the existing Societies to develop them into economically viable units, before taking up programmes for expansion of the Co-operative sector.

5.3 Remarks and recommendations:

In view of the fact that bulk of the raw material as presently available in the area consists of shreds of

coconut husks with very low fibre content, dried to varied extent on exposure to sun and atmosphere, the prospects for development of coir industry in Orissa appear to be limited. In selected areas like Gopalpur-on-Sea it would appear that full husks from green mature coconuts could be had in quantities sufficient enough to run at least one industrial unit engaged in the manufacture of yarn, ropes, mats etc.. If husk supplies of the anticipated order can be depended upon, making use of the proximity of the sea to the premises of the Gopalpur Industrial Co-operative Society, concerted and much more organised efforts could be made for extraction of coir by the retting process and manufacture of yarn, ropes, mats etc. The products could be disposed of by direct local sales and also through the Sales Depots of the Industries Directorate. Perhaps, the Coir Board could assist marketing of the products, by arranging to organise the Sales Depot of Accredited Dealers of the Board in important centres like Cuttack.

As for the husk material available in the Sakhigopal area, it would be worthwhile to examine how far the same could be satisfactorily processed on the mechanised defibering units and work out the cost aspects to decide upon the scope for commercial ventures in the line. The pilot tests could be conducted by arrangement with parties having the mechanised defibering plants. In the event of favourable results being obtained from the pilot studies, a few mechanised coir extraction units could be established in the area. One of such model units could be located at Teisipur Centre, if husk supplies in keeping with the requirement of the defibering unit at reasonable rates could be ensured. The bristle and mixed fibre produced could be absorbed by the rubberised coir unit in the area. The mattress fibre could perhaps find sale in the Calcutta market for use in upholstery. On the basis of the pilot study, if a large volume of production beyond the scope of local demand is anticipated, concerted efforts for marketing the products could be considered in due course.

6 UNION TERRITORY OF GOA

6.1 Coconut production and husk potential

Goa has 18,496 hectares under coconut cultivation with an estimated production of 88.76 million coconuts per annum. The area under production of coconuts in the different taluks of Goa is furnished hereunder:

Estimated area under coconut cultivation and production of coconuts in Goa

| Taluk | Area in hectares | Production of nuts in million |
|--------------|------------------|-------------------------------|
| Salcete | 5,846 | 40.01 |
| Sanguem | 2,533 | 8.92 |
| Bardez | 2,471 | 12.83 |
| Tiswadi | 1,474 | 6.87 |
| Ponda | 1,671 | 6.73 |
| Bicholim | 1,140 | 3.79 |
| Quepem | 1,346 | 4.02 |
| Pernem | 1,076 | 2.60 |
| Canacona | 541 | 2.54 |
| Sattari | 398 | 0.45 |
| Total | 18,496 | 8.876 |

Coconuts are harvested in Goa five times in an year at intervals of about 2½ months. Most of the nuts are dehusked in the dry state; however, green husks are also available in certain selected areas like Kundai, Betul, Morjim etc. At present, about 1.5 million husks (green) are estimated as being utilised for fibre extraction per annum (less than 2%) with the production of about 120 tonnes of fibre valued at about Rs. 1,20,000/-.

If concerted efforts are made, it is expected that husks from 60% of the total production of coconuts could be had for coir extraction to produce an estimated 4000 tonnes of fibre per annum.

The cost of dry husk in Goa is reported to vary between Rs. 8/- and 12/- per thousand and that of green husk between Rs. 12/- and 20/- per thousand.

6.2 Present pattern of coir industry and future prospects.

In Goa, Coir industry is concentrated mostly in areas where retting facilities are available. The traditional method of coir extraction and manufacture of yarn and rope by simple contrivances is being followed in selected villages by individuals or small households providing gainful part-time employment to idle women labour. As per the statistics furnished, at least 685 families are engaged in extraction of coir, with the following break-up of the figure talukwise:

Data about coir production in Goa

| Taluk | No. of families engaged. | Approx. husk that are being utilised (in lakhs) | Production of Coir per annum (tonnes) |
|--------------|--------------------------|---|---------------------------------------|
| Salcete | 50 | 0.66 | 5.00 |
| Bardez | 115 | 1.25 | 10.00 |
| Ponda | 85 | 4.90 | 39.00 |
| Bicholim | 20 | 0.25 | 2.00 |
| Quepem | 10 | 0.13 | 1.00 |
| Pernem | 280 | 4.53 | 36.00 |
| Canacona | 100 | 3.06 | 24.50 |
| Panaji | 25 | 0.13 | 1.00 |
| Total | 685 | 14.91 | 118.50 |

Coconut husks are retted in pits nearer to the coast within reach of saline waters, for periods ranging from 6 to 8 months. Fibre is extracted from retted husks by beating the husks with wooden mallets. Yarn is spun for the most part by hand spinning, though in the coir schools run by the Government spinning is carried out on the ratt. Ropes ranging in diameter up to 1½" are produced on the usual hand operated wheels and are disposed off by local sales. Two schools for training personnel in the manufacture of coir yarn, rope, etc., and also a Coir factory are being run Departmentally. The training extends over a period of one year and the trainees are given stipend for the duration of training. For development of the Coir Industry, governmental assistance in the form of loans to the extent of Rs.10,000/- per unit, managerial subsidy to co-operative societies with matching share capital, subsidy for the purchase of improved equipments are being extended to local entrepreneurs.

Adverting to the functioning of mechanical defibering plants, as at present, there are three mechanical defibering plants in Goa one under the control of the Government at Kundai and the other two by private entrepreneurs—one at Betim and the other at Bandiwadem. These units are yet to come into routine production run. At present, the limited stocks of extracted fibre are being disposed off for local consumption. The disposal of fibre is likely to be a problem if all the units go into regular production at full stream. In Goa, there is a heavy demand for coir ropes for use in mines and therefore, if concerted efforts are made, there should not be much of a difficulty in disposing of the fibre produced on conversion of the fibre into yarn and ropes. Besides the mining industry & the fishing industry also offer prospects for use of coir yarn and ropes.

6.3 Remarks and recommendations.

Though extraction of coir and further use of the extracted fibre for manufacture of yarn and ropes is being carried out on a limited scale in Goa, there is no organised move as yet to channalise these efforts to best advantage. Under the control of the Government Coir Schools and Training Centres are functioning in the area, but mostly due to lack of follow-up action for absorbing and retaining the trained personnel in coir development programmes, the trained personnel do not get themselves engaged in the coir industry. In spite of the facilities offered by the government by way of loans to private entrepreneurs and managerial subsidy and matching share capital to co-operative societies, there appears to have been poor response to avail of these benefits by the local interests. Reviewing the position, it would appear that the reason for the lack of interest is mainly due to the fact that coir is a low-wage earning industry offering profit margins of a limited order. The high-wage rate in the Mining Industry attracts all able-bodied personnel to it and this appears to be the main reason for the lack of response of local talent to take to coir industry for gainful employment.

Even so, in areas like Morjim, the local population especially the idle women labour who cannot find alternate or any employment are engaged in the preparation of yarn and ropes on a cottage industry basis each house-hold being engaged in the manufacture of coir by conventional methods. In view of the proximity to retting sites and availability of the personnel already engaged in the manufacture of coir yarn and ropes Morjim appears to be well placed as a centre for implementing intensive coir development programme. Therefore, the study team is of the view that if concerted efforts are made to organise a co-operative society in the region, with the artisans already engaged in the

industry as the active co-operators and extending the activity of the society to cover retting of green husks, extraction of fibre, manufacture of yarn and ropes and sale of the products, under the control of a co-operative Organiser drafted from the Government Department, it would be possible to give a positive boost for development of Coir Industry in the Union Territory. For efficient functioning of the unit, it is essential to ensure that fibre is made available to the spinners at reasonable rates. Towards this end, it would be necessary for the Society to make arrangements for purchase of green husks, retting the husks and fibre extraction. In routine functioning of the Society, coir fibre in specified quantities, the cost of which does not exceed the share capital of the co-operators could be made available to members on credit and further quantities of fibre issued in exchange for the stipulated quantity of yarn and ropes (allowing the agreed loss of raw material in processing, if any). While handing over the yarn and ropes to the Society, the co-operator could be paid the agreed wages on piece-rate basis from the working funds.

The Society should have a Central Sales Organisation to find market for the products collected from the members. For functioning this unit, governmental assistance in the form of managerial subsidy, loan towards share capital and working capital on subsidised rates of interest, and Government patronage in the form of preference to the products of standard quality manufactured by the Society for Government purchases should be accorded. Functioning of the Society satisfactorily would go a long way to give positive impetus to the other local people, especially the idle women labour to come into the coir co-operative movement and thereby this unit could be a fore-runner for other units to follow. The suggestion for the organisation of such a Society finds favour with the local interests who were consulted in the course of the tour. The Departmental Officials

also are very enthusiastic in the matter. They are, however, of the view that at least in the initial stages a suitable person experienced in running coir co-operatives successfully should be made available from public or private sector in Kerala to take charge of the project. This suggestion meets with the concurrence of the Study Team.

As for the mechanised unit at Kundai, it must be observed that the machinery is intended for extraction of bristle and mattress fibre from coconut husks. The best quality bristle is obtainable from mature dry husks and therefore, it would be preferable to set apart this machine for processing dry husks. For efficient separation of fibre in the combing process, it is essential to crush the husk to an optimum extent and soak them for a limited period ranging up to a week before the husks are fed on to the combing drums. Therefore, acquisition of a suitable crusher and also construction of a soak pit is highly necessary to reorient the activity of this unit. It would be desirable to process dry husks on the machinery already in position and pass on green husks for extraction of fibre by the retting process.

With the commissioning of the mechanised coir extraction units in the private sector to regular production, the output of mechanically extracted coir in Goa is sure to record considerable increase. The bristle fibre could find indigenous market for use in the brush making and rubberised coir industries; however, sale of mattress fibre is likely to pose special problems. Therefore, exploration of markets for the products, especially mattress fibre, has to be vigorously pursued. Perhaps, the sales team for exploring the possibilities of sale of mechanically extracted coir already suggested under the remarks for development of coir industry in Mysore State could offer guidance in the matter.

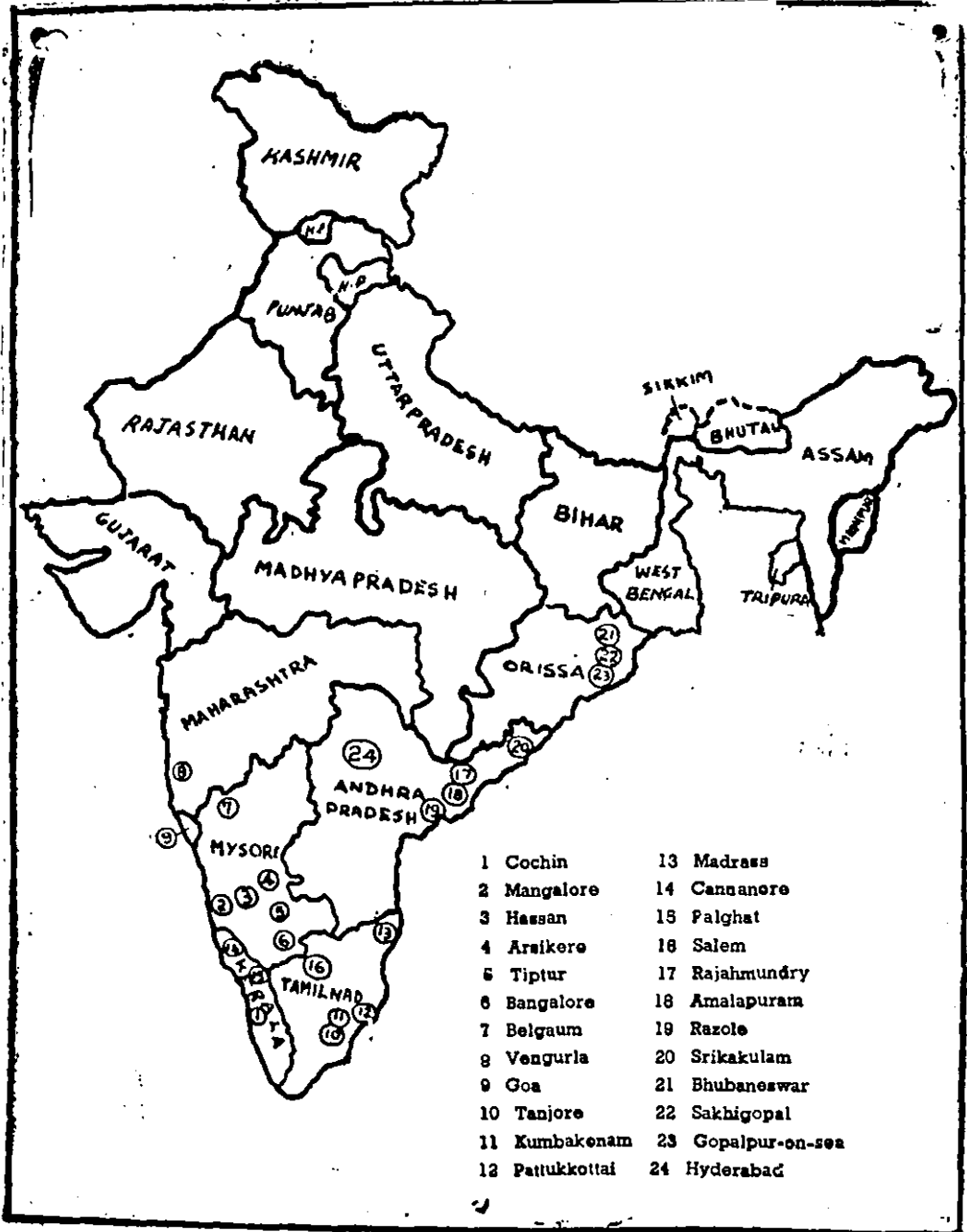
The coir schools functioning in the area, are serving only limited purpose for the present. However, they could be made to function much more efficiently and usefully, if the people already in the line and those with interest to take the industry as a means of livelihood are taken up for the training programme. With the location of the schools as at present, this is not likely to be a practical proposition. The question whether the objective could not be better realised by shifting of the schools to more congenial environments or by other arrangements is worthy of examination by the local authorities.

There has been a suggestion for installing a baling press under Governmental grant for pressing coir fibre for export. The Study Team is of the view that the output of coir in Goa is far too meagre to justify the investment needed on this score. Hydraulically operated smaller presses might perhaps meet the requirements for the present.

IV ACKNOWLEDGEMENT

The Study Team thanks the Governments of Mysore, Tamil Nadu, Maharashtra, Andhra, Orissa and the Union Territory of Goa for extending all co-operation and facilities for the on-the-spot study. The assistance and guidance rendered by the local interests and Departmental Officials, particularly Shri H. S. Ramachandra, Joint Director of Industries and Commerce and Ex-Officio Registrar of Industrial Co-operatives, Shri Guthala Gowda, Assistant Director of Industries and Commerce, Government of Mysore, Bangalore, Shri D. Ardhanari, Regional Deputy Director (Industrial Co-operatives) Tiruchirapally, Shri D. C. Charles, Fibre Expert, Government of Maharashtra, Bombay Shri M. Nizamuddin, Joint Director (H & C), Govt. of Andhra Pradesh, Hyderabad, Shri: K. Venkateswara Rao, Deputy Director of Industries, Government of Andhra Pradesh, Kakinada, Shri: N. K. Sahu, Organiser of Handicrafts, Government of Orissa, Bhubaneswar, and Shri. Prabhakar Kamat, Director of Industries and Mines, Union Territory of Goa, Panaji is gratefully acknowledged.

AREAS VISITED BY THE STUDY TEAM



SUPPLEMENT

**REPORT OF THE STUDY TEAM FOR
DEVELOPMENT OF COIR INDUSTRY
IN THE STATE OF WEST BENGAL - 1968**

P R E F A C E

While considering a proposal of the West Bengal Government for the Board's participation in providing servicing and training facilities for development of Coir Industry in the State of West Bengal, the Coir Board at its meeting held at Ernakulam on 29-9-1967, constituted a Study Team consisting of

- i. Shri A. N. Mukherjee,
Dy. Director of Industries (CDP),
West Bengal (Convenor)
- ii. Shri M. M. Krishna Marar,
Director, Regional Office, Coconut
Development, Ernakulam (Kerala).
- iii. Shri G. N. Prabhu,
Director, Central Coir Research Institute,
Kalavoor P. O., Alleppey Dist., Kerala.
- iv. Shri S. Sreedhara Kaimal,
Special Officer for Coir, SSI Buldings,
Trivandrum, Kerala.

2. The terms of reference to the Study Team are the following:

- i) The economy of production including the availability (actual and potential) of husk for fibre extraction, the statistics relating to the area and production of coconuts, transport facilities, concentration of coconut plantations,
- ii) The types of products which would be produced in the Station,
- iii) The activities which should be undertaken in the Station,

- iv) The method of disposal of products,
- v) The assistance that will be given by the West Bengal Government to the Station,
- vi) The responsibilities of the Board,
- vii) The staff requirements,
- viii) The results sought to be achieved by running the Station, etc.

3. The Study Team, excepting Shri Sreedhara Kaimal, Coir Special Officer, Government of Kerala, met at Calcutta, as scheduled, during the period 14th to 16th November, 1967 and examined all the available data. The Study Team visited the important coconut growing regions of the Howrah District and also centres connected with the utilisation of coconut husks/ coir fibre.

4. In the studies, local visits and discussions, the Team was ably assisted by Shri S. Goswami, Asst. Director of Industries, Handicrafts and Coir, Government of West Bengal. The basic figures were also obtained by Shri R. C. Bhattacharyya of Handicrafts Section, Superintendents of Coir Training - cum - Production Centres and local Extension Officers of 2 Districts of Howrah and 24-Parganas. The observations of the Team on the different items covered by the terms of reference are recorded in the following pages.

REPORT OF THE STUDY TEAM

1. AVAILABILITY OF RAW MATERIALS FOR COIR INDUSTRY

According to the latest available statistics of acreage and production relating to coconuts, the State of West Bengal occupies the fifth rank in India with an estimated annual production of 142.5 million nuts from about 60,000 acres. Its share of the total production in India comes to about 2.9 per cent. The coconut growing-districts with the estimated yield per tree and the production they account for are listed below:

| District | Average yield per tree (nuts) | Production (Million nuts) |
|---------------------|----------------------------------|------------------------------|
| 1. | 2. | 3. |
| a) Howrah & Hooghly | 28.3 | 52.1 |
| b) 24-Parganas | 48.3 | 75.1 |
| c) Midnapore | 25.0 | 15.1 |
| d) Jalpaiguri | 15.7 | 0.1 |
| e) Cooch Behar | 14.2 | 0.07 |
| | | <u>142.47</u> |

.2 It is seen that 24-Parganas is having a little over 50 per cent of the total production of the State, followed by Howrah and Hooghly and both together accounts for 90 per cent of the total for the State. Therefore, for the present, at least only these two districts need receive any consideration.

.3 Though 24-Parganas stands first from the point of view of total production, the percentage of area under coconut to the total area of the district is much low and, generally speaking, the palms are spread over a wider area, though the concentration of plantation is seen in Budge Budge and Bishnupur Block areas. The bulk of the production is consumed in tender stage as reported. On the other hand, coconut plantations are more concentrated in Howrah and Hooghly districts, particularly in Panchla and Uluberia areas and, therefore, in the context of the immediate possibility, the team gave more attention to examine the development possibilities in Howrah and Hooghly districts.

4 In West Bengal, the coconuts are consumed to a large extent as tender nuts or "Dab". Survey estimates have shown that nearly 60 per cent of the production is utilised for this purpose. Based on this figure of utilisation and the production figure given elsewhere, the potential availability of dry husks in Howrah-Hooghly areas can be put at about 21 million numbers. Making allowance for the use of husks for fuel, 'crushed husks' and taking into consideration the difficulty that may have to be faced in collecting husks from far-flung areas, the Team considered that the actual availability may be about one third of the potential, i. e., 7 million dry husks.

.5 The husks of tender nuts which are available in large quantity in Calcutta and near-about areas are at present being wasted. Work done at the Vagrants Home at Andul appears to have shown that a part of these husks could be used for making coir fibre of reasonably good quality. However, the full possibilities and economics can be ascertained only when this is attempted on a large scale. In this connection, it is mentioned that the out-turn of fibre from husks of tender nuts is only about 40kg. from 1000 husks as against 100 kg. normally obtained

from mature husks. Though tender husks may be available without payment, their collection and transport to a central area may cost more.

2. TRANSPORT FACILITIES.

In order to keep the cost of production within reasonable limits, it should be possible to transport husks to decorticating centres with the minimum expenditure. Bulk materials such as husks are sure to cost more for transport if it is to be done through head loads by manual labour. Taking these points into consideration and in view of the fact that road transport is rather well developed in Howrah-Hooghly districts with a National Highway passing through the important centres, lorry transport is likely to be a feasible proposition, provided the husks from the rural areas could be brought over at reasonable cost to points on the motorable roads from where the husks could be picked up by the lorries. Even in this case, unless the decorticating factories are accessible directly from metalled roads, transport bottlenecks such as the ones experienced in the now-defunct Uluberia Research Station are likely to crop up. The difficulties will be more if the collection work has to be done in interior areas.

3. PROSPECTS FOR DEVELOPMENT OF COIR INDUSTRY

A) BASED ON UTILISATION OF MATURE HUSKS

1. The possibilities of development of coir industry in small scale sector in the State would depend to a very great extent, on the success of the organised efforts that could be made for procurement of husks in sufficient quantities at reasonable rates and also for disposal of the fibre/products from such ventures. As at present, the activity in the region is primarily confined to the extraction of fibre from 'crushed' husks which apparently seem to be shreds of coconut husks, with the fibre

loosened from its natural setting to varied extent. This type of product is reported to hold out ready demands in the Calcutta market, as a material for stuffing mattress. The small 'crushed husk,' artisans are faced with competition in the raw material market from machine-sector.

.2 There is a good demand for bristle fibre in the Calcutta market — (i) for manufacture of brushes of varied types of industrial, domestic and general purpose cleaning and (ii) for rubberisation. Mattress fibre has also a demand in the market. Reportedly there is also demand of a limited order for coir fibre for cottage scale preparation of rubberised coir mouldings which serve as a padding, covering the surface of spring cushion seats for 'Sofa', military trucks etc. and also for spring reinforced 'box mattresses' for cots. Curled coir ropes are also understood to be manufactured in the region on a cottage scale using simple devices and offtake of coir fibre by these units also is visualised. Besides, there is also a demand for the traditional 'Bolen strings' used for lighting cigarettes and beedies in small beedi shops.

3. ASSESSMENT OF DEMAND FOR FIBRE AND COMMENSURATE REQUIREMENTS OF HUSKS.

The estimated demand for fibre per annum in the region is very roughly assessed, as follows:

- | | | |
|------|---|------------|
| i) | For big rubberised coir plant— M/s. Hastings Mill Ltd., @ 600 kg. per 8 hour shift for 300 days— 1 shift (70% bristle, 30% mixed) | 180 tonnes |
| ii) | In cottage scale rubberisation— @ 4½ tonnes per month (100 % mixed) | 54 ,, |
| iii) | For miscellaneous uses— brush making etc. @ 3 tonnes per month (100% bristle) | 36 ,, |
| iv) | For stuffing mattresses, 'Bolen strings' etc. @ 5 tonnes per month (mattress-mixed) | 60 ,, |
| | | <hr/> |
| | | 330 ,, |

Of this estimated total of 330 tonnes of coir fibre, bristle fibre accounts for 162 tonnes [126 tonnes for (i) + 36 tonnes for (iii)]. On the assumption that 1000 husks would yield 25 kg. of bristle fibre and 75 kg. of mattress (or a total of 100 kg. of mixed fibre) (i.e., 40,000 husks for 1 tonne bristle and 10,000 husks for 1 tonne mixed fibre), the total husk requirement for 162 tonnes of bristle fibre and 108 tonnes of mixed fibre is calculated at (64,80,000 + 10,80,000) 75,60,000. This would yield a surplus of 426 tonnes of mattress fibre, for which avenues for disposal will have to be found, in case husk potential of this order is to be utilised for fibre extraction.

.4 A review of the whole proposition would, therefore, suggest that if coir fibre could be made available from the locally available husks at reasonable rates, a steady off-take of the fibre could be depended upon. The possibilities are for development of the industry for mechanical extraction of coir from mature coconut husks. For successful operation of an automatic defibering unit for extraction of bristle and mattress fibre, a husk requirement of 12 lakhs is estimated per annum (1 shift). If efficient arrangements could be made for collection of the raw material in keeping with this demand, apparently, there is some scope for installation of a few defibering plants in selected areas of the districts of Howrah-Hooghly. However, before proceeding with fullscale development of coir industry in the State, it would be desirable to limit the initial efforts for functioning of one defibering unit in the most favourable environments, where regular supply of husks at reasonable rates could be depended upon.

.5 On enquiries made with the Officials of the West Bengal Government, it has been ascertained that, husk supplies of the order of 12 lakhs per annum can be had in the coconut groves of the Panchla-Uluberia area

in the Howrah-Hooghly districts. Therefore, to begin with the development of coir industry in the State, the scope appears to be for making concerted efforts for organising the functioning of a mechanical decortication unit for extraction of bristle and mattress fibre in the Panchla - Uluberia region, where the husks could be gathered with the minimum collection charges. Even for the unit in the Panchla-Uluberia region, efficient arrangements for procurement of husks and disposal of the products have to be organised. Shri A.N.Mukherjee gave us to understand that there is already a Howrah District-level Service-cum - Marketing Industrial co-operative Society, to be shortly functioning in the district. With effective governmental control for smooth and efficient functioning of the Society, he feels that the work of collection of husks and disposal of the fibre and other products, if any, could be channelised through this agency. The economic aspects of the venture in keeping with the local conditions have, however, to be worked out in detail before making commitments as to whether such units would be able to function on commercial lines. But, it has been understood from him that similar Societies in RIP areas in the State have been commercially running.

.6 If fibre extraction from locally available husks could be carried out on a commercial scale, extension of the activities of the unit to cover manufacture of coir brushes for industrial, domestic and general purpose cleaning, preparation of yarn and manufacture of hollander type mats, rope mats etc. could be pursued and examined. This would be particularly needed for under-employed "crushed husk" artisans and fuller employment and expansion of brush-units.

.7 It may be recalled that three automatic defibering plants (DC3) have already been installed at Konnagar by

M/s. Hastings Mill Ltd., Shri Kartic Chandra Dey has also installed a defibering machine of Ceylon type at Panchla. The husk requirements per annum of these four units for one shift works out to about 36.60 lakhs. The anticipated availability of 7 million (70 lakhs) of husks, therefore, leaves a balance of only of 33.40 (lakhs) for potential exploitation for ensuring local employment in SSI sector. At the rate of 12 lakhs husks per annum per one shift for the automatic defibering unit, the scope for additional defibering machines (having a husk consumption of 4000 per day) is limited to two numbers only. If Ceylon type drums with a capacity for processing 500 husks per drum per 8 hours could be developed, one automatic defibering machine could be substituted by eight drums of Ceylon type. This would offer a larger employment potential for the local personnel. The economic aspects for operation of this machine also on a commercial scale under the local condition requires to be examined in greater detail, though prima-facie the attempt appears to be worthwhile.

3. B. BASED ON UTILISATION OF TENDER HUSKS.

.1 Another proposition which has often been suggested by local interests has been extraction of fibre from husks of tender coconuts. Coir fibre is being extracted from husks of tender coconuts in the Training-cum-Production Centre attached to the casual Vagrants Home functioning under the Social Welfare Department. The process of extraction consists in soaking the tender husks as they are collected from the sources of availability—College Street Market, Calcutta—for a period of about seven days and beating the husks with wooden mallets against logs till the nonfibrous matter is completely thrashed out. The fibre obtained is fairly clean and of reasonably good quality. However, the yield of fibre is understood to be only about 30 to 40 kg. per 1000 husks. It is rather difficult to arrive at a fair estimate of the cost aspects of the fibre

produced, because, at the Vagrants Home, this work is mainly taken up to usefully engage mute and destitute personnel and not very much with a commercial motive. As an approximation, the cost per kg. of extracted fibre as indicated by the authorities is Rs.1.25. To this figure must be added the cost of spinning etc.. Pending pilot studies to assess the cost aspects of production and realisable market value for the fibre/yarn, comments on commercial possibilities in this line have to be held in abeyance.

.2 The Deputy Director of Industries, Community Development Projects has been requested to examine the whole proposition from this point of view. Crushing of the tender husks by suitable mechanical arrangements like a sledge-hammer has also been suggested for examination.

4. TRAINING FACILITIES

.1 For the functioning of the defibering units as and when they are organised, trained personnel would be an asset. Since the scope for development of the industry in the State is somewhat limited by the supply of husks, there appears to be practically no scope for organising a training institution in the region solely devoted for functioning as a source for providing the trained personnel for development of coir industry. The necessary training facilities in this behalf could be made available by supplementing the training at the National Coir Training and Design Centre, Alleppey by a further training in the extraction of bristle and mattress fibre in the pilot prototype unit which is shortly proposed to be installed at the Central Coir Research Institute or by arrangement with any of the established defibering units in the Kozhikode/ Kottayam district or Arsiikere. These trained instructors can form the nucleus for training the local artisans in the Training - cum - Production Centres or Co-operative Societies as and when these units are organised. The training could be extended to cover brush making as well.

5. VIEWS OF THE STATE GOVERNMENT REGARDING BOARD'S ASSISTANCE FOR DEVELOPMENT PROGRAMME IN COIR INDUSTRY

.1 As referred to under 3 (a), a review of the available data and information indicates that apparently, there is a possibility for functioning of a defibering unit in the Panchla-Uluberia region. Though there is a training-cum-production centre of the State Government in the Panchla region, this Station with the building facilities as presently available, is not suited for putting up defibering machines. Apart from the inadequate built-in-space, the training-cum-production centre does not have soak-pits or the necessary power connection.

.2 In the view of officials of the Government of West Bengal, the best assistance that can be extended by the Board is to provide a Training - cum - Servicing Station in the Panchla - Uluberia region for mechanical extraction of Coir from coconut husks and further use of the extracted fibre. For this purpose, they consider that the buildings of the Regional Coir Research Station, where water supply and power supply is already available, could be advantageously utilised. The State Government officials feel sure that if concerted efforts are made to procure coconut husks on cash payment (the local price of husk is reported to vary between Rs. 40/- and Rs. 45/- per 1000), there would be no difficulty in procuring husks at reasonable rates and also for disposal of the fibre / products at a cost covering the direct expenses and establishment charges at production-points in Co-ops. and private Units. It is contended that in the event of measures being taken up for effective functioning of the Training-cum-Service Station under functional control of the Director of Industries (C. & SSI) Government of West Bengal with adequate financial powers for the Officer-in-Charge of the Station, it should be possible to give a positive turn for development of

coir industry in the State. The suggestion is that the Coir Board should make available the buildings of the R. C. R. S., provide the necessary equipment (defibering machines, Sifter, Ratts, Mat looms, equipment for training wings etc.) technical and clerical staff and also meet the financial expenditure—both non-recurring and recurring in respect of the project. The State Government would arrange for the collection of husks through suitable agencies specially organised for the purpose and also for marketing of the products from the Servicing Station. Since the agency supplying the husks would also be responsible for off-take of the fibre and products, it is pointed out that the Board may not have to meet the expenditure for the procurement of husks. For availing of the facilities for extraction of fibre at the Station, the agency connected with husk collection and disposal of products will pay service charges to be mutually agreed upon. The products of the training wing can also be arranged to be disposed through the agencies stated above.

With the resumed activities at the Uluberia Station, the Government officials feel confident that it would be possible to ensure the requirements of fibre for usefully engaging the ex-trainees of the Training-cum Production Centre, local artisans including brush-artisans and the new artisans to be forthcoming in gainful occupations, thereby furthering the progress of this region. The success of these efforts would be to a very large extent depend upon the efficiency of the organised efforts that would be made for collection of husks and disposal of fibre and products on sound economy.

In the absence of a Scheme detailing the workable arrangements and financial implications, it is rather difficult to comment upon the feasibility of the proposition and indicate the assistance to be offered by the Board for this venture.

6. SUMMARY

.1 Having scrutinised the available data and surveyed the areas of Panchla and Uluberia of the Howrah district where coconut cultivation is done on an intensive scale, the Study Team is of the view that prima-facie, there is some scope for developing coir industry in the region for extraction of mattress and bristle fibre from dry husks and further processes involving the use of the extracted fibre. Provision of a service centre for extraction and supply of coir fibre would go a long way to engage the local artisans in gainful occupations. This could perhaps be a fore-runner for progressive development of coir industry in the State.

.2. In view of the facilities of buildings, soak-pits, electricity, water, etc. available at the R. C. R. S. at Uluberia, the West Bengal Government feels that this station could be immediately pressed into use as a servicing centre.

.3. The reason for the stalemate in the functioning of the Research Station at Uluberia has been the lack of any organisation capable of ensuring uninterrupted supply of husks at reasonable rates to the Research Station and also steady off-take of the fibre. Absence of a pucca road connecting the Research Station and the National Highway has also been an important factor which has stood in the way of progress of the Institution. These difficulties still exist even to-day; however, the West Bengal Government assures that as they are very much interested to develop this new industry in the State to the well being of all concerned, these matters could be remedied by them within the shortest possible time.

In the absence of detailed proposals in this behalf specifying the financial implications and indicating the organisational details, the Study Team finds it difficult to express its considered view in regard to this proposal. The State Government may prepare a self-contained Scheme in this regard for consideration by the Board.

Sd/

Shri M. M. Krishna Marar

Sd/

Shri G. N. Prabhu

.1 Subject to the following dissenting notes, I endorse the report.

.2. In my opinion, the dimension of training programme should extend in the utilisation stages of brush-making, yarn-making, floor-mats, fibre-mats, hand-twisted curled repes etc. and these items from green-husk fibre for which, there is an expanding market. The Central Servicing Station, according to me should take up these items initially in its adjunct-wings, which cannot be taken up by departmental training-cum production centres and ultimately the training programme for the State should be an integrated one with Board's Station furnishing designs and precision technique and the departmental Units/Co-operatives taking up other items of supplementary process involved in both training and production in interior areas of the District. This would ensure the local employment in newer commercial lines particularly for the thrown out "crushed husk" artisans and needy women and the functional integration

between State programme and Coir Board programme in both aspects of servicing with fibre and local technical guidance. Whereas in my opinion, the Kerala Institutes will primarily provide for a few Instructors/Supervisors for overall technical supervision, the local integrated training programme will handle with actually semi-skilled and unskilled artisans.

.3 The State Government agrees to draw the workable scheme in the financial implications and arrangement involved in due course after the Coir Board will have agreed to the first premise of the conversion of the Uluberia Station as a Service-cum-Training Station. As the dimensions of a workable scheme in cooperative production sector will be determined by the District-level industrial service-cum-marketing cooperative Society Howrah (already registered) in its entirety in the best interest of the constituent coir cooperatives, coir T. C. P. C's and individual extranees and artisans of the district and the whole financial responsibility in this regard starting from feeding the Station with raw materials, using pithfree fibre for further productions will be theirs and the West Bengal Small Industries Corporation (a State Government Undertaking) will be forthcoming to assist financially and with marketing opportunities for finished products, there is no reason to withhold the proposal. Once the validity of the Station has been established with its area of operation also identified by all the Members, the State Government feel for obvious existing overhead facilities at the Uluberia Station of the Coir Board, to locate the proposed Training-cum-Service Station at Uluberia Coir Board Unit, which is on the National Highway and just by the side of the Uluberia Rly. Station.

.4 The State Government further feels that the Central Station should take up activities and render such facilities in research as will be necessary for green husk fibre sector in both processing and utilisation stages.

.5 The State Government emphasises primarily on the promotional role of the Coir Board in respect of the proposed project in analogy with functions of similar All India Boards in C & S S I Sector particularly in under developed regions.

.6 The contents of para 6.3 should be read also with 'should the Board sanction simultaneously the Project and render supplementary technical and servicing facilities'. The comments regarding the commercial scheme will be seen in the dissenting note. The Coir Board may determine the pattern of staff suiting the equipment available at R. C. R. I. at Uluberia, those as to be suggested by the Director, C. C. R. I. who is a technical expert in the line and for the production part in co-operative sector, the State Government have given sufficient assurance of making the Scheme workable. Hence, Study Team's Report may be considered in respect of the usefulness and feasibility of the programme independent of the production programme in details to be drawn up after the Scheme is sanctioned by the Coir Board. It is assured by the State Government that all steps will be taken to finance the full capacity of the Training-cum-Servicing unit and to see that the industries are developed in the local area.

.7 In the circumstances, the Team would recommend a proposal for the setting up of a Service-cum-Training Centre in Uluberia (Howrah) area under the auspices of the Board and under the functional control of the State Director of the C & S S I in the lines and under the conditions stated in the foregoing paragraphs.

Sd/

Shri. A. N. Mukherjee