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**KERALA MODEL, LABOUR AND  
TECHNOLOGICAL CHANGE :  
A VIEW FROM RURAL PRODUCTION SITES**

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## **'Kerala Model', Labour and Technological Change: A View from Rural Production Sites**

### **I**

#### **Journey of the 'Kerala Model'**

A quarter of a century has gone by since the 'Kerala Model' was 'discovered'. The euphoria over an economically backward region in southwest India attaining social development comparable to the world-metropolis has now died down. The question is asked whether it qualifies as a model at all, being the interactive outcome of a varied set of factors specific to the region, and therefore not necessarily replicable in regions with a different historical trajectory. Concerns are expressed regarding the relative exclusion of social sections like dalits, tribals and fishers from the model [Kurien, 1995: 70-90; Omvedt, 1998: 31-33]. It is criticised that the distribution of gains from social development is biased against women [Saradamoni, 1994: 501-09]. There is increasing disbelief in the sustainability of even such lop-sided social development, lacking economic advance [George, 1993]. The ethical basis of the model, now primarily supported by financial remittances of migrant workers toiling in other parts of India and abroad, often in highly exploited conditions, is questioned. The metropolitan construction of the model to propagate the possibility of social development in poor countries merely by adopting a correct development policy is contested. What is more, it is now ruefully realised that not only Kerala's literacy but also its rates of mental illness and suicide correspond to the world-metropolis [Halliburton, 1998: 2341-45].

As social development euphoria began to fade away economic reality loomed large. A series of scholarly enquiries was initiated from the mid-1980s into the question of Kerala's economic, in particular, industrial development [Subrahmanian and Pillai, 1986: 577-92; Kannan, 1996: 1951-56]. A pioneering study viewed the technologically backward structure of the

industry, with its attendant low labour productivity and minimal forward and backward linkages as retarding the industrial development of the region [Subrahmanian and Pillai, 1986]. While this line of reasoning rightly emphasised technological backwardness as a crucial fact of Kerala's economic life, it tended to be tautological – backwardness of industry because of backwardness of industrial technology. This in turn prompted the question of how the industrially backward structure initially came into being and how it was perpetuated in the present. Early Marxist views emphasised the colonial conditions and the rise of an export economy supported on cheap labour base [Isaac and Tharakan, 1986; Mahadevan, 1991: 159-207]. Perpetuation of industrial backwardness was attributed to India government's discrimination against the provincial government in the distribution of central funds and investment [Isaac and Tharakan, 1986]. A variant Marxist view sought to situate Kerala's economic trajectory in the historical course of the world-economy to the present [Rammohan, 1988; 1996]. The contemporary economy was seen as entrapped in the exploitative framework of pan-Indian and multinational capital. It controlled a substantial extent of the cash crop growing highlands, the rich raw material base and the vast consumer market of the region, and acting through the financial mechanism of banks and stock market siphoned off the financial resources [Rammohan and Raviraman, 1990: 17-19].

The model did not take a straight cruise from ecstasy to despair. Seemingly unmindful of the concerns rising over Kerala's failings, a body of writings emerged in the early 1990s that once again strove to over-glorify its development experience. Born in the belly of the Soviet debacle, its larger political project was to hold out a socialist promise in a world of seemingly declining prospects for revolution. Kerala, it was said, enshrined the promise of social development that could be fulfilled by 'the left and progressive forces' even in a multiparty democracy, without violent revolution and party dictatorship [editorial, MR, 1991: n.p]. The importance of struggles for social justice in Kerala's

development had been recognised much earlier [*United Nations and Centre for Development Studies*, 1975; *Ratcliffe*, 1978: 123-44]. The new body of writings, however, took a partisan, and reducing, view. It projected every single development attainment as a creation of the left movement, and further, as the action of a single political organisation. While attributing all credit to the left, it left the blame for all the negative aspects at the doors of an often undefined or ill-defined right [*Franke and Chasin*, 1991a: 123-44; 1991b: 32-33].

This genre of writings entirely denied the possibility of multiple variables interacting to shape social development. The geographical features and the settlement pattern of the region, and their possible implications for social development were ignored. A curious notion of Marxism stalled this writing from properly examining the role of the princely, but colonial-inspired modern statecraft or the missionary effort in fashioning social development. More importantly, the democratisation of modernity in Kerala was ignored. The modernity project in Kerala was realised, among others, through robust caste-based social movements, especially the movements of the people of 'low' castes and 'out' castes demanding citizenry rights. The part played by such movements in Kerala's social development was unique, as evidenced by West Bengal, also marked by a project of modernity and strong left movement, but failing to attain similar social development. The discussion that ensued did not quite go into these and several other important aspects, but it did attempt to play down the over-rejoicing over Kerala's attainments. There were voices that alerted against the difficulties in carrying Kerala's attainments into future [*Patnaik*, 1991: 33-37; *Amin*, 1991: 28-32] and against any reductionist reading of the region's development experience [*Rammohan*, 1991: 18-31].

A different body of writings has emerged more recently, from the mid-1990s. These writings form a very necessary antidote to the genre of glorifying, partisan writings on Kerala, characteristic of the early years of the decade. The writings call for

a sober look at the region's development experience: "Kerala's achievements should neither be belittled nor be exaggerated"[George, 1998: 35-40]. Furthermore, the new writings strive to breakaway from some of the confines of the earlier 'structuralist', economic/political-economic thinking. Universalist categories are not totally dispensed with but there is an attempt to generate more categories from within, to examine new sets of relationships, to deploy new strategies of reading. Hitherto unrecognised subjectivities are brought forth into discussion. The role of 'pressure groups', the crystallisation of 'collective and individual clientilism', the rise of 'a new social construction of work', and the stirrings of 'a new rentier class' in fashioning the economy are receiving scholarly attention. The 'values, norms, goals, and orientations to everyday life' those mark the local society and their relation to economic performance are being probed [George, 1998; *Tharamangalam*, 1998a: 23-33, and 1998b: 47-52; *Kannan*, 1999: 140-81]. The writings, on the whole, facilitate a broader, yet closer look at Kerala's present identity, and strives to liberate it from being viewed as a simple pack of high social development indicators, or a strip of plain red by the Arabian Sea. We could indeed say that the beginning of a social anthropology of Kerala's development has now been made.

An overriding theme in the new writings is the linkages that traverse the 'Kerala Model', labour, and technological change. A thread of argument that runs common through these enquiries is the retrogressive role of local labour, particularly its role in the recent past. Kerala's trade unions are viewed as belonging to the ranks of "managerial barons, their managers and marauding contractors [who pillage] the public treasury" [George, 1998]. Economic backwardness of the region is attributed to trade union action in stalling new technology. "There is strong evidence to suggest that the state's industrialisation and economic development have been hampered by restrictive labour practices, disruptive practices of competing unions, and efforts by some unions to prevent modernisation and technological innovation"

[*Tharamangalam*, 1998]. It is argued that labour relations have become "a fetter upon economic development" [*Kannan*, 1999]. The reasoning advanced is that the Kerala labour stalled technological change in a bid to protect employment. As a result the region lost out on industrial development to the neighbouring regions and both the economy and labour lost in the long run. It is pointed out that the present acceptance of technological modernisation comes a bit too late, "a greater effort, vis-à-vis its neighbours, is now needed to catch up with those who had moved ahead" [*Kannan*, 1999]. The suggestion is that rather than pursuing a strategy focussing on the 'narrow' question of immediate survival, labour should have pursued a 'patriotic', 'nationalist' and 'visionary' perspective, of development of the whole of Kerala society. One scholar holds the view that "social dysfunction and political entropy ...afflict Kerala". He identifies "the erosion of work ethic" as a reason for Kerala's economic failure. Work ethic is defined in Protestant terms as " a systematic and disciplined approach to work as a duty and responsibility and even as an ethical ideal" [*Tharamangalam*, 1998a].

The problems with this line of thinking are too many. First it may be asked, how valid is the notion of an Universalist work ethic that cuts across classes, cultures and histories? A second question is whether it is realistic to expect the discourse of labour to correspond always or ever to development discourse emanating from other quarters. Labour might rightly oppose a certain discourse of accumulation that seeks to masquerade as a discourse of development of the whole society. Such opposition could even be seen 'the role' of labour at a certain historic moment. Third, technology is not a 'pure' phenomenon. A new technology may be ideal from productivity point of view but inappropriate to the social economy where it is applied [*Stewart*, 1977; *Harriss*, 1978: 24-52; 1979: 23-50]. Rejecting a more 'efficient' technology need not be a retrogressive action even by economic logic. Fourth, the logic of technological change is historically constructed. The social economy itself changes and a

technology considered inappropriate under certain conditions or a point of time may be found acceptable under a different set of conditions and point of time. Subsequent acceptance of a technology rejected earlier does not imply that the earlier decision was wrong. Fifth, technological backwardness has a long history, and the question of technological change, particularly in a region like Kerala with its distinct trajectory of social development, is dabbed with every hue. It would be misleading to understand it as owing to the transitory stance of any one actor. Finally, while Kerala's trade union leadership does include trade union bourgeoisie [Rammohan, 1998: 2579-82], equating trade unions with managerial barons and marauders of public treasury or viewing labour relations as a fetter on development fail to inform us the several nuances of labour, economy and society in Kerala. In brief, the new social anthropology of Kerala's development fails to fulfil its promise. Clearly, much of it tends to inherit the past of colonial anthropology and to coalesce into the present of neo-liberalism. The idea of a wild and lazy people that needs to be made productive for development to happen lurks underneath.

Indeed, several questions still remain to be asked, let alone answered about Kerala's development experience. This, however, would seem possible only by moving away from the limits imposed by jargon of the 'Kerala Model' [Rammohan, 2000: 1234-36; Sasikumar and Raju, 2000]. The quick partisan or state-developmentalizing imagining of the model, the loud 'eureka' in the academies on unearthing one more 'hidden' element in the making of the model, the seemingly endless piling up of the inventory of the strong points and frailties of the model, the ever-accumulating discovery of outliers to the model -- all these seem to have served their purpose, useful or otherwise.



## II Plan of this Paper

This paper views the question of labour, technological change and development from the coir yarn production sites of rural Kerala. Coir yarn is spun from the fibrous husk of coconut, a major agricultural produce of the region. Coconut husk is first defibred and the fibre thus obtained is spun into yarn. Coir yarn finds use on its own, in agriculture, fishing and house-construction, and also for weaving into mat and matting. Both coir yarn and matting have a market within and outside the country. The industry employs low level technology, save the few power-looms that have recently come up. Coir is bracketed with 'traditional industries' in official classification. In terms of employment coir yarn spinning industry is the most important among this group which also includes such well-populated industries as handloom weaving, cashew nut processing, and beedi (hand made cigarettes)-rolling.

Coir yarn workers are drawn from among the most disempowered social groups, mostly of 'low' and 'out' castes and to a much lesser extent men of 'out' castes. Majority is women workers. It is estimated that of 0.38 million workers engaged in coir yarn spinning and mat weaving [*State Planning Board*, 1998: 110]. Coir yarn spinning alone employs 0.35 million workers, almost all women [*Directorate of Economics and Statistics*, 1988]. Despite extensive trade unionisation the wages in the industry are very low; lower than even in agriculture. Statutory minimum wages are not paid even in the co-operative segment of the industry.

Coir yarn activity being formed of multiple points of production and trade, and flows among these, the commodity chain analysis could provide a prism to view it. A commodity chain represents the network of labour and material processes that precede a finished commodity. Each production operation in a commodity chain is called a node. In relation to each node, it may be possible to examine the nature and implications of several aspects. This could include material flows (basic goods, industrial

goods), mode of transfer (market, other forms), relations of production (wage labour, other forms), production organisation (household, co-operative, private capitalist, state), and technology (type, extent of mechanisation) [*Hopkins and Wallerstein*, 1992; *Gereffi*, 1994: 211-31; *Gereffi and Korzeniewicz*, 1994].

We examine one key element in a commodity chain, namely, technology. Our observations on the long run course of technological change draw on historical, printed material and oral sources. Views on the ongoing technological change are based on fieldwork. Carried out from late 1996 to early 1999, the fieldwork was spread across two states, Kerala and Tamil Nadu. In Kerala, fieldwork was carried out in three adjoining villages, all, important centres of coir yarn production in Kollam district. In Tamil Nadu, Pollachi town and a suburb, both major centres of coir fibre production, and also major suppliers of fibre for spinning in Kerala, were focussed upon.

### III

#### Coir Yarn: Labour and Production

*A coir worker can be easily identified by her appearance: her clothes, body and hair as soaked with the stinking black juice of retted husk that splashes around during beating, her hands callous from wielding the kottuvadi [mallet] and from the hard fibre rubbing along the fingers and if she is a lifetime spinner, her feet curved outwards as a result of the endless walking towards the back on spinning* [*Nieuwenhuys*, 1990: 109].

"She" produces the coir yarn, a product marked by a twin identity. Coir yarn could be an intermediate product or a final product. As an intermediate product, yarn is used for weaving into mat and matting, important items of export. Coir matting has a variety of uses. Its traditional use has been, by the rich, as underlay for carpets, and by the poor as a substitute for carpets. Today coir

matting has varied other uses. It is increasingly used as geotextiles to prevent soil erosion and as acoustic material. As final product coir yarn finds direct use in cultivation (fencing of cornfields, scaffolds for vines), fishing (ropes), and house construction, particularly by the poor.

Coir yarn is a highly differentiated product. Yarn spun in different localities varies in terms of twist, runnage (length per kilogram) and end-use. Yarn with greater runnage means finer yarn. Such yarn is an intermediate product -- it is woven into mat and matting and mostly exported. The smaller runnage yarn is a final product. The demand for this product is primarily from within the country. Each variety of yarn is known after its locality of production; thus *Anjutengu* yarn, *Mangadan* yarn, *Vycom* yarn and so on. Kind, quality and prices of yarn may vary across localities.

The coir yarn commodity chain comprises two major nodes: first, production of fibre, and second, production of yarn therefrom. Production of fibre involves two sub-operations: retting and defibring. Retting (rotting) refers to treatment of raw husk (green husk) to loosen fibre from the husk-shell and to ease its extraction. This is carried out in the backwater. Flushing washes away the tannin and facilitates bacterial action that decomposes the fibre-binding pectin. Salinity lends strength to the fibre. For retting a pole is driven into the bed of the backwater and husks are arranged one on top of the other in a circle. It is then covered with mud, palm-leaves and coir net. Each bundle, known as *maali* or *kolli*, has a diameter of 10 metres and contains 10000 husks. To distinguish between individual *maali* small metal discs bearing the initials of the owner or a number are inserted into each before sinking. Weights, usually huge stones, are placed on the top to allow the *maali* to sink. The *maali* remains in the brackish water for several months helping bacterial action. It requires four workers working together for four hours to make a *maali*. Male workers make the *maali*. Raw husk is carried to the backwater-side and the retted husk carried back to the site of defibring by women. Mostly men of 'out' castes (Pulayar) assisted by women

of 'low' (mostly Ezhavar) and 'out' caste are engaged in retting. The second sub-operation, defibring, denotes the preparation of fibre from retted husk. Retted husk is beaten with a mallet (*kottuvadi*) to separate fibre from pith. Women squatted on the backwater-side, do this work. They are mostly of 'low' castes, almost all Ezhavar.

Spinning, the second major node in the yarn commodity chain, involves the conversion of fibre into yarn. In southern Kerala, our fieldwork region, spinning is mostly carried out on wooden spinning wheels (*ratt*), operated by hand. A woman worker rotates the fixed wheel while two other women walk backwards feeding fibre, each of them drawing out a strand of yarn and later twisting these into one by pushing forward the moveable wheel. Spinners too are mostly 'low' caste Ezhavar.

Several ancillary operations tie themselves to the major operation or sub-operation of each node. The following are some of the essential sub-operations. The husks are counted both before and after retting, the retted husk is carried by head-load to the defibring site, the fibrous mass is ripped off the retted husk to prepare fibre, the fibre is cleaned before spinning, it is carried by head-load to the spinning site, the spun yarn is sun-dried, the yarn is bundled, and finally consigned by different modes of transport to different centres of trade. A *maali* of 10000 husks when retted and defibred yield 900-950 kilograms of fibre and when spun yield 800-850 kilograms of yarn. The output varies depending upon the retting time and the consequent absorption of salinity, and technique of production -- for instance, mechanical defibring yields lesser quantity of fibre and therefore yarn than defibring by hand.

Table I summarises the major characteristics of the industry in terms of the nodes (production operation) and processes of yarn production, and the gender and caste composition of workers.

The largest share of coir yarn workers is employed in the spinning node. For every five workers employed in the defibring node (one for retting and four for defibring) eighteen are employed

**Table I**  
**Coir Yarn Commodity Chain: Production Nodes and Labour**

<b>Node</b>	<b>Node I</b>	<b>Node II</b>
<b>Operation</b>	<b>Production of fibre</b> Sub-operation I Retting	<b>Production of yarn</b> Spinning
<b>Process of conversion</b>	Raw husk > Retted husk	Coir fibre > Coir yarn
<b>Gender composition of workers</b>	Both men and women, but mostly men	Only women
<b>Caste composition of workers</b>	'Out' castes and 'low' castes	'Low' castes

Source: Fieldwork, June 1997

in the spinning node. Of about 0.36 million workers employed in the yarn sector an overwhelming majority, 0.28 million, are employed in spinning, 0.02 million in retting, and 0.06 million in defibring, [Directorate of Economics and Statistics, 1988]. The physical conditions of work in the industry are strenuous. The *maali* for retting is made by workers standing waist-deep in the backwater. Retted husk has to be carried by head-load to the defibring site. Defibring demands working in uncomfortable squatting position in the swampy backwater side. The spinner is condemned to repeatedly walk, forward and backwards, between the two spinning wheels that make a *ratt* set. On an average she thus walks about 10 kilometres by the end of her workday. As all these operations are performed outdoors the workers often have to bear the burden of rain and sun too.

Such conditions of work tend to cause high morbidity among coir workers. Common health problems among coir workers include allergic problems of skin and respiratory system, body ache, chest pain, rheumatism, gynaecological complaints, headache, stomachache, and vomiting. The working conditions and the health status of the workers in co-operatives are not significantly different from the capitalist sites. A sample study of the co-operative segment showed that 68 per cent of the workers complained of allergy and respiratory infections, 49 per cent of chest pain, 39 per cent of rheumatic problems, and 52 per cent of bodyache [Nair, 1997: 120].

#### IV

1850s - 1950:

#### World-trade Influences Technological Change

*Of all the gifts which Providence has bestowed on the Oriental world, the coco-nut tree most deserves our notice: in this single production of nature, what blessings are conveyed to man! ... The trunk though, porous, furnishes*

*beams and rafters for our habitations; and the leaves when platted together make an excellent thatch, and common umbrellas, coarse mats for the floor, and brooms; while their finest fibres are woven into very beautiful mats for the rich... The nuts contain a sweet and delicious milk, and a kernel, sweet as the almond: this, when dried, affords abundance of oil; and when that is expressed, the remains feed cattle and poultry and makes a good manure. The shell of the nut furnishes cups, ladles, and other domestic utensils; while **the husk which encloses it is of the utmost importance**: it is manufactured into ropes, and cordage of every kind, from the smallest twine to the largest cable, which are far more durable than that of hemp [Forbes, 1823: 22-23, emphasis added].*

"Of the utmost importance", as Forbes saw it, was, of course, what was of utmost importance to the world-metropolis. Local people cultivated coconut not for its husk but the kernel that it enclosed. The kernel as such and the oil obtained from it were essential components of the local cuisine. The oil also found everyday use as anointment. The husk was viewed rather as a by-product. It was defibred and yarn spun but it was on a rather small-scale, mostly for local use. Ail operations were done by hand, often with no tools at all, or with minimum number of tools, like say pierced coconut shells. A big change in production and market of coir yarn, however, occurred in the sixteenth century. This was with the expansion in world-demand for cordage for shipping following the rise of European maritime powers. A substantial part of the requirement was met from the Kerala coast. Portuguese traders were the major agents in mobilising the commodity. Consequent to the enormous expansion of demand, the scale of local coir yarn and rope production multiplied. There is, however, no evidence of any substantial technological change during this period. Both defibring and spinning continued to be done by hand. The linkage of global commodity chain seems to have been more with

agriculture. Area under coconut cultivation steadily increased during this period, rendering thus a growing supply of husk for processing.

The first major technological change in yarn spinning was induced by the rise of new metropolitan demand for coir matting that occurred during the nineteenth century. In Europe coir matting was used by the rich as underlay for carpets and by the poor as a substitute for carpets. The metropolitan, primarily British, trading houses that operated from the Kerala coast exported coir yarn to England and Ireland where it was woven into matting. A part of the yarn exported to London was re-exported; it reached the matting factories in The Netherlands and Belgium. From the mid-nineteenth century, coir-matting factories emerged in Kerala's port towns as well. Yarn was demanded in the metropolis as an end product also. This was for agricultural purposes, particularly for hop cultivation. Bristle fibre and later, brushes as well were exported. Throughout the colonial period production and trade of coir products was under the dominance of world-metropolitan capital [Venkataraman, 1940: 52-87, 154-83; 1941: 61-86; Isaac, 1984; Rammohan, 1996]

How did world-demand explosion influence local technological change? The rise of matting factories in Kerala's port-towns has already been referred to. As demand for coir matting boomed, the demand for coir yarn, the raw material, also expanded proportionately. Between 1855 and 1914 coir yarn export from southern Kerala (Travancore princely state) increased over 15-fold [Rammohan, 1996: 63]. This prompted changes not only in the scale but also the technology of yarn production. Yarn required for weaving was of the hard twist variety. This could not be spun by the traditional method of rolling fibre between palms. Hand spinning therefore gave way to spinning by wheel. With rapid and extensive diffusion, the wheel multiplied gross production of yarn, and consequently matting. The shift to wheel spinning was accompanied by two other important changes. First, yarn spinning increasingly lost its character as an ancillary work



and was recast as a prime mode of subsistence. Further, it increasingly assumed the character of exclusive occupation of women, and of 'low' and 'out' castes, and to be paid for at relatively low rate. Men continued to be engaged, but it was increasingly viewed odd. Also, like the handloom of the weaver, chisel of the carpenter, and the tapping rod of the toddy-tapper, the coir spinning wheel nearly received the marking of a caste-occupational tool. This scene relates to southern Kerala where yarn production was linked to mat weaving for exports.

In northern Kerala (former Malabar district of the Madras Presidency), and also the neighbouring island of Sri Lanka (former Ceylon), where yarn continued to be produced as a final product no major technological change occurred [*Sharma*, 1923]. Yarn was either spun by hand or by drawing fibre through a pierced coconut shell, as was the practice in certain parts of northern Kerala. Of Ceylon it has been noted: "In the past the fibre was generally converted into yarn by hand, and it was not until 1938, that the method of spinning by machinery was introduced"[*editorial, CTJ*, 1942: 169]. It is interesting that in northern Kerala, where wheel spinning was not introduced, several castes, including some of the 'upper' caste Nayanmar continued to be involved in spinning [*Sharma*, 1917].

Save rope works, which pursued a different technology ('a rope is more than a big yarn'), spinning factories were rare, if at all these existed. The closest approximation would have been spinning carried out in the homestead or backwaterside premises of the merchant, concentrating workers thus. Varied forms of production arose: including, putting out, piece wage, and petty commodity. In all these, however, production continued to be carried out mostly in the worker's own home/homestead. A mid-1930s report confirms this.

*In practically all cases the various processes are carried out by individual peasants at or near their own houses*

*even if it is piece work carried out for merchants who buy husk and sell the finished yarn [n.a, CTJ, 1936b: 418].*

The defibring and spinning nodes were often united in the worker's home/homestead. In Malabar, home production was usually organised around the retted husk dealer roughly as below:

*The female [the mother] goes to the village merchant and procures softened husks of 25 coconuts to be cleaned, beaten, dried and spun. The girl assists her...she takes up the work of preparing yarns when it is most convenient to her. The hours during midday and earlier part of the night are generally found convenient. On an average it is found that she will be able to spin 15 palams of yarn in 24 hours. The finished product (15 palams) is taken to the merchant. He deducts 10 palams as 'seigneurage' to the master and for the remaining 5 palams pay 3 pies per palam – this being the families [sic] earnings [Sharma, 1917, as cited in Velayudhan, 1991: 67].*

Malabar, lacking the kind of intense world-market integration through weaving segment as in the case of Travancore, yarn spinning did not take rapid strides of expansion. The 1931 census puts the number of coir workers in Malabar at about less than half that of Travancore, around 41000 and 83000 women respectively [cited in Velayudhan, 1991: 68]. Further, in Malabar, yarn spinning appears to have lost its ancillary work character only gradually. Indeed, in many parts of Malabar, its stature as additional work engaged in by poor peasants or landless workers continued well into the twentieth century. This could also be due to the fact that in Malabar while under several oppressive forms of tenures most people, save 'out' castes barred by caste-based denial, had access to some cultivable land, at least as a very inferior tenant under constant threat of eviction. This was in contrast with Travancore where despite the royal grant of absolute ownership to

state tenants (modelled on the Madras ryotwari settlement with tax paying landholders, according to then dewan), of clearing of jungles for plantations, and reclaiming backwaters for growing paddy, possession was still scarce to large sections of people. Indeed, the massive 'accumulation of bodies' in Travancore's port-town factories, backwater-reclaimed paddy tracts, and highland plantations was facilitated mainly through the swelling ranks of the landless in the countryside. Further, the land scarcity in Travancore, and its relatively better availability in Malabar was reflected in the large-scale migration of people from the former to the latter, from southern to northern Kerala, beginning from the 1930s. (Certainly, the migration had other influencing factors: like, the displacement consequent to development, and more damaging shock from metropolitan depression on account of more intense world-market integration, in Travancore.) The land scarcity in Travancore largely owed to the relatively lesser availability of land per person, the corporate plantations monopolising a very large part of the total cultivated area, and the highly skewed ownership structure of backwater paddy tract holdings, besides caste-based denial that was true of Malabar as well.

The organisation of coir yarn production varied not only between the north and the south but also across localities within each. In Malabar, home production itself assumed different forms regarding labour and market linkages. Also, we find complicated inter-linkages. For instance, women workers in the spice warehouses of metropolitan export houses in the port towns sought recourse to yarn production. This was to supplement the meagre wage received. During the day she cured spices in the warehouse. At night she spun yarn at home. She was, thus, wage worker by day, petty commodity producer by night. The yarn produced at night was bartered next day for daily provisions at the local grocer, who also dealt in coir. Often the metropolitan firm itself later procured it for export. An official history of a metropolitan firm reads:

*The first coir yarn to be prepared by us [Pierce Leslie Company]...was all spun in the cottages around Karaparamba [where the warehouse was located]and was regarded as an additional source of income to the women...who, after working by day in the yard which handled coffee, cardamoms, cinchona and ginger, would sit up spinning yarn as they discussed the day's news late into the night. The following day the yarn would be taken to the local shops and exchanged for salt, chillies, coconut oil and other requirements of life...[Langley, cited in Velayudhan, 1991: 68].*

It is most likely that export workers being engaged in ancillary work caused to lower the price paid for labour power in the export segment as well as the price paid for labour embodied in the petty commodity yarn. Further, when the metropolitan firm itself buys the yarn so produced the inter-linkages multiply.

As earlier noted, it was only in southern Kerala where yarn production was linked to the export-oriented weaving node that spinning wheel was introduced. A question that arises here is why was there no attempt to go beyond the wheel, and further 'technologise' spinning? It appears that there was no compelling need. The requirement of trade was fully met by the spinning wheel, economically embedded in the network of home production. These were not just homes. These were the homes of 'out' castes and 'low' castes. Furthermore, the spinners were almost all women. Children rotated the wheel. No machine could have competed with this labour power cost-wise. In southern Kerala too, despite the general buoyancy of the industry, the wage was pegged at an abysmally low level through nearly a century. The wage paid was not enough, literally, to win a square meal. A survey of coir workers' families conducted in 1940s vouches for this. What follows is a description of the income and diet of a worker's family:

*She earns 4 annas [quarter Re or a little over 7 chukram.] a day by coir yarn. She and her child take half a cup of tea without milk and what is left over of the previous night's tapioca[cassava]. No food during the day. At night they take rice one and a half nazhi(13.95 oz.) (or wheat 2 nazhis on some days), tapioca boiled 2lbs. (one and a half chukram worth), fish 1 to 2 ounces and chillies and spices to taste [Shastri and Bhat, 1945: 66].*

In the defibring node too, the availability of cheap labour, of women of 'low' and 'out' castes, rendered technological change irrelevant. The port-based metropolitan firms and some individuals tried a defibring machine but soon gave up. Its running cost much over-shot the wages then obtaining. The quality of the yarn turned out was also poor. We thus read about the attempt of a scion of a royal family during the first decade of twentieth century:

*Three or four years back K. Rama Varma Koil Tampuran of Kilimannoor procured a machine. Since it was found that the use of this machine was not more economical than the manual process and the fibre was damaged due to cutting, and some of the workers suffered on account of lack of experience, he withdrew from this with disappointment [Pillai, c.1905: 25-29].*

The attempts by two leading metropolitan firms to establish defibring mill in the port town also failed under similar circumstances.

*In the first decade of the century, Arnold Chenery and Co. tried to erect a fibre mill at Alleppey which worked for some years. Yet ultimately it proved to be a failure and the factory was closed down mainly on account of competition from fibre production by manual processes...Another fibre mill, started by Aspinwall and Co. in the 1920s also met*

with the same fate [Isaac, Stuijvenberg, and Nair, 1992: 34].

A trade journal report from the 1930s noted on the absence of any machinery, except the hand operated spinning wheels: "coir-making on the Malabar coast [Kerala] is essentially a cottage industry. There is no machinery for coir manufacture in evidence..." [n.a, CTJ, 1936b: 418].

World-trade influenced the technological organisation of the packing and shipment segment in a subtle way. Technological change here marked no simple substitution of one technology by another. Rather technological organisation was fluid, a fluidity occasioned by the varied needs of metropolitan importers. Fibre and yarn being bulky material, their transportation cost was very high. "The freight on fibre is by far the largest item in the landed cost" [n.a, CTJ, 1936a: 308]. Minimising the transportation cost was therefore crucial to export trade. Towards this baling presses were introduced. Hydraulic baling helped to reduce freight by half. These presses, however, involved high investment and were installed only by the more prosperous metropolitan firms. Even in those firms not all fibre was baled for export. Some metropolitan importers preferred ballots (bundles) to bales, as baled fibre was hard to tease. Those importers bore the extra transportation cost for ballots [n.a, CTJ, 1936a: 308]. This was more so in the case of Australian importers. Probably this was because they were situated closer to the export ports of the Malabar coast and Ceylon, and the extra cost of transportation worked out to be lower than the cost of labour for teasing yarn.

As coir-matting factories in both the world-metropolis and the local port-town multiplied, innumerable villages in southern Kerala became important sites of coir yarn production. Contributing to such localisation was a multiplicity of factors. This includes the concentration of coconut production assuring a steady supply of husk, the existence of backwaters that helps the soaking of husks and the preparation of fibre, the integrated

network of backwaters and canals that facilitates economic transportation of bulk material like coconut husk, fibre and yarn, and the possibility of obtaining, or rather, 'socially manufacturing', the labour cheap. Putting out and (piece-) wage labour were the two major organisational forms of production. Whichever the form, the venue of production, as already indicated, was the homestead. The yarn produced by the households was carried in country boats along the rivers and backwaters to the port towns, and woven into mats and matting in the factories operated by metropolitan capitalists. A substantial part of the yarn produced was also exported as such, again through the metropolitan export firms based in port towns. Western Indian merchants acted as 'factors' in the dealings between local traders and metropolitan firms. The coir products were procured for exports through a long arm of advances (credit), extending through traders of various sorts and scales. The credit chain stretched from the metropolis to the periphery, from the palatial headquarters of the metropolitan firm on the Thames to the little huts of coir spinners on the backwaterside Kerala villages. As the child worker in her Kerala home turned the wheel, money flowed into the coffers of the London firm.

Over time most of the backwater-side villages on the southern Kerala coast became helplessly dependent on coir production for survival. Indeed the dependence became literally proverbial: *Chavara, Panmana, Thevalakkara kayaru kondu pizhakkanam* (Chavara, Panmana and Thevalakkara [villages] are condemned to survive by coir).

## V

1950 - mid-1970s:

### Crisis Defers Technological Change

A defibring machine appeared in Kerala in the 1950s. The new machine, which came to be called the Kerala drum, resembled in some ways the Ceylon drum for extraction of bristle and mattress

fibre, as also, in some way, the paddy thresher used in Kuttanadu rice tracts. The machine consisted of a spiked metallic cylinder and two metallic rollers, all connected by a gear system and driven by electric motor. The machine could handle only retted husk. It could defibre 4000 husks in eight hours. About 18 workers were required to keep the machine running. The spiked drum, however, was a cause of anxiety – a tiny lapse, and the worker's hand could get sucked into it while feeding the husk [Isaac, Stuijvenberg, and Nair, 1992: 158-59].

The machine seemed to be an isolated instance. There is no evidence of labour shortage during the time of introduction of this machine. Spinners were available in plenty, and as in the colonial times condemned to work literally to death under the piece-wage system. The money wages had risen but with spiralling, wartime and post-war prices little impact was felt on the living standards. The minimum wages committee, 1953 noted:

*Girls between 16 and 20 were dwarfed on account of insufficient nourishment. Women between 25 and 30 were so worn out by work and starvation that they looked 40 to 50 years of age. The workers who are spinning coir cannot as a rule work for more than four or five days a week. Generally they start work at 3 or 4 o'clock in the morning and continue their work up to 5.30 or 6 or even 7p.m. with a short interval in the afternoon. This craze of early work is the outcome of their desire to earn as much as they could by turning out more work on piece-rate system. At this rate a worker is able to get Re.1 to Rs1.40 per day.*

Such wage was enough for bare reproduction of labour power of individual worker. This situation forced the younger members of the family too to take to spinning at the earliest. The minimum wage committee pointed out that wage has to be raised by a third even to ensure the minimum calorie fulfilment of 2400 units per adult.



The search for the defibring machine appears to have been triggered off, partly, by a very short-lived spurt in trade. The world-demand for fibre and yarn substantially rose during the immediate years following the Second World War. The emergence of power-looms in Western Europe significantly expanded the product-range of mat and matting. A broad variety of designs and patterns could now be woven. The rise in world-demand was well reflected in the figures of coir fibre, yarn, and rope exported from Malabar Coast. Export steadily rose from 1945, and by 1951, in a span of six years, had doubled. It rose from about 42000 tonnes in 1945 to 84000 tonnes in 1951. Mat and matting exported rose by a third, from 12000 tonnes to 18000 tonnes [Isaac, Stuijvenberg, and Nair, 1992: 30-31]. Alongside, the unionisation and struggles of workers, and the consequent state action to institute minimum wages, appear to have prompted capital to look for labour-saving technology. An exclusive union of spinners had been established in 1934 but this was a small one, comprising only 20 women, and short-lived [Velayudhan, 1991: 70]. Beginning from the 1950s, but more so from the '60s, trade union movement flowed out from the 'male', matting factories in the port-town and small-towns to the homesteads of yarn and fibre production in the villages. This was posing a definite threat to the cheap labour base of the industry. Capital began seeking labour-saving technology.

The export boom, however, did not go well into the 1950s. The decade was one of fluctuating world-demand. During 1951-52 there occurred a big dip in export. This was followed by years of ups and downs till 1961. Annual export of coir products from India ranged between 60000 and 80000 tonnes during the decade. Furthermore, beginning from the early 1960s export showed a steadily declining trend. The years between 1965 and 1975 were particularly disastrous. During this period export of fibre was reduced to almost nothing. Export of yarn fell by over half, from 53000 tonnes to 24000 tonnes [Isaac, Stuijvenberg, and Nair, 1992: 47]. Local production of matting, advancing rather slowly, and with tremendous fluctuations, could provide no amends. The

fall in demand was in particular due to competition from synthetic floor covering. The matting factories in the metropolis were facing a bad time and many of them had closed down or shifted to trading. Even the reduced world-demand could not be met at competitive prices owing to the shortage and consequent high price of husk. The shortage was due to, among other factors, the hoarding of husk by large-scale retters.

Despite indifferent conditions of the industry the period witnessed increased efforts at mechanisation. While the Kerala drum of the early 1950s was an isolated instance, the number of defibring mills rose through the 1960s. By 1973, around 400 defibring mills had come up. Mostly the large retters, who were also in most cases landlords or rich peasants, had set up these mills. The large retters formed only a small per cent of the total retters, but controlled a significant share of the husk processed in a locality. A coir board survey conducted in 1968 noted that the large retters formed about 10 per cent of the total retters but controlled 75 per cent of the retted husk. Even the latter figure is seen as an underestimate, and it is suggested that the control of large retters could have been as high as 95 per cent [Isaac, Stuijvenberg, and Nair, 1992: 141]. Many defibring workers were tenants of these retters, and also indebted to them through the credit market. Under the loose definitional cover of being producers, the oligopolist retters could control the co-operatives as well. With the reorganisation of co-operatives in 1972, which recast the producers' co-operatives as workers' co-operatives, their power over the co-operatives, however, was substantially reduced. Consequent to land reforms, legislated roughly about the same time, their status as landlords was also rapidly giving away. The home-settlement right (*kudikidappu*) component of land reforms rendered the workers more independent. They were not only freed of threat of eviction by the retter-landlords but also vested with absolute ownership of their little homestead. Trade-unionisation had gone by leaps and bounds, and by then covered even the workers in the smallest unit of production. Workers'

strikes were bound to be near total, with even a worker working in her neighbour's small work-site striking work. The large reppers, with reduced control over land, and therefore husk, and labour, shrinking turnover owing to the rise of worker' co-operatives, and the earlier, direct power over the co-operatives almost completely lost, responded to the new situation by turning to labour-saving technology. They set up mills that defibred reppers' own husk as well as 'job husk'.

The new defibring mills threatened to take away a substantial part of the already shrinking employment from the workers. Consequently, a series of violent struggles ensued. In one such instance, in the early 1970s, the striking workers smashed the defibring mills and threw the pieces into the backwaters. The state, at this point, intervened and prohibited the working of defibring mills in southern Kerala. This was in September 1973 [Isaac, *Stuijvenberg, and Nair*, 1992: 42]. Importantly, the decade witnessed similar conflict in other sectors of production too. In agriculture the attempts by the middle and rich peasantry to introduce tractors met with stiff resistance from agricultural workers, already threatened with unemployment in the context of rapid conversion of cultivable land into residential plots, and food-crop land into cash crop land. Indeed, these struggles were also integral to the then political agenda of the Communist Party of India (Marxist) in Kerala. The agrarian reform initiated by the left wing government had succeeded in clipping the wings of the landlords. Contradiction in the countryside had thus changed. Both landlords and tenants had by and large ceased to be. The new, dominant contradiction was viewed as the landless labourer/small peasant vis-à-vis the big farmer. The big farmer was not seen to include the capitalist and corporate cash crop farmers (the ceiling legislation had exempted their holdings) but only those controlling food crop growing land. As big farmers in this segment were not a very large number, in practice, often the struggles were launched against the 'not so big' local farmer too. (Interestingly, there is a close parallel here with a Communist

Party of India (Marxist-Leninist) group in Kerala, that evaluated the social relations as 'semi-feudal, semi-colonial', and strained to locate some landholders of somewhat indifferent economic standing as class enemies to be annihilated through guerrilla struggles. The pioneering revolutionary group of the late 1960s, at variance with this, had oriented their action as much, if not more, against the state.) Likewise, in 'traditional' industry, with metropolitan big capital pulling out, the contradiction with the much smaller local traders and industrialists began to loom large. During this period, the struggles of even the relatively better off state sector workers were marked by militancy. The striking workers of the state electricity board, for instance, toppled the mammoth high-tension electricity transmission towers and smashed hydroelectric generators. Indeed the decade, the 1970s, was a subversive one: it was a decade of idealism, questioning, and revolt, in political practice and aesthetics. The soul of the times is in the words of the Kerala poet: "last evening I heard you enjoining the bards, 'make song into a flaming torch and burn the faces of kings' " [*Pillai*, 1972].

What kind of coir defibring mills came to be established during this period? The mills that were initially established, around mid 1960s, were not of very advanced design. They were identical to 'the isolated first drum of the 1950s'. It consisted of a pair of heavy metallic rollers and a spiked drum. Peeled, retted husk was fed into the space between the rollers. The rollers squeezed out water from the husk. These were then passed on to the drum for combing and shearing. The fibre was then separated from the pith by hand. The rollers and drum were driven by electric motor. The machine could process about 4000-5000 husks in eight hours. It required about 18 workers - 10 female workers to peel the husk and sift the fibre, 8 male workers to attend to the machine. From the early 1970s, as the labour scene became even more disagreeable to capital, there were further attempts to 'technologise' defibring. An early model decorticator, alternatively called beater, consisted of a revolving drum with beater rods. The

retted husks were given a gentle beating and the *pola* (fibrous mass) ripped off the hard shell. The *pola* was then fed into the beater to sever fibre from pith. The beater rods disintegrated the husk and separated the fibre. The fibre then passed on to a nail drum that cleared the remnants of pith and impurities from the fibre. The decorticator could process 8000-10000 husk, that is double that of Kerala drum, in eight hours. Both the Kerala drum and the decorticator brought with it a larger male component in defibring, with consequent reduction in female employment. With the concerted struggle by workers and state intervention, however, further unemployment could be contained to some extent.

The period witnessed no attempt to further 'technologise' the spinning node. The hand-operated wheel introduced nearly a century back continued. The entire yarn produced in Kerala till very recently was thus either spun by bare hand or by hand-operated wheel.

## VI

### Mid-1970s – 2000:

#### Social Development, Intra-regional Trade and Technological Change

Beginning from around the mid-1970s Kerala's social economy underwent crucial changes, which allowed space, albeit with hesitancy, for mechanisation. Further, the yarn commodity chain itself was redrawn during this period with the opening up of new trade channels with neighbouring Tamil Nadu. How these changes created ground for mechanisation is the central concern of this section. As some of the social choices were produced by the conditions of the industry itself we shall begin by exploring the latter.

All through the 1970s the shortage of husks had continued shooting up its price. The Union government and the State government therefore intervened to regulate the market. A ceiling

price was fixed, dealers could operate only with licence, and they were required to file a monthly statement of stock and sales to the licensing officer. Further, the movement of husk was regulated through permit. The state intervention was a failure; it disrupted the traditional pattern of husk flows and substituted it with practically nothing. Taking cue from this, subsequently, the intervention was confined to a levy system. A certain share of husk processed by every retter was collected as levy and supplied to co-operatives. This was to ensure supply of husk at economic prices at least to co-operatives. Even this objective was only partially fulfilled. Large-scale retters hoarded husk, small-scale retters resisted collection of levy [Isaac, Stuijvenberg, and Nair, 1992: 143-47]. There was also an absolute shortage of husk. Although area under coconut cultivation had increased, the yield per palm had steadily declined beginning from the 1960s. As fire wood prices rose through the 1970s, it was increasingly substituted with husk, reducing the supply of husk to industry even more. Further, with division of coconut groves following land reforms, collection of even the available husk was rendered difficult. As shortage of husk became chronic the vacuum was increasingly filled in by flow of fibre from Pollachi in the neighbouring Tamil Nadu. Pollachi had over time emerged as an important centre of coconut cultivation and coir fibre production through mechanical means. The husk available within the state continued to be defibred by hand, employment was thus retained, and the shortage was met through imported fibre.

With Pollachi fibre being imported the case for continued ban on defibring mills, as a means of protecting employment in defibring became weak. Defibring mills once again came up in the southern districts and their number steadily increased. In early 1997 there were 392 mills handling retted husk, employing 3023 workers. The highest number of mills, 142, were located in Kollam district. Unlike in the early 1970s, large retters own only a few of these. Indeed with husk regulation, and large import of fibre from outside the state, the large retters have almost ceased to be.

These mills are small outfits, usually located by the backwaterside. This facilitates easy unloading of husk and loading of fibre. A small shed houses the machine. The small piece of land around is used for counting the husk before for defibring, to sundry the fibre, and to dump the pith. Together this would require an investment of about Rs 0.3 to 0.4 million, and thus their economic status roughly equates with the medium-scale yarn producers. The mill-owners operate the mill mostly as a job-facility, undertaking defibring of retted husk for yarn producers.

The continuing crisis in the industry forced out both capital and labour. The export of coir products steadily fell through the early 1980s. From about 47000 tonnes in 1980 it dropped to 25000 tonnes in 1986. Consequently, employment in the industry shrunk considerably. It looked as if the industry was never to recover. The crisis of unemployment that was already acute in the 1960s and early 1970s deepened. Even the co-operatives ceased to pay the legally stipulated minimum wages. Children of coir workers began to look for work outside the coir sector. The migration to Middle-East Asia (or, 'Gulf', as called in local parlance), the 'growth' trigger of Kerala economy in the post-1970 period, did not directly help the coir workers' families. Most of them did not have enough land that could be sold or mortgaged and proceeds used for buying a 'job visa' from the job brokers. Yet, the remittances from 'Gulf' prompted a consumer and construction boom and opened up alternate opportunities of employment in the economy. Further, the migrants left behind avenues of employment for local people. Space was thrown up for employment as masons, tailors, and carpenters, as a bulk of the early migrants was drawn from these occupations. Caste norms in occupational distribution were weakened, and there occurred significant cross-caste movement in jobs. This was true of women's employment as well. Nursing, for instance, was no longer viewed as a 'Christian occupation'. Further, as small towns grew into big towns, and new towns mushroomed, new occupations like 'sales girl' in textile shops, operator in a privately

owned, public telephone kiosk (also, an outcome of migration, making long distance calls necessary) became available. Varied kinds of home-production, such as embroidery work, and making of ready-made garments, particularly the women's housecoat, which became increasingly popular from the early 1980s, opened new subsistence modes of employment.

Through the 1970s and '80s, the level of education among children of coir workers improved. The system of the so-called Parallel Colleges, allowed generalised access to university degree through private study and tuition. With the spread of higher education the job perceptions changed. While the wages in many new jobs just equalled or were even lower than a coir worker's, it was not the work of an illiterate, condemned to be performed in unhygienic conditions, in a peasant or worker garb, like that of a coir worker. The more deprived girls were driven to north Indian towns and industrial townships, and in the shrimp curing yards in western India. The working conditions were bad, and the monthly rate of earnings was not much. There was, however, employment almost all through the year, and even allowing for annual travel expenses to Kerala, some money could be sent home, or some savings could be had (sad although that these girls were often working to acquire their dowry which the 'progressive' Kerala male unashamedly sought). All these contributed to a reduced preference for work in the coir industry. Enough labour was not forthcoming in particular to the defibring node, which involved working on the marshy backwaterside in uncomfortable posture.

As we noted earlier, the import of fibre from Pollachi has weakened the case for continued ban on defibring mills, as a means of protecting employment. Not only that, along with social development, this new intra-regional trade has been the second most important factor influencing the present technological change. The mechanically produced fibre of Pollachi undercuts the local, handmade fibre. Indeed, Pollachi fibre is produced at such low cost that even with the add-on transportation cost on the bulky material, its delivery price tends to be lower than the price of



local fibre. As a result, Pollachi fibre has pushed out local fibre as raw material in yarn production. Now, for instance, over 80 per cent of the fibre requirement in the fieldwork villages are currently met from Pollachi.

The cheapness of Pollachi fibre is derived from two sources. First, husk is cheaper in Pollachi. Second, the wage is lower. Why is husk cheaper in Pollachi? Why is wage lower? These questions may be answered only by reviewing the production conditions, both agricultural and industrial, and the kind of marketing channels in Pollachi. Pollachi had a tradition of coconut cultivation, production of fibre and spinning of yarn but this was confined to isolated villages and undertaken on a very small scale. The region's more recent rise into a major producer of coir products owes to the explosion in coconut cultivation and the specifically capitalist mode of its cultivation. Coconut cultivation in Pollachi compares with plantation agriculture. Relatively 'liberal' land laws in Tamil Nadu facilitate the existence of large holdings. Sufficient availability of water is crucial to the growth of coconut trees. Besides receiving a fair share of monsoon, the coconut groves in Pollachi are systematically fed by irrigation through tube-wells. The palms are mostly hybrid of the high yielding variety. The palms being well fertilised and well watered, the nuts are bigger, and the yield of husk greater. Investment in coconut groves is often sourced from outside agriculture. Many grove owners are traders and some, industrialists. Many coir manufacturers themselves own coconut plantations and their factories are often set up in the midst of the plantation itself. The manufacturer's supplementary needs of husk could also be met from within a narrow area. Often the manufacturer operates a truck and collects husk directly from the groves. At any rate, there is no long chain of intermediaries as in Kerala that links up the small growers in scattered holdings and the manufacturer. Further, unlike in Kerala where husk is also consumed as fuel at home, there is no leakage in supply of husk to the industry. Collection is immediate and comprehensive. Transportation costs

are minimal and volume of trade margins small. The specific mode of agricultural organisation has thus yielded significant reduction in transaction costs to the Pollachi industry. Further, as fibre production is large-scale, the husk requirements are also large, affording significant economies in buying. As a result the millers can procure husk at much cheaper rate in Pollachi as compared to Kerala. Further, as the fibre production unit is often part of a much larger, integrated production complex of different coconut products, it becomes possible to cheapen fibre by cross subsidising. The origin of such large production complexes could perhaps be traced to Pollachi's specific location in the industrial map of Tamil Nadu. Pollachi forms an industrial/technological/skilled labour triangle with two other major centres of industry; Coimbatore, the long-standing centre of textile and light-engineering industry, and Tiruppur, the relatively new but high-profile centre of hosiery industry. Already, Pollachi is an important centre for coir machinery manufacture as well.

Wage is lower in Pollachi owing to several factors. The limited spread of trade union movement and the absence of very specific 'growth triggers' like 'Gulf remittances' as in Kerala causing general wage level to go up, are important, general factors. Further, the shop-floor organisation of labour in Pollachi industry is very different from Kerala. First, the use of advanced technology itself intensifies work. The machine, so to say, is the most rigorous supervisor of all. It dictates the speed of work, gets more work out of limited working hours. The assembly line production ensures this even more. The husk continuously moves along the conveyor belt: first, from the crusher where a spiked drum pierces it all over to facilitate easy entry of water and quicker soaking, then to concrete tanks filled with water drawn from tube-wells, and finally into a three-piece unit consisting of a combing machine, turbo and beater to yield fibre. The machine thus orchestrates the entire labour process. The new technology is combined with the age-old capitalist way of lengthening the working day without increasing wages. The fibre division in a

typical integrated production complex in Pollachi employs merely 10 workers, including six women workers, in its fibre division. While the eight-hour workday is strictly followed in Kerala, in the Pollachi factories the workday comprises nine hours, from 8.30 in the morning to 5.30 in the evening. We could see that the actual workday extended further, to 6 and even beyond, because the wrap-up at the end of the day is excluded from the definition of work. Rest time was almost nil, and time allowed for meal negligible. Despite such intensification of work and lengthening of the workday the wage in Pollachi is just about two-third of that prevailing in Kerala. (Two points may, however, be added by way of qualification. First, despite low wage rate, the workers' absolute, annual income may be higher in Pollachi because there is full employment. Second, the wage rate in Pollachi is also rising, and consequently, the wage differential with Kerala narrowing.)

The fibre (sometimes composite, with spinning as well) factories located on the outskirts of Pollachi town extract labour even more cheap. One such factory that we had the occasion to observe closely employs about 125 workers. Work is conducted in two shifts. The first, of 10 hours' duration, is from 8 in the morning to 6 in the evening. This shift employs almost all women. The second is a 12-hour shift for men, from 8 in the evening to 8 in the next morning. Rather than employing local labourers who might demand relatively high wage, the factory employs migrant labour. These labourers are drawn from the drought-prone, dry plains of Tirunelveli and Ramanathapuram. They are recruited through *kangani* jobbers, financed through a system of advance as in the days of colonial, mining-plantation capitalism. We were told that there has not been a single strike in Pollachi coir industry todate. The workers are not unionised -- either in the integrated production complex in town or in the smaller factories on the outskirts [*Rammohan*, 1999: 31-33].

Along with cheapness of husk and labour, the specific mechanical procedures employed have also served to reduce the cost of fibre production in Pollachi. The production process in

Pollachi is quicker. There are about 300 factories engaged in the production of coconut fibre in Pollachi. Of these at least 225 factories employ advanced defibring technology. The rest use the less advanced type of beaters (decorticators) but increasingly these are replaced by advanced technology. Unlike in Kerala where husks are retted for several months in the backwater Pollachi units resort to rapid retting. Raw husks are soaked in fresh water for 3 to 10 days and mechanically processed to yield fibre. (With the new technology in Kerala also set out to use similar production process, the local fibre may be able to take away the special advantage of Pollachi fibre in this regard. Regarding husk and labour, however, local fibre is bound to lag behind in cost advantage.)

Along with the threat to local fibre production and employment owing to increased import of fibre from Pollachi, the present technological change has been also speeded up by the spurt in export demand. In the 1990s, there has been a turnaround in this so-called 'sun set industry'. There was an increase in metropolitan demand for matting, derived from an increased preference for biodegradable material, and also, the identification of new uses of coir mat, such as for geo-textiles to prevent soil erosion. To meet the new demand for matting several privately owned power-looms emerged in southern Kerala. From 25000 tonnes in 1986, coir exports have recovered its 1980 level, to around 50000 tonnes in 1997. Of this, mats and matting form about 28000 tonnes [*State Planning Board*, 1998: appendix 6.32]. The revival in the matting sector has generated increased internal demand of hard twist yarn for weaving, and therefore also for fibre. Mechanisation of defibring and spinning appears to be, at least partly, a response to this as well. In this changing scene of economy and society, trade union resistance to mechanisation quietened down. Politically too the times had changed. Unlike the subversive, idealistic 1970s, the '90s marked a decade of crass practicality in most spheres of Kerala life. The earlier 'party of workers and peasants' itself had been 'middle-classed' to a

substantial degree [*Rammohan*, 1998: 2579]. The party seems to have either lost the earlier political impetus for militancy or consciously moved into a different track of political engagement.

An interesting aspect of the ongoing technological change is that unlike those occurring in the two earlier phases - the spinning wheel and baling presses of the first period and the defibring machines of the second period – it is the result of a state policy. Besides the influencing variables as detailed above, the policy has been shaped by social demand, as evinced in the attempt to improve working conditions and reduce ecological consequences. Such framing of objectives also reflects certain positive aspects of the democratisation process in Kerala. The concerns of workers and local people are recognised, to whatever limited extent and in altered forms, in state policy-making.

## VII

### Concluding Observations

The elation over the 'Kerala Model' of high social development despite economic backwardness is over. Not only the limitations of Kerala's social development are now recognised but also the concerns over economic backwardness are rising. Despite this, the glorifying, partisan writing on the 'Kerala Model' has continued. The new social anthropological work on Kerala's development offers a very necessary antidote to this genre of writing. It offers fresh ways of looking and new categories of understanding. It calls for sobriety in looking at Kerala's development experience. With the new scholarship the earlier 'structuralist' economic, and political-economic approach has given way to an emphasis on agencies. Nevertheless, the results of the new scholarship have not been particularly rewarding. In this paper we examined the agency ascribed to labour in the new writings. Labour is viewed as having stalled new technology, and therefore, economic development.

We distanced ourselves from the labour-centric, mono-causal explanation as cited above, which attributes technological change or its absence to the stance of a single agency at a specific point of time. Instead, we traced the long run trajectory of technological change, focussing on inter-linkages of structures and agencies.

The enquiry was undertaken specifically in relation to coir yarn spinning, a major industry of Kerala. The industry employs some of the most deprived sections of Kerala society, women of 'low' and 'out' castes. The unionisation in the industry is nearly total. It yielded important benefits to the workers but failed to elevate them from being on the lowest rungs of village Kerala. Workers, even in the co-operatives, do not receive the legally stipulated minimum wages. It would also appear that women, despite forming nearly the entire workforce, are marginalised from decision-making role in both the trade union and the co-operative. The ongoing technological change in the industry is the most recent instance of such marginalisation. Despite the fact that the new technology has an important bearing on their conditions of life and work and many of them had innovative ideas about a possible technological reorganisation, there was no formal mechanism to elicit their views [*Rammohan and Sundaresan, 2000*].

As coir yarn activity comprises multiple points of production and trade, and flows among these, the framework of commodity chain analysis was found useful in viewing it. Commodity chains are inextricably linked with the social economies they traverse. We focussed on the social and economic linkages of one aspect of commodity chain, namely, technological organisation.

Our study showed that technological change in the coir yarn spinning industry was influenced by varied sets of factors at varied points of time. Of particular significance was the linkage of trade and social development with technological change. During the early phase of the coir spinning industry, from about 1850 to 1950, world-trade induced technological change, but in the then obtaining level of social development which allowed production of

cheap labour-power, it was not carried too far. During the second phase, from 1950 to mid-1970s, the crisis of production and employment deferred technological change. In the third and current phase, from the mid-1970s to the present, social development has sanctioned, and intra-regional trade has compelled technological change. The changing political times and the changing orientation of trade unions also appear to have been of significance here.

There is a lot of euphoria in Kerala's coir industry, particularly among a section of the bureaucrats, research scientists and co-operative officials, and in the media about replicating the 'Pollachi model' of development of coir industry. The point that emerges from our fieldwork in Pollachi (Tamilnadu) is that the so-called 'Pollachi model' is not merely a combination of machines. A combination that could be knocked down, brought in pieces to Kerala, and again combined to yield exactly similar results. To believe so is to entirely miss the social and economic milieu of technological change. The coir industry in Pollachi is an outcome of the specificities of organisation of agriculture, trade, technology and labour. It tells *another* history of the development of coir industry. Pollachi may offer certain clues regarding technological organisation of the industry in Kerala. It cannot, however, be replicated. It may not be advisable to do so either.

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