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CHAPTER I

INTRODUCTION

1.1 Choice of Industries for the Study

The literature on location of Indian industries mainly deals with the analysis of well-organized industries which usually have relatively large individual units. Thus, there are studies of the cement, fertilizer and aluminium industries which have used rather modern methods of analysis such as, for example, the transportation technique of linear programming. The other major organized industries such as sugar, jute, cotton, engineering, etc., have also been analysed by various authors, though mainly with the help of the Weberian technique. There remain a large number of industries for which statistics are poor and for which even a Weberian type of analysis has not been made. These have been relatively less investigated by research workers.

Studies and statistics tend to be poor for (1) industries which are not quoted on the Stock Exchanges, (2) industries which are not subjected to Central licensing regulations because they have fixed capital of less than Rs. 25 lakhs, and (3) in respect of those parts of the industries where the units fall below the lower line set by statistical publications such as Annual Survey of Industries (A.S.I.).

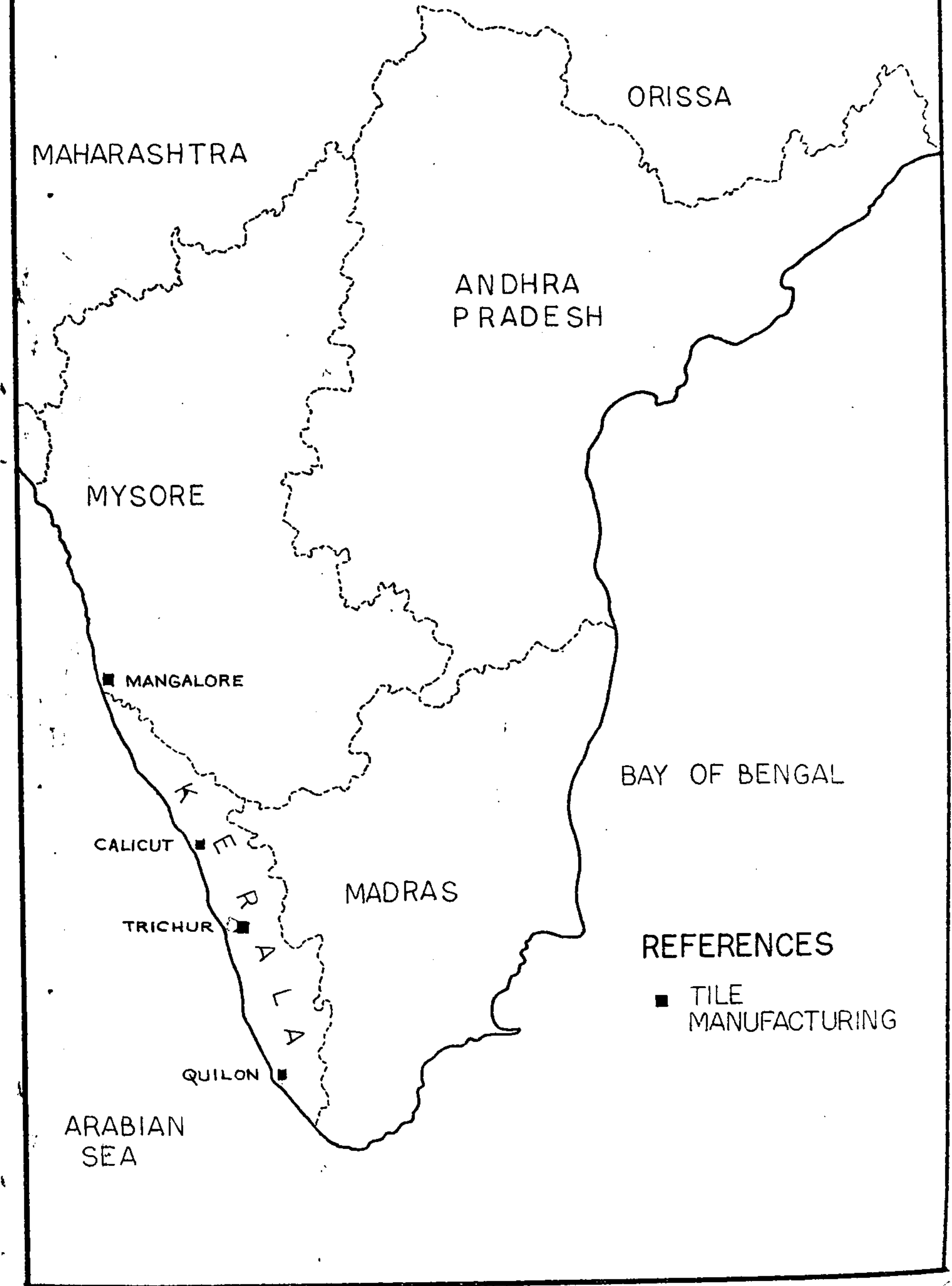
The author happened to hail from Mangalore. He selected for study three industries, namely, tiles, coffee

curing and cashewnut decortication, which fall in the class of industries, which were earlier labelled as 'those that have been relatively less investigated'. The three industries are mainly located in Mangalore, and in a few Kerala towns (see Map 1). The technological and engineering characteristics of the three industries are relatively simple even for one without engineering training. All the three industries have a seasonal operating problems. In some places they are able to operate only a part of the year either due to non-availability of raw material or due to climatic conditions which are unsuitable for some months and prevent economic functioning. Finally, owing to the characteristics of raw materials, processes and products, all the three are influenced in their location by the raw material base. The three industries formed a convenient group historically and analytically.

Relative Importance of the Three Industries in Different States :- The roofing tile industry on an organized basis is concentrated in coastal Mysore and in the State of Kerala. The study of the industry here confines to these regions. The coffee curing industry is located in the three southern States of Mysore, Kerala and Madras. In the case of cashew processing, the industry has a slightly wider dispersal; it is located in the States of Kerala, Mysore, Maharashtra, Andhra Pradesh, Madras and in the Union Territory of Goa.

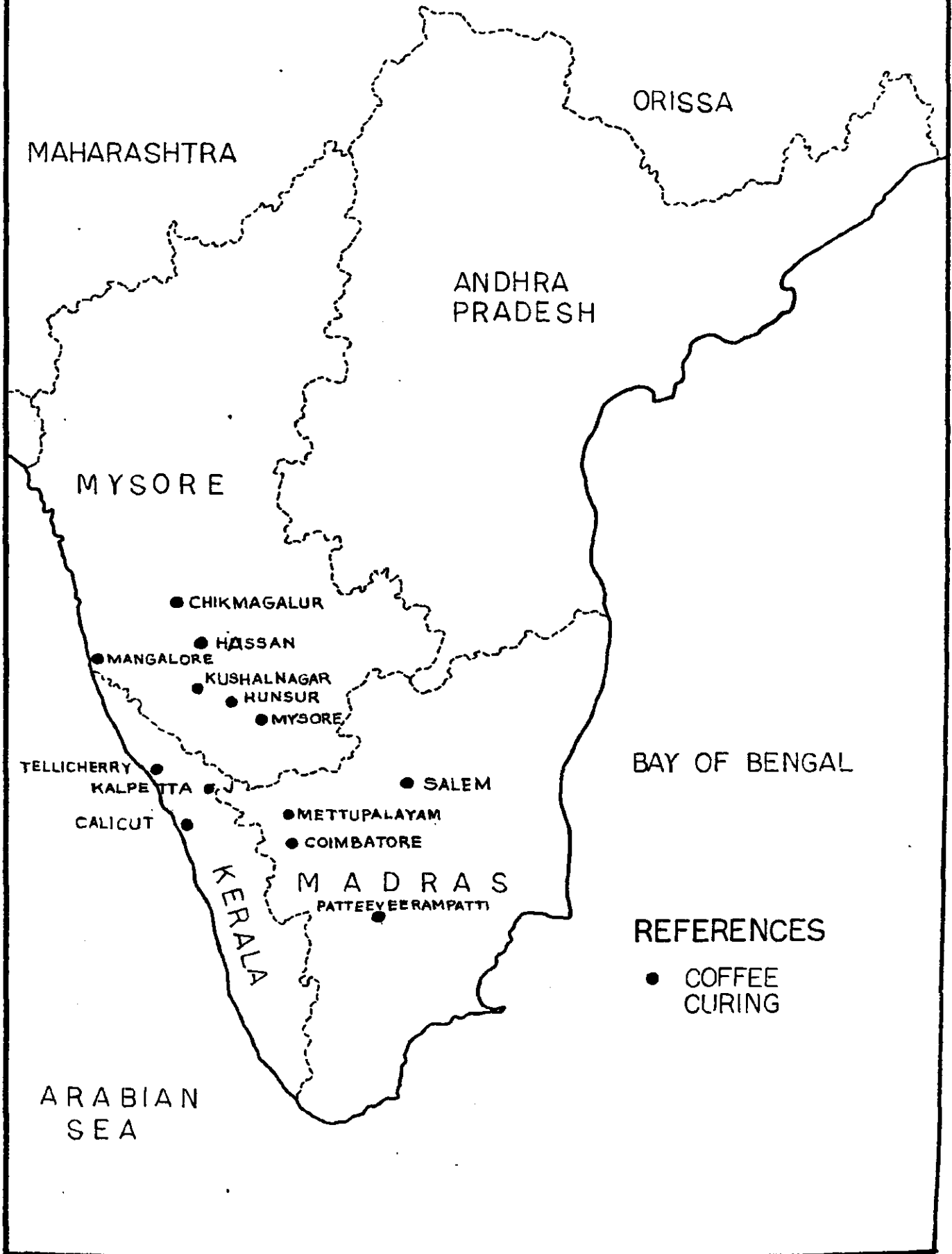
MAIN CENTRES OF
TILE MANUFACTURING INDUSTRY

MAP. 1.
A



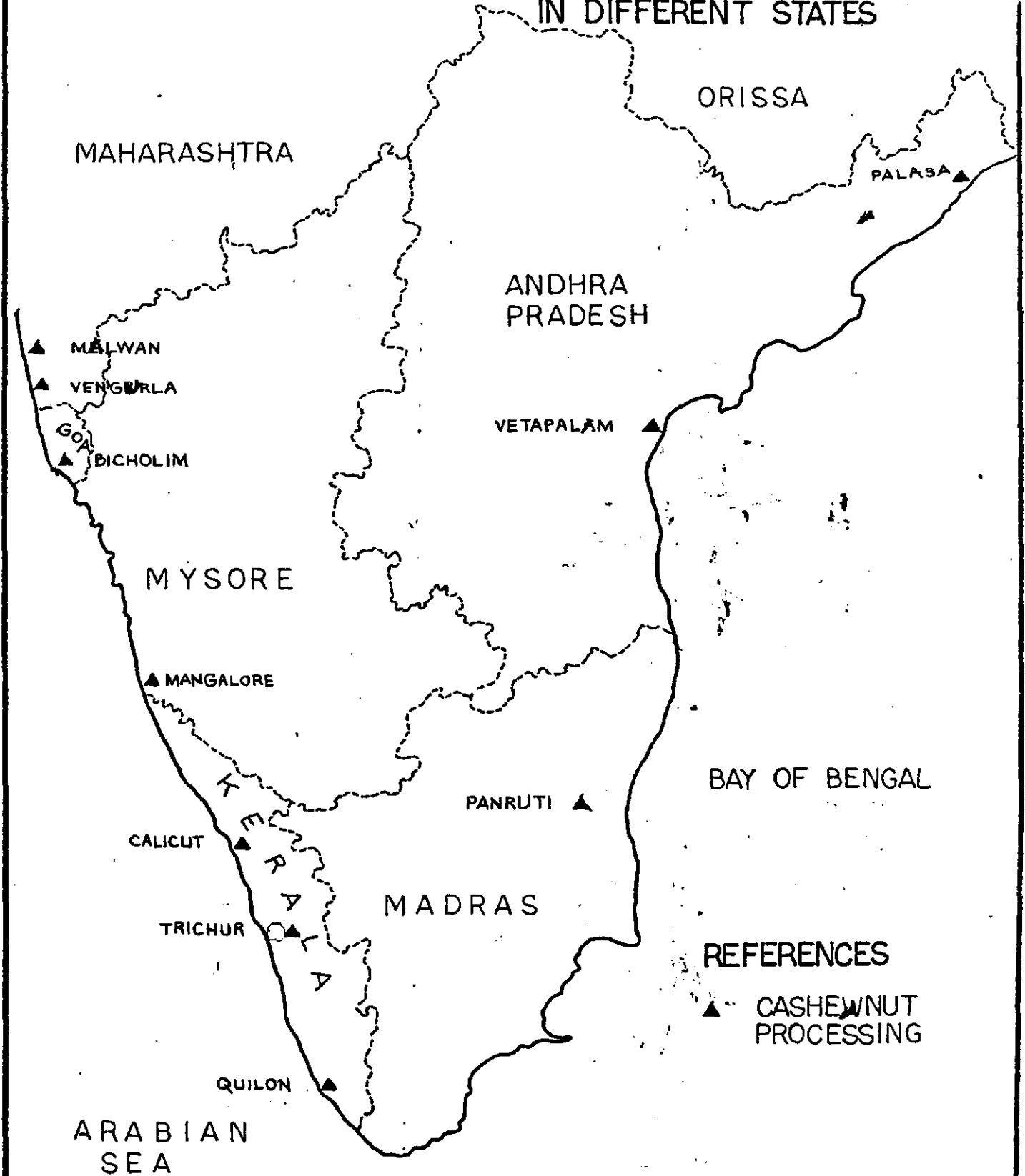
CENTRES OF COFFEE CURING INDUSTRY

MAP. I.
B



MAIN CENTRES OF
CASHEWNUT PROCESSING INDUSTRY
IN DIFFERENT STATES

MAP. I.
C



The Tables 1.1, 1.2 and 1.3 enable one to understand the relative importance of the three industries in the States where they are located.

It can be seen from Table 1.1 that the selected industries account for more than 50 per cent of the industrial labour in Kerala and a third of the labour employed in the manufacturing industries in Goa. They are of little importance to other States, except to a limited extent in the case of Mysore, where they account for nearly 10 per cent of the State's industrial labour force.

The concentration of coffee curing industry in Kerala is less marked as compared to the other two industries. Excluding the coffee curing industry, the districtwise data for Kerala (Table 1.2) shows that tile manufacturing and cashew decorticating industries by themselves alone are of considerable importance to Trivandrum, Quilon, Alleppey, Trichur and Kozhikode (Calicut). Of the above districts only the last has coffee curing industry. (The coffee curing industry in Kerala is also located in Cannanore district.) In the case of Quilon they (selected industries) almost exhaust the industry sector.

Ranking the industries in Kerala in order of the employment they accounted for, cashew decorticating tops the list, while tile manufacturing ranks fourth. Among the items exported from Kerala to foreign countries cashew

Table 1.1 : Estimated Average Daily Employment in Working Factories: 1965

	Kerala	Mysore	Madras	Maha- rashtra	Andhra Pradesh	Goa ^{1/}
Bricks and Tiles ^{2/}	13,801	9,042	2,220	13,559	973	424
Coffee Curing ^{3/}	1,223	3,543	1,573	76	33	-
Cashew Processing	88,637	6,292	2,516	887	911	726
Total	103,661	18,877	6,309	14,522	1,917	1,150
Employment in all industries	196,525	229,350	389,425	955,590	259,769	3,510
Employment in the industries selected for study as percentage of the total	52.75	8.23	1.62	N.C.	0.74	32.76

N. C. = Not Calculated.

^{1/} Statistics of Factories did not provide the data for Goa. The data presented for Goa is drawn from Statistical Year Book, Goa, Daman and Diu 1965 to 1968, General Statistics Department, Government Printing Press, Panaji, 1970, Table 6.4 'Manufacturing Industries'.

^{2/} In States other than Maharashtra the employment under this head mainly refers to employment in the roofing tile industry. In the case of Maharashtra the employment under this head may be substantially accounted for by the units engaged in manufacturing bricks and also those engaged in manufacturing flooring tiles.

^{3/} The employment under the head in Maharashtra and Andhra Pradesh refers to employment in the industry engaged in preparing the coffee for the market after curing.

Source : Statistics of Factories, 1965. Labour Bureau, Ministry of Labour, Employment and Rehabilitation, Government of India, Simla.

Table 1.2 : Distribution of Employment in Industries in Kerala as on 31-12-1967: Districtwise

	Trivandrum	Quilon	Alleppey	Kottayam	Ernakulam	Trichur	Palghat	Kozhikode (Calicut)	Cannanore	Total
Cashew Decorticating	4,221	79,993	6,392	-	1,461	2,051	-	1,464	1,285	96,867
Bricks and Tiles	20	2,203	87	75	943	4,892	602	4,197	558	13,577
Other Food articles*	351	780	1,657	4,059	2,098	1,579	1,275	2,388	939	15,126
Textiles (including Umbrellas)	1,198	965	24	-	2,520	3,869	435	2,288	7,353	18,652
Coir	10	-	3,706	16	572	-	-	939	-	5,243
Saw Mills	11	313	6	166	562	681	147	1,633	607	4,126
Plywood and other Timber	140	1,057	239	843	718	868	1,348	771	1,438	7,422
Paper and allied industries	-	618	68	9	-	42	40	-	204	981
Printing and Binding	1,140	299	164	734	649	542	320	843	182	4,873
Rubber and Rubber Products	232	392	247	1,153	698	310	90	261	95	3,478
Artificial Manure	-	-	-	150	3,450	-	-	33	-	3,633
Pharmaceuticals etc., Soap and Other Chemical and Petroleum Refineries	412	240	70	948	2,248	610	600	303	50	5,481
Glass, Pottery, Cement	-	361	50	294	311	58	16	111	-	1,201
Basic Metal and Metal Products	244	1,159	77	99	1,689	303	1,026	297	62	4,956
Engineering	2,075	1,586	234	857	5,039	1,123	727	1,146	261	13,048
Other	253	21	99	151	861	66	310	1,791	132	3,684
Total	10,307	89,987	13,120	9,554	23,819	16,994	6,936	18,465	13,166	202,348
Employment in Cashew Decorti- cating and Brick and Tile Industries as Percentage of the Total	41.15	91.34	49.38	0.79	10.09	40.86	8.68	30.66	14.00	54.58

* Employment in coffee curing industry is included under this head. Breakdown was not available.

Source : Economic Review - Kerala 1968, State Planning Board, Government of Kerala, Trivandrum, Appendix 7.2.

Table 1.3 : Average Daily Number of Workers Employed in Different Industries in South Kanara District

Year	Food, Drink, Tobacco*	Tiles	Government and Local Factories	Textiles	Engineering	Chemicals, Dyes, etc.	Wood, Stone, Glass	Gin Press	Others	Total
1951	8,727	4,644	23	914	772	104	242	632	386	16,444
1952	8,887	4,879	17	836	970	89	235	608	378	16,899
1953	9,797	4,513	17	833	912	32	278	577	258	17,217
1954	9,929	4,433	11	857	838	46	195	590	325	17,224
1955	9,122	4,169	17	682	731	40	159	572	293	15,785
1956	9,054	4,351	66	662	866	41	129	685	313	16,167
1957	9,198	4,538	79	674	902	41	167	659	184	16,442
1958	9,291	4,621	83	663	974	70	250	677	194	16,823
1959	9,060	4,836	66	773	962	83	875	680	320	17,655
1960	9,053	4,892	70	672	947	87	301	662	171	16,855

* Includes coffee curing and cashew processing. The latter accounted for 6,825 persons employed in 12 units in 1960.

Note : Most of the large scale industrial units in South Kanara are located in Mangalore.

Source: District Census Handbook, South Kanara, 1961, p. xxxiii.

kernels rank first both by tonnage and value. The value of cashew kernel exports during 1965-66 was Rs. 2602.45 lakhs, which was around 29 per cent of the value of total exports from the State.

In South Kanara District, where Mangalore is located, the employment in the selected industries formed around 70 per cent of the total employment in all industries (Table 1.3).

Relative Importance of the Three Industries in Different Centres :- In descending order of employment the important roofing tile manufacturing centres are Mangalore (5,300), Trichur (4,892), Calicut (4,197) and Quilon (2,203).¹

For the coffee curing industry first the States and then the centres in each State are arranged in a descending order by the quantity (in tonnes) of coffee cured by them during 1964-65 season. In Mysore State the centres are Mangalore (14,227), Hassan (8,751), Chikmagalur (5,705), Mysore City (4,162), Kushalanagar (3,870) and Hunsur (3,068). In Madras they are Coimbatore (3,065), Salem (2,696), Pattee-veerampatti (2,470) and Kettupulayam (1,458). In Kerala

¹ The figures in the brackets refer to the employment in the industry in the district in which the centre is situated in 1967. The employment in tile industry in South Kanara referring to the centre in Mangalore is as given in the Economic Times, June 16, 1969. The employment accounted for by the industry in the various districts of Kerala is as given in Economic Review - Kerala, 1968, State Planning Board, Government of Kerala, Trivandrum.

they are Calicut (3,523), Tellicherry (3,028) and Kalpetta (2,931).¹

As regards cashew processing, the States where the industry exists, are arranged in descending order by the output of kernels (in tonnes) in each State during the year 1965. The various States are: Kerala (45,521), Mysore (4,360), Maharashtra (846), Goa (715), Madras (652) and Andhra Pradesh (500).² In most cases the industry is localized in one centre. The centres where the industry is localized in each State are: Quilon in Kerala, Mangalore in Mysore, Ratnagiri (District) in Maharashtra, Bicholim in Goa, Panruti in Madras and Palasa in Andhra Pradesh. The centres in Kerala where the industry is less localized than it is Quilon, are more important than the centres in other States, except Mangalore in Mysore State.

It may be noted that all the three industries are present in Mangalore and Calicut. Two of the three industries studied are present in Quilon (tile and cashew).

The roofing tile industry is concentrated in coastal Mysore and Kerala. The coffee curing industry is confined to the three States of Mysore, Kerala and Madras. In the

1 Above information was made available by the Coffee Board, Bangalore.

2 Annual Survey of Industries, Vol. II, 1965. Central Statistical Organization, Government of India, Calcutta.

case of cashew processing, the industry, though located in the States of Kerala, Mysore, Maharashtra, Andhra Pradesh, Madras and Goa, is mainly concentrated in Kerala.

The characteristics of raw materials, processes and products, enforce a tendency towards material based location in the case of all the three industries. This limits the choice of alternative locations quite severely. The practical locational alternatives will not make enormous difference to costs and national welfare as they would in the case of some of the larger organized industries. The investigation of the locational problems involved was manageable for a single research worker. This was regarded as a factor compensating for the limited and modest policy significance of the study.

1.2 The Problems Investigated

The main problem selected for investigation in all the three industries was to explain the relative growth of different centres and to compare costs in each centre. It was necessary in each case to isolate the costs affected by scale, technology and lay-out on the one hand and by geographically significant factors on the other. Certain methodological problems arose and different solutions had to be adopted in dealing with problems of scale and technology as factors influencing costs in each of the three industries. However, the main problems were clear enough. It was necessary to construct a careful account of the past growth by

interpreting published and collected material for each industry. In each case it was essential to separate institutional influences on location from the rational cost considerations that had influenced location. Finally, it was necessary to discuss the relative costs of different centres and prospects for expansion in the context of information available.

The following paragraphs briefly indicate the sub-problems that were chosen for investigation with reference to each of the three industries.

In the case of the roofing tile industry, the first problem was to identify the chief manufacturing centres. The general notion goes that common clay is ubiquitously available and hence the individual units in the tile industry could be located almost anywhere in the country. An examination of the existing spatial distribution of the industry revealed that it is concentrated on the West coast, south of Mangalore (Mangalore inclusive). The tiles made here have wide markets. Elsewhere, the industry is of cottage scale and has only local markets. The concentration of the industry in Mangalore, Calicut, Trichur and Quilon, it is felt after careful examination is chiefly due to availability of clay most suitable for the manufacture of roofing tiles which can also stand long transit.

The second problem was to work out the history of the

relative growth of the industry in Mangalore, Calicut, Trichur and Quilon. Information regarding costs in these manufacturing centres, for particular points of time, during the industry's long tenure was not available. The historical review of location pattern of the industry hence has little or no reference to costs. The relative costs in different centres could only be investigated for the present period. The isolation of costs affected by scale, technology and lay-out, on the one hand, and by geographically significant factors on the other, presented a mass of problems. Because of various difficulties of reaching firm conclusions about the influence of scale of operations, technology and lay-out on costs, it became convenient to construct a working illustration of a unit with a given scale, technology and lay-out that was assumed to be shifted from one centre to the other; and to discuss as to how costs would be affected by such notional or assumed shifting. Even after these problems had been solved there remained a further problem. The fact that in this industry particular markets are attached to particular centres, in spite of competitive considerations, had still to be explained. Having established the description of the phenomenon it was further possible to discuss prospective locational development on two different assumptions, namely, through assuming established consumer preference as well as on the assumption that such preferences could be overcome. The ^{latter} former assumption was regarded as the more important.

In the coffee curing industry, the principal problem was to separate the institutional factors and the cost factors in explaining the growth of different centres. Further, growth till 1940 and growth after 1940 presented two different problems as the Coffee Board with considerable licensing and regulatory powers was established in 1940. After this date, therefore, it was necessary to investigate the impact of a new legal framework. Hence arose the problem of possible rationalization of location and the problem of evaluating the Coffee Board's performance. As there was no conscious policy regarding the locational aspect of the curing industry in the past, the discussion mainly hinged upon the factors that may have to be taken into account by the Board for a rationalization plan in the future. The final problem was to make an appreciation of the existing location of curers in Mangalore. Here the hypothesis adopted was that institutional factors explain this location.

In the cashew processing industry, the first problem was to investigate the international distribution of the industry. The second problem was to discuss the relative growth of different Indian cashewnut processing centres and the transport costs, labour costs etc. that lay behind the phenomenon. This revealed that some of the processing centres have failed to grow in spite of their possessing a cost advantage. A supplementary investigation thus was to

enquire into the factors that led to the stunted growth of the industry in such cases. Another problem was to discuss future developments on the assumption that different types of technologies may be used. Finally the prospects of Indian industry in the international set up had to be briefly examined.

All the three industries originated in Mangalore. As regards roofing tile and coffee curing industries, Mangalore still is the most important centre. Cashew decorticating industry is concentrated in Quilon. Mangalore is important in understanding the early history of tile and coffee curing industries. As regards cashew processing, considerable study of Quilon was necessary. Mangalore has given its name to the roofing tile industry. A striking feature of the coffee curing industry, namely, the supply of finances, fertilizers and other inputs to planters by curing firms, also developed in this centre. It is, therefore, of some interest to investigate conditions in this centre. However, it should be emphasized that studying the growth of Mangalore as such was not the objective of the thesis. The thesis pays equal attention to costs of the three industries in each of the major centres that have been mentioned earlier. However, a rather minor objective, namely, explaining the contribution made by these three industries to the growth of Mangalore, does receive a little

more attention than the contribution made by these industries to the other centres mentioned. We may, therefore, say that there were only two reasons which explain the title of the thesis viz., (1) the frequent references to Mangalore necessary in a historical account and (2) Mangalore taken as an illustration (rather than Calicut) to show how the prospects of industries affect the prospects of a city. The title of the thesis is only a device to emphasize the historical factors. The focus of the thesis is quite clearly on the three industries and their locational patterns and problems and not on the growth of Mangalore as a city. The sub-title locational implications of the origin, development and spread of these industries is more indicative of the problems investigated in the thesis.

1.3 Brief Reference to Theoretical Tools

The present study mainly relied upon Weberian tools. The relevant variables in the Weberian scheme are: (1) the raw material locations, the transportation system and the consumption centres; and (2) the technical characteristics of the product i.e., whether it is weight losing or not. Though the Weberian model takes account of the demand factor, as is well known, the emphasis is on costs. Due to this and due to problems arising out of characteristics which are peculiar to the three industries studied, the Weberian kit had to be supplemented with other tools of analysis. Thus,

in each of the three industries the Weberian approach had to be combined with other theories and to be used in slightly different ways.

In the tile industry, for example, Weber's model had to be combined with an elementary type of market analysis. The problem here required analysing, why certain markets remain attached to certain production centres without being influenced by competitive considerations. The problem can be approached by starting with the given production and consumption centres and showing through a model that under competition, prices at the respective plants would be identical. It is then only price at plant plus freight that would differ. Under such conditions the determination of the proper market area for each plant is a relatively simple job. However, the facts of the tile industry do not give a uniform price at the plants and it was possible to infer therefrom that certain markets are monopolistically attached. It was not necessary for the present purpose to go into details of the market area analysis such as those of Losch,¹ Christaller,² etc. that have been directed to explaining the evolution of towns and of the totality of all industries and their distribution systems. The models that are relevant

1 August Losch, The Economics of Location. Yale University Press, New Haven, 1954.

2 Brian J. L. Berry, Geography of Market Centres and Retail Distribution. Prentice Hall, 1967.

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here are those that attempt to map or analyse regions into markets for a single industry and that too with the assumption of given production points and known consumption centres at different dates. The best illustration of an analysis of this type is Leeman's study of the international petroleum industry.¹

In dealing with the coffee curing industry, the simple Weberian analysis had again to be used in a different way. It became a convenient instrument for separating the cost factors that are purely geographical in origin from institutional factors which have affected the distribution of industry and have tended to keep certain costs high. Here it is not the attachment of markets, but the attachment of the plantations to certain sources of finance and input supply (the curers also being suppliers of plantation inputs) that had to be analysed. Another problem was to use the technique to indicate in a simple way what a rational location pattern would be and to make this the basis for recommendations about collection of information for a more comprehensive rationalization plan. The Weberian model is thus used not so much for discussing entrepreneurial behaviour as to provide a basis for the discussion of the policies of a centralized agency, namely, Coffee Board.

¹ W. A. Leeman, The Price of Middle East Oil. Cornell University Press, New York, 1962.

In dealing with the cashew industry, it was necessary to preface Weberian type analysis by a discussion of how the international location of the industry has been determined. This required consideration of the variables relevant to international trade theory. Problems of factory supply and technological levels became important. It is known that international trade theory assumes away transport costs while location theory is based on transport costs. It is only after the problem has been reduced to manageable proportions through discussing the international distribution of the industry that the phenomenon of raw nut imports into India from Africa could be explained. (Had this not been done, location theory, unlike international trade theory, could lead one to jump to the one-sided conclusion that the raw nuts should be processed in Africa.) Yet it was also necessary to conduct the Weberian type discussion under the assumption that one or the other type of technology would be in use.

1.4 The Model Used

Broad Weberian framework was relied upon while examining the historical location pattern of the three industries and also in probing into their specific problems. When it came to analysing the cost data obtained during the field survey, the need for a model which employed the comparative cost analysis was felt.

A comparative cost study generally assumes established market patterns and fixed geographical distribution of productive resources. Under these assumptions, it determines the region which can achieve the lowest total costs of production and distribution to markets. The basic methodology involved is to obtain enough cost information to calculate total production and transport costs incurred in various regions. In practice, the task is narrowed considerably: a limited number of feasible sites are pre-selected by a more general analysis; a comparative cost analysis will need only to examine those production and transport cost elements which differ significantly from one area to another.¹

In the present study, the existing production centres in the case of the three industries have been selected for cost comparison. Also, cost comparison has been made in respect of those items which may show a variation over space. Joseph Airov's "Location of Synthetic Fibre Industry: A Case Study in Regional Analysis"² was found suggestive in selecting the relevant cost items for locational comparison.

Airov presents for the synthetic fibre industry costs which vary over space; he also gives a list of cost items which were taken into account for estimating the economies

1 Harry W. Richardson, Elements of Regional Economics.
Penguin Modern Economic Texts, 1969.

2 Joseph Airov, Location of Synthetic Fibre Industry: A Case Study in Regional Analysis. M.I.T. and John Wiley and Sons, Inc., New York, 1959.

of scale. For convenience, the former costs can be termed as 'locationally significant costs' and the latter as 'scale costs'. The synthetic fibre industry, as compared with roofing tile, coffee curing and cashewnut processing industries, is more capital intensive and uses modern technology. However, the classification adopted by Airov could be utilized with minor modifications. Airov's classification and the broad classification adopted for the three industries are presented in Table 1.4.

Table 1.4 : Classification of Costs

Synthetic Fibre* Industry	Broad classification adopted for the three industries
(1)	(2)
<u>Locationally Significant Costs (Variable)</u>	
Raw material	Raw Material
Utilities	Utilities
Fuel	Fuel
Power	Power
Labour	Labour
<u>Scale Costs (Fixed and Variable)</u>	
Operating Labour	Supervision
Supervision	Plant Maintenance and Repairs
Plant Maintenance	Post and Telegraph
Equipment and Operating Supplies	Stationery and Printing
Payroll Overhead	Audit and Banking Services
Indirect Production Cost	Local Rates and Factory Licence
General Office Overhead	Depreciation
Depreciation	Insurance
Taxes	Interest
Insurance	
Interest	

* Joseph Airov, The Location of Synthetic Fibre Industry : A Case Study in Regional Analysis, pp. 32-33 and Appendix B.

All the three industries—roofing tiles, coffee curing and cashewnut processing—are labour intensive. The wages are piece rated. Except to a limited extent in the case of tile industry where the labourers work in groups, in the other two, the individual labourer is directly responsible for his output. In all the three industries, it can be more or less realistically assumed that labour input varies proportionately with output. Thus, unlike in the case of Airov's classification, in the present study scale costs exclude labour costs.¹ It can be noted, locationally significant costs in the present study remain the same as adopted by Airov. No classification, however, can be general. After careful examination of costs in the three industries minor modifications have been introduced wherever necessary.

According to Airov, (a) if plants of the same pre-determined size can be built in all the regions, and (b) if construction costs, interest charges, depreciation, plant maintenance, insurance costs, taxes and land costs for the given plant do not vary regionally, then locational comparison can be confined to variable costs (locationally significant costs as given in Table 1.4 col.(1)). If plants of the same pre-determined size can be located only in certain regions, economies of scale calculated on the basis of scale costs should be attributed to the particular locations.

1 Aggregation of cost items and the terms used for cost heads in the present data differ from that of Airov's. But for the exclusion of labour costs in the former, scale costs as a whole do not differ between the two.

The question faced in this study was whether costs which are categorized scale costs could be excluded while comparing the locational advantage. Scale costs include both fixed and variable costs. Important items of fixed costs in all the three industries are land and construction costs. The existing centres in each of the three industries, which alone are considered do not differ in their degree of urbanization; further by careful selection of site in places where initial construction costs are high, these costs can be kept low and in par with others. As regards the variable items in the category scale costs, these are generally service items; the cost of service items may not vary significantly between the centres in the case of any of the three industries studied.

To exclude scale costs, however, as stated earlier, there is one more condition necessary, i.e., plants of a pre-determined size should be able to be located in any of the locations. The three industries studied here are material oriented. Granting the same technology to all the regions (which can be realistically assumed), major constraint on size, if at all, has to arise from the raw material side. - The supply of clay at the existing centres of tile industry can be broadly assumed to be infinitely elastic. Further, the largest plant in existence in the industry can be located in any of the centres. With the above facts of the industry, the condition (a) of Airov necessary for the exclusion of scale costs gets satisfied, in the case of roofing tiles.

In the coffee curing industry, where the problem is viewed

from the point of the Coffee Board as locationist, the practical question that could have been examined is whether curing capacity can be concentrated in fewer places than existing. This, however, needs data relating to scale costs for plants larger than those in operation. Such data were not available. Again, the largest plant in existence can be located in most of the centres. Thus, scale costs could be excluded while comparing the costs at alternative centres, in the case of coffee curing industry too.

With the existing labour intensive technique, plants of any size is not an attribute of particular locations in the case of cashewnut processing industry. Hence, from the point of view of scale economies alone, scale costs could be ignored. However, scale costs had to be taken into account in the cashewnut processing industry due to another reason. Scale costs, (as well as locationally significant costs), differ between techniques. While comparing the costs at different centres, allowing for alternative techniques, it was necessary to include scale costs.

Thus, purely from the point of view of scale economies, scale costs could be ignored in the case of all the three industries. The exclusion of scale costs can be supported from a practical consideration also. When the analysis has to be based on factual data, as in the present case, some of the items such as plant maintenance, interest charges, depreciation and salaries to supervisory and managerial personnel, will be found to be influenced by extra locational factors. The extra

locational factors can be reputation of the firm, tenure of the firm, integrated or allied activities it is engaged in, etc.

In the present study, scale costs have been examined only to see whether there exist any economies of scale. Such an attempt had to be confined to roofing tile and coffee curing industries as the required data in the case of cashew-nut processing industry could not be obtained.

Regional variation in cost, sometimes, are due to agglomeration economies accruing to few locations. As it is difficult to quantify them, they are generally meted out only a qualitative treatment. Main agglomeration economies are (a) large scale production economics, (b) integration economies, (c) localization economies and (d) urbanization economies.

(a) For reasons already discussed the economies of the first type have not been considered as an attribute of any particular location.

(b) There are no integrated processes attached to either roofing tile product or cashew decorticating. Large scale production of cashewnut shell liquid in future may be utilized for diverse products. At present, there are no such complexes which are combined with decorticating of cashew. In the case of coffee curing, the further process of preparing the cured coffee for market can be combined. There is at present a stray case of such vertical integration. The firm is also engaged in many other activities. The required data could not be obtained. Nevertheless, it

should be noted, such integration can be attained in any of the existing centres.

(c) Obvious examples of localization economies are in the development of skilled labour pool; the growth of auxiliary industries; and development of markets for raw materials. Existence of economies or diseconomies of the type will be reflected in the costs of labour, material, fuel, utilities, etc. These items have been taken into account under the head 'Locationally significant costs'. In the case of cashew processing industry there is the subsidiary industry engaged in manufacturing the packing materials. The effect of localization on these costs viz., labour, material, fuel, utilities and packing material, could not be separated from other influences.

(d) Urbanization economies are many: the development of urban labour market and pools of managerial talent; the presence of commercial banking and financial facilities; economies connected with transport services; and communication services--to mention a few. There are diseconomies of urbanization too. These appear in the shape of higher wages, higher land costs and local taxes. These can be, to a certain extent, avoided by intelligent site selection at the outskirts of urban centres. Economies or diseconomies of urbanization will be mainly reflected in the cost items which are categorized as items subject to scale economies.

These items, as said earlier, are also influenced by extra locational factors such as the standing and reputation of the firm. The factual data available thus is of doubtful use. Where the urbanization economies influence locationally significant costs such as transport services and labour costs, it is difficult to separate their influence from that of the other factors. Like other agglomeration economies, urbanization economies could not be identified.

1.5 Planning of Information Collection

The nature of problems chosen for investigation suggests the theoretical tools that would be useful. It also determines the type of information to be collected. The survey was planned on the one hand with reference to the problems stated and on the other hand with reference to the available published information.

Manufacturing process in all the three industries studied here is of a weight losing nature. The raw material pull exerts greater influence in the choice of location of these industries. In other words, the availability of the material mostly decided the location and later, the growth in different places. In the case of roofing tile industry, once the clay resources were located, the supply of clay could be assumed to be fairly elastic. The same, however, was not true of coffee curing and cashew processing industries. The supply of coffee and raw cashewnuts is inelastic at any

point of time. It increases only over time. Thus the growth of different centres in the case of these industries depended upon the increase in the production of these crops in the regions conveniently located from different centres of these industries. It was thus necessary to know the production of raw cashewnuts and coffee in the different areas at different times.

In the case of roofing tile industry the supply of material at any source is elastic. Thus the growth of different markets could influence the development of the industry at its various centres. As regards coffee curing, the pull from the material is least among the three industries studied. Indian coffee has two distinct markets viz., the export market and the internal market. The two markets to a certain extent influence the location of curing capacity depending upon the geographical location of the coffee growing area. Turning to cashew processing, cashew kernels from India are almost entirely exported. The export market could play only a complementary role in the dispersal of the industry within India. The location of processing centres on the coast, particularly the West Coast as will be seen, was more due to the geographical distribution of cashew growing areas. The industry depends on imported material. The coastal location facilitated the import of raw nuts and was also convenient for exporting the product.

The data regarding markets were essential in respect of roofing tile industry. Such information was useful in the case of coffee curing industry. The growth of export market has little influence on the location of cashew processing industry in India and hence the pull from the market point could be ignored in the case.

The collection of statistical information in respect of the industries was done with the above considerations in mind. The sources which provided the necessary information in respect of each of the industries are discussed below.

Roofing Tile Industry :- From Large Industrial Establishments in India¹ it was learnt that the industry is confined to the two States, Mysore and Kerala. The tile manufacturing centres, Mangalore (Mysore), Calicut, Trichur and Quilon (all in Kerala), except for Trichur, are located on the coast. A look into the Accounts Relating to Inland (Rail and Riverborne) Trade of India² and Statistics of the Coasting Trade of India³ revealed that it is only in these

1 Large Industrial Establishments in India, (a) Upto 1944, Department of Commercial Intelligence and Statistics, Government of India, Calcutta; (b) 1944-58, Labour Bureau, Government of India, Simla.

2 Accounts Relating to ^{the} Inland (Rail and Riverborne) Trade of India, Department of Commercial Intelligence and Statistics, Government of India, Calcutta. The source will be referred to as Rail and Riverborne Trade of India henceforth.

3 Statistics of the Coasting Trade of India, Department of Commercial Intelligence and Statistics, Government of India, Calcutta.

cases that the tiles manufactured spanned wide markets. In other words, it is in respect of these centres that there arise locational implications.

The growth of the industry in different centres mentioned above could be traced with the help of the publication, *Large Industrial Establishments in India*, for the period 1917-58. Of the four centres studied, three are located in Kerala. The progress of the industry in Kerala during 1962-67 could be learnt from an annual publication of Government of Kerala.¹ The source provided the employment in the industry in the different districts of the State. Similar information regarding Mangalore was not available. The Census data provided glimpses into the state of affairs in the industry for discrete points of time.

Annual Reports of the Cochin Chamber of Commerce² provided the statistical information regarding the exports of tiles by sea (foreign and coastal) from the two manufacturing centres, Mangalore and Calicut. The source has been

1 (i) An Economic Review, Kerala, 1963-66 Bureau of Economics and Statistics, Government of Kerala, Trivandrum.

(ii) An Economic Review, Kerala, 1967, State Planning Board, Government of Kerala, Trivandrum.

(iii) Economic Review, Kerala, 1968, State Planning Board, Government of Kerala, Trivandrum.

2 Annual Reports of the Cochin Chamber of Commerce, Cochin, Kerala.

utilized for the period before 1955. Trade Statistics of Travancore¹ supplied similar information in respect of Quilon for the years 1937-38 to 1946-47. Trichur, the fourth centre studied, is situated inland. Presumably there were no exports by sea. For the years 1955-65, the annual reports of the Calicut Chamber of Commerce and Industry provided the data in respect of Calicut. In the case of Mangalore, the Western India Tile Manufacturers' Association made available the data relating to sea-borne exports of tiles from the centre for the period 1955-65.

Rail and Riverborne Trade of India provides data regarding trade of tile through the channels. This information, however, is available for the period 1960 onwards. Road trade statistics are completely absent.

There have been no special studies regarding the industry, but for a lone exception in respect of the manufacturing centre in Mangalore.² The study discusses the technological growth in the industry. Assuming that technology remained constant during the period 1950-65 some estimates of production in different centres could be made. With the help of the above estimates of production, trade

1 Trade Statistics of Travancore, Government Press, Trivandrum.

2 B. G. Karat, History and Development of Tile Industry in Mangalore. Thesis submitted to the University of Bombay for the degree of M.A., 1954 (unpublished).

by sea, as could be learnt from the Chamber of Commerce Reports, and the trade by rail, as given by the Rail and Riverborne Trade of India, a broad picture of the market pattern for tiles made in different centres could be obtained.

For evaluating the locational advantage of different centres, two types of information were necessary, viz., manufacturing costs at different centres and a finer breakdown of market data. As regards the former Statewise data provided by the A.S.I. were found unsuitable. The manufacturing cost at different centres were estimated by surveying the industry at these places. During the survey, information regarding the markets was also, to a certain extent, obtained. Market statistics from the manufacturers was useful to locate the markets catered by them by road. Such information has no alternative official source. For a finer breakdown of the railborne trade, certain railway stations, from where the exports of tiles from the manufacturing centres take place, were visited. The chambers of commerce provided detailed breakdown of seaborne trade.

There were two committees which enquired into the tile industry in Kerala to fix the minimum wages. These Minimum Wages Committee Reports¹ (1958 and 1962) supplied

¹ Report of the Minimum Wages Committee for Employment in Tile Industry, Kerala, Government Press, Trivandrum, 1958.

Report of the Minimum Wages Committee for Revision of Minimum Rate of Wages Fixed for Employment in Tile Industry, Kerala, Government Press, Trivandrum, 1964.

information mainly regarding wage costs in the industry. Bits of information regarding the markets and other aspects also could be found in the above reports.

Coffee Curing Industry:- Large Industrial Establishments in India provided the employment in the industry in its different centres from 1917 to 1940. For the period 1940 onwards the source was found to be of doubtful use and hence was not utilized.

As regards the production of coffee in different areas, which was the main factor influencing the growth of the curing industry the required information is not available for the period upto 1919. For the period 1919-40 production statistics provided in the publication Indian Coffee Statistics¹ have been used. From 1940 onwards the required data are available in the publications of the Coffee Board.²

The industry had its origin in India as early as 1860. The market for Indian coffee now has two distinct components—the export market and the internal market. The exports of coffee from India as given in the Statistical Abstracts for British India³ has been utilized for the period 1860 to 1940.

1 Indian Coffee Statistics, 1927-28 to 1940-41, Department of Commercial Intelligence and Statistics, Government of India, Calcutta.

2 Coffee Board's publications: (a) Coffee Statistics Relating to India, 1954-55 to 1957-58; (b) Indian Coffee Statistics, 1958-59 to 1963-64; (c) Coffee Statistics 1964-65 to 1966-67; (d) Annual Reports of the Coffee Board. Coffee Board, Bangalore.

3 Statistical Abstract of British India. Her Majesty's Stationery Office, London.

For the period 1940 onwards the Coffee Board's data have been relied upon.

Report on the Marketing of Coffee in India and Burma¹ gives a detailed picture of the coffee plantation industry in India during the decade 1930-40. From the source the allocation of the coffee grown in different areas between the various curing centres during the period could be learnt. The Report also highlights many other aspects. Though there is no direct discussion on the factors that influenced the allocation of coffee between the curing centres, from the source, could be learnt, the forces that were dominant.

The Report of the Plantation Inquiry Commission, 1956,² proved helpful in discussing the locational factors behind the allocation of coffee between the curing centres, in recent past (1950's).

As in the case of roofing tile industry, here too, the A.S.I. was found unsuitable for knowing the curing costs at different centres. The information regarding cost of curing coffee at different centres was collected during the survey of the industry in 1967. A government cost accountants

1 Report on the Marketing of Coffee in India and Burma, Government of India, New Delhi, 1940.

2 Report of the Plantation Inquiry Commission, 1956, Part II - Coffee, Government of India, Delhi.

report on costs could be obtained though incidentally during the survey. From the curers the cost of transporting coffee from different coffee growing areas to their respective curing centres was also obtained. Transport cost data were also collected from transport agencies.

The Coffee Board in its statistics also gives a crude spatial pattern of internal demand for coffee. The basis and the method of estimating the demand in the different States in India invited criticism.

From the Coffee Board, the present flow pattern of coffee between the various growing areas and curing centres could be obtained. The Board also provided data regarding utilization of coffee available at different centres for exports.

Cashew Processing Industry :- As compared to the other two industries studied, cashew processing industry has a recent origin. Unlike the other two, this industry shows localization at one place. Hence the enquiry was directed into the factors that led to such a localization.

At present the industry is distributed where the material is available. Thus, it was accepted, the availability of the material is the deciding locational factor. There are, however, no production statistics informing the availability of material when the industry made its beginning. The earliest production statistics pertaining to cashew raw

nut production in India date to 1950's. A finer breakdown of these statistics giving the production of cashew in different districts is available in respect of Kerala State in the Season and Crop Reports.¹ For some years, data regarding area under cashew are available in the case of Mysore from State's Season and Crop Reports.² Cashew is an unimportant crop in other States and hence does not feature in similar publications of those States.

Cashew is an important dollar earner for India. Many ad-hoc committees have enquired into the cultivation and prospects of propagating the crop in the States where it can be grown. There have been enquiries into the prospects of kernel exports and the use of the by-product cashew shell liquid.³

1 Season and Crop Report, Kerala State, 1956-57 onwards, Government of Kerala, Trivandrum.

For the districts in the erstwhile State of Travancore data are available for the years 1952-53 to 1955-56 in Season and Crop Report of the Travancore-Cochin State for the Years 1952-53 to 1955-56, Government of Kerala, Trivandrum, 1958.

2 Annual Season and Crop Report, Mysore, 1956-57 onwards, Department of Statistics, Government of Mysore, Bangalore.

3 (a) Cashewnut Industry in India. Supplement to the United Commercial Bank Review, May 1953.

(b) Study on Cashewnut in India, Committee on Natural Resources, Planning Commission, New Delhi, 1964.

(c) Report of the Study Group on Cashew, Ministry of Commerce, Government of India, New Delhi, 1965.

(d) Report of the Working Group for the Formulation of Fourth Five Year Plan Proposals on Spices and Cashewnut, Indian Council of Agricultural Research, New Delhi, 1965.

(e) Cashew Exports, Seminar Conclusions and Recommendations, Ernakulam, 1964, Indian Institute of Foreign Trade, New Delhi.

(f) Cashewnut Shell Liquid, Seminar Conclusions and Recommendations, Ernakulam, 1969, Indian Institute of Foreign Trade, New Delhi.

The production estimates and the projections made by different authorities differ widely. The above-mentioned sources also provided information regarding exports of kernels from and imports of raw nuts into India. As for the import dependence of the industry in Quilon during its early years, Trade Statistics of Travancore supplied the required information.

In the case of cashew processing industry also Large Industrial Establishments in India, was found useful. The source gives the names of the individual units and the labour employed. From this could be learnt the role of the entrepreneurial factor in the development of cashew processing industry in Quilon. A few enterprising firms played a dominant role.

Cashew processing industry in most of the States where it is found, is concentrated in one single place. The State-wise data available in the A.S.I. were found useful. The industry in the localized centre Quilon and certain others viz., Mangalore, Calicut and Bicholim, were visited for qualitative information. From the processors the costs of transporting the material from different areas to their respective centres were gathered. This, however, needed to be supplemented by information from transport agencies.

There were committees which enquired into the labour conditions in the industry. The first of the type covered

the entire industry. This committee submitted its report viz., Report on an Enquiry into Conditions of Labour in the Cashewnut Processing Industry in India in 1953.¹ From the above report cost advantage of different centres during the early 1950's could be learnt. There were two other enquiries regarding the labour in the industry that confine to the State of Kerala.² The two enquiries provide information regarding wage costs in Kerala.

There was one other study which is mostly concerned with the labour aspect of the processing industry in Kerala- A Study on the Cashew Industry in Kerala.³

With the available data international competitiveness of the Indian industry could not be examined on precise lines. Information provided by the following sources, however, allowed some insight into the problem. Cashew Export Promotion Council, Ernakulam, supplied technical data for a small scale mechanized processing plant (of Japanese make).

1 Report of an Enquiry into conditions of Labour in the Cashewnut Processing Industry in India, Labour Bureau, Simla, 1954.

2 Report of the Minimum Wages Committee for Cashew Industry 1959, Government Press, Trivandrum, Kerala, 1959.

Report of the Minimum Wages Advisory Committee for Cashew Industry, 1958, Government Press, Trivandrum, Kerala, 1959.

3 J. T. Chirayath, A Study on the Cashew Industry in Kerala, Labour and Industrial Bureau, Government of Kerala, Trivandrum, 1965.

Similar data relating to another plant of a different make could be obtained from a publication by UNCTAD GATT.¹ The latter also informed about the profitability of exporting kernels over exporting raw nuts for the East African countries. The mechanized processing plants that are installed in East Africa are much larger and for which no technical data are available. For wage data in respect of African countries, I.L.O.'s Yearbook of Labour Statistics² and Bulletin of Labour Statistics³ are relied upon.

1 Cashew Marketing, UNCTAD GATT, Geneva, 1968.

2 Yearbook of Labour Statistics, I.L.O., Geneva.

3 Bulletin of Labour Statistics, I.L.O., Geneva.

CHAPTER II

ROOFING TILE INDUSTRY

2.1 Introduction

2.1.1 Different Raw Material Specification for the Brick and the Tile Industries

The wide availability of clays is noted in Volume II of the Wealth of India, Dictionary of Indian Raw Materials.¹ On page 225 we read : "Brick and tile clays are variously coloured depending on the colour of the impurities. They are vitrifiable² at low temperature and burn buff light red and red. They should be plastic and should give red colour on burning. These clays are locally worked at innumerable places all over India." The above statement appears to give a wide locational choice for the brick (common building brick) and the roofing tile industries. It also suggests that these industries use almost the same material. In fact, however, the brick and the roofing tile industries, require respectively different sub-types of clay. This is recognized by knowledgeable people in the industry. Whereas there is no published authoritative statement to the effect that the two industries require distinctly different common clays, the present dispersal of these two industries (they are not in general found in the same place) supports the viewpoint

1 The Wealth of India, A Dictionary of Indian Raw Materials and Industrial Products, Raw Materials Vol. II-C. Council of Scientific and Industrial Research, Delhi, 1950.

2 Refers to possibility of changing into a glassy substance by heat.

that they have different raw material specifications. It is physically possible to use the same clays for making both bricks and tiles but such indiscriminate use of raw material tells on the quality of the product.

It is said that alluvial soils which basically consist of illitic clay minerals, are good for the manufacture of bricks. On the other hand, black cotton soil and red soil or coarser alluvial soil present some difficulties and do not make as good bricks as the former. In the case of sandy alluvial soil if the sand is finely ground the bricks become very strong, but this increases the cost and hence is an un-economic proposition.¹

Alluvial soils of types (a) riverine, old non-saline, non-calcareous to moderately calcareous, and (b) riverine recent are said to be the best suitable clays for roofing tiles. The first category is distributed mainly in Northern, North Western and North Eastern parts of India, including Punjab, North Western part of Delhi, Uttar Pradesh, Bihar and West Bengal and parts of Assam, Orissa and Gujarat. The second category is available in all the above regions and also in the coastal areas of the southern India including the deltaic area on the mouth of rivers.²

1 L.C. Jain and V.K. Jain, "Bricks and Tile Research in India", All India Seminar on Ceramic Industries (AISCI), Trichur, May 1966, Souvenir, Central Kerala Tile Manufacturers' Association, Trichur, pp. 1-9.

2 S.P. Raychaudari, Land Resources of India. Committee on Natural Resources, Planning Commission, New Delhi, 1963, Ch. II, pp. 10-23.

2.1.2 Dispersal of the Brick and the Roofing Tile Industries

The A. S. I.¹ does not treat the common building brick (non-ceramic brick) industry separately. The production of common clay bricks in the large scale sector² appears under two industry heads viz., (1) Tiles and (2) Fire Bricks. The source, however, breaks the production under 'Tiles' into 'Non-ceramic Tiles', 'Non-ceramic Bricks', 'Non-ceramic Ridges', and 'Ceramic Tiles', and that under 'Fire Bricks' into 'Non-ceramic Bricks', 'Fire Bricks and Blocks', and 'Fire Brick Mortar and Cement'.

The production of non-ceramic bricks as it appears under the industry head 'Tile' in A.S.I. is presented in Table 2.1.1. The Table also contains information regarding the main product of the industry i.e., tiles of roofing type (non-ceramic tiles) and also of other products of the industry.

In Table 2.1.1 the ceramic tiles are flooring tiles. Ceramic tiles require a finer variety of clay. Apart from

1 Annual Survey of Industries, Central Statistical Organisation, Government of India, Calcutta.

2 The A.S.I. 'Census Sector' covers factory units employing 50 or more persons if using power, or employing 100 or more persons where power is not used. The 'Sample Sector' of the A.S.I. covers small scale units that are not covered by the 'Census Sector', i.e., units employing 10 or more persons if using power, or employing 20 or more persons where power is not used. The 'Sample Sector', however, does not treat the brick and the tile industries separately.

Table 2.1.1 : Output of Products and By-products in Tile Industry, 1964 (No. in '000s)

State	Non-ceramic Tiles	Non-ceramic Bricks	Non-ceramic Ridges	Ceramic Tiles
Kerala	179,175	8,112	4,044	-
Mysore	158,536	3,847	4,135	60
Gujarat	14,462	-	112	7,915
Madras	7,363	380	43	-
Madhya Pradesh	2,416	-	35	408
Maharashtra	2,235	624	-	12,888
Orissa	370	-	2	-
Andhra Pradesh)	13,280	87	27	-
Assam and Goa }				
Total	377,837	13,050	8,398	21,271

Source : A.S.I. 1964, Vol. VI, pp. 22-23.

this they have a distinctly urban demand and hence the ceramic tile industry grows near major cities if the material is available. Non-ceramic tiles are mostly roofing tiles, though the category may include a small quantity of flooring type produced out of the same clay. Ridges are a joint product with roofing tiles.

Under the industry head 'Fire Bricks' the production of non-ceramic bricks in the various States is given in Table 2.1.2.

Table 2.1.2 : Output of Products and By-products in Fire Bricks Industry, 1964 (in Tonnes)

State	Non-ceramic Bricks	Fire Bricks and Blocks	Fire Brick Mortar and Cement
Gujarat	184,488	-	-
Maharashtra	155,623	-	-
Orissa	20,902	-	-
Madras	9,173	1,706	-
Bihar	5,681	75,155	1,293
West Bengal	-	54,951	1,279
Jammu and Kashmir	3,521	21,828	2,232
Madhya Pradesh			
Mysore			
Coa			
Total	379,388	153,640	4,804

Source : A. S. I. 1964, Vol. VI, pp. 12-13.

The A.S.I. excludes the small scale units. The brickyards usually fall under small scale sector and hence do not seem to figure in the above Tables. The publication entitled "Large Industrial Establishments in India",¹ which gives a more comprehensive picture of the industry is not

¹ Large Industrial Establishment in India, 1958, Labour Bureau, Ministry of Labour and Employment, Government of India, Simla.

up-to-date. The last issue of this statistical source refers to the year 1958. A Table constructed on the basis of information provided in the 1958 issue, is presented below. This latter source also, however, does not give roofing tiles as a separate industry. Nevertheless, as it gives the name of each industrial establishment, a fair approximation about the employment in the brick and the roofing tile industry in different States could be arrived at (Table 2.1.3).

Considering Tables 2.1.1, 2.1.2 and 2.1.3 together it can be said that the States of Bihar, Gujarat and Maharashtra are the main brick producing States. According to Tables 2.1.1 and 2.1.3 the States of Kerala and Mysore are the main producers of roofing tiles.

Complementary to the employment and production statistics is the trade data. Information regarding trade in tiles and bricks is available from two sources viz., (a) Accounts Relating to the Inland (Rail and Riverborne) Trade of India¹ and (b) Statistics of the Coasting Trade of India.² There is an absolute dearth of road statistics. However, it

1 Accounts Relating to ^{the} Inland (Rail and Riverborne) Trade of India. Department of Commercial Intelligence and Statistics, Government of India, Calcutta.

2 Statistics of the Coasting Trade of India. Department of Commercial Intelligence and Statistics, Government of India, Calcutta.

Table 2.1.3 : Number of Establishments and Employment, in the Various Clay Industries: Statewise, 1958*

State	Brick Industry		Roofing Tile		Flooring Tile		Pottery, Chinaware and Earthenware		Other	
	A	B	A	B	A	B	A	B	A	B
Andhra Pradesh	-	-	19	624	-	-	16	742	4	68
Bihar	17 ^R	7,753	-	-	-	-	2	129	6	78
Delhi	-	-	-	-	5	183	12	1,201	3	155
Gujarat	86	5,189	13	595	-	-	13	2,013	15	509
Kerala	-	-	153	12,521	-	-	5	339	-	-
Madras	-	-	7	410	4	78	-	-	4	264
Maharashtra	63	7,032	13	410	17	803	10	1,746	4	67
Madhya Pradesh	4	361	14	728	-	-	8	2,885	-	-
Mysore	-	-	72	6,588	-	-	4	667	-	-
West Bengal	4 ^R	750	-	-	8	477	20	5,574	3	879
Rest of India	2	112	-	-	-	-	10	826	16	858
Total	176	21,197	291	21,821	34	1,541	110	16,122	55	2,878

A = Number of Establishments. B = Employment. R = include refractories.

* 'Large Industrial Establishments in India' gives the names of individual units. Often these names include mention of the product or the main product. Units are sub-classified after identifying them with the help of informed persons in the trade. However, the figures should be treated as approximate and are intended to give a broad idea of the distribution of different industries using clays.

Source : Large Industrial Establishments in India, 1958.

can be legitimately and conveniently assumed that due to the high cost of long distance transport of tiles, road transport is used only for the local markets. The trade in bricks and tiles during the year 1964-65 is tabulated in Tables 2.1.4, 2.1.5, 2.1.6 and 2.1.7.

On the basis of Tables 2.1.4 and 2.1.5 the chief brick exporting States are Bihar, Orissa, West Bengal, Mysore and Kerala. The chief brick importing States are West Bengal, Maharashtra, Madras, Madhya Pradesh and Bihar. The same States (e.g., Bihar) appear both as exporters and importers. In such cases, probably, the State exports one kind of brick and imports another. The phenomenon may also be partly due to re-exports. The State of Maharashtra, though it produces bricks, features as chief importer. This may be due to high demand for bricks within the State.

According to the rail and riverborne trade data (Table 2.1.6) the States of Kerala and Mysore are the chief exporters of tiles. As compared to the exports from Kerala, the exports from Mysore are negligible. The exports from Mysore referred to above, mostly originate from interior, or distinguished from coastal, Mysore. (The exports from coastal Mysore i.e., South Kanara where roofing tile industry is localised, are by sea.) The chief consumers of Kerala tiles are Madras, Maharashtra, Andhra Pradesh and Madhya Pradesh. As per the coasting trade statistics (Table 2.1.7)

Table 2.1.4 : Rail and Riverborne Trade in Bricks, 1964-65 (Quantity in Tonnes)

Exporting States	Importing States							Total
	West Bengal	Madhya Pradesh	Bihar	Maha-rashtra	Orissa	Uttar Pradesh	Others	
Bihar	13,160	440	-	270	500	350	250	14,970
Orissa	1,390	2,310	4,830	100	-	40	270	8,940
West Bengal	-	1,250	880	220	1,180	280	520	4,330
Madhya Pradesh	-	4,080	-	20	-	40	-	4,140
Andhra Pradesh	110	-	120	970	150	590	1,260	3,200
Gujarat	100	280	-	160	-	100	810	1,450
Other	-	10	-	1,100	-	50	80	1,240
Total	14,760	8,370	5,830	2,840	1,830	1,450	3,190	38,270

Source : Accounts Relating to the Inland (Rail and Riverborne) Trade of India, Twelve Months ending March 1965.

Table 2.1.5 : Coasting Trade in Bricks, 1964-65 (in '000s)

Exporting States	Importing States			
	Kadras	Maharashtra	Gujarat	Total
West Bengal	2,386	-	-	2,386
Mysore	-	709	-	709
Kerala	-	367	-	367
Gujarat	-	126	-	126
Goa	-	-	1	1
Total	2,386	1,202	1	3,589

Source : Statistics of the Coasting Trade of India, Twelve Months ending March 1965.

Table 2.1.6 : Rail and Riverborne Trade in Tiles, 1964-65 (in '000s)

Exporting States	Importing States									Total
	Madras	Maha- rashtra	Andhra Pradesh	Madhya Pradesh	Punjab	Uttar Pradesh	Gujarat	Orissa	Others	
Kerala	26,237	18,484	17,110	9,823	-	20	462	562	1,741	74,439
Mysore	205	2,960	460	111	-	-	1	-	129	3,866
Delhi	-	8	-	-	2,477	165	3	-	32	2,685
Madhya Pradesh	1	62	-	-	707	991	66	2	117	1,946
Maharashtra	36	-	54	324	19	132	427	23	17	1,032
Gujarat	-	687	19	52	9	34	-	-	23	824
Bihar	-	1	-	11	8	541	18	-	175	754
Others	-	298	116	142	176	582	92	426	417	2,249
Total	26,479	22,500	17,759	10,463	3,396	2,465	1,069	1,013	2,651	87,795

Note : The source gives the trade in tiles in quintals. Conversion used here is 24 quintals = 1,000 tiles.

Source : Accounts Relating to ^{the} Inland (Rail and Riverborne) Trade of India, Twelve Months ending March 1965.

Table 2.1.7 : Coasting Trade in Tiles, 1964-65 (Quantity in '000)

Exporting States	Importing States							Total
	Maha-rashtra	Gujarat	Goa	Kerala	Mysore	Madras	Andhra Pradesh	
Mysore	53,992	11,495	6,376	635	-	-	9	72,507
Kerala	7,415	2,778	4,552	-	35	-	40	14,820
Maharashtra	-	1,522	899	58	66	-	-	2,545
Gujarat	920	-	40	-	-	-	-	960
Madras	121	-	68	-	-	-	-	189
West Bengal	-	17	-	-	-	86	-	103
Laccadives	-	56	-	-	47	-	-	103
Goa	20	-	-	-	-	-	-	20
Total	62,468	15,868	11,935	693	148	86	49	91,247

Source : Statistics of the Coasting Trade of India, Twelve Months ending March 1965.

the States of Mysore and Kerala are the chief exporters of tiles. Here, however, the exports of tiles from Mysore are much higher than those from Kerala.

2.1.3 Types of Roofing Tiles

The discussion in the preceding paragraphs justified the proposition that brick manufacture is widespread, whereas, the roofing tile industry is more localized. The concentration of the roofing tile industry in fewer places may be due to that the roofing tiles require a sub-type of clay with specific impurities and that such clays are found only in some places. The growth of the two industries (brick and tile) may be partly dependent on the demand for these products. Hence even where the material was available the industry might have failed to grow due to the absence of demand. The failure may also be due to the availability or the popularity of substitutes. For instance, in places where materials like marble rock, laterite granite are available, bricks may not have much demand.

The building brick industry thrives in the small scale sector and has a greater dispersal. It is found mainly in North Eastern States viz., Bihar, Orissa, West Bengal, Madhya Pradesh and on the West Coast, though small quantities possibly are produced all over India. The States of Mysore and Kerala are the chief tile manufacturing States. In Mysore the industry is concentrated in the coastal district

of South Kanara. In 1958 out of a total employment of 6,588 in the industry in the State (Table 2.1.3), the industry in South Kanara accounted for 6,267.¹ The industry in Kerala has a wider dispersal than in Mysore (Table 1.2).

Prior to the establishment of the organized roofing tile industry, the tiles were made by the potters. The 1961 census shows that the community is thriving in almost all the States. The potter's tiles did not have the quality that could stand long transit. Apart from this due to his lesser financial ability, the typical potter could handle sales only in his local markets. The organized industry in India was established in Mangalore on the West Coast and south of it. These tiles soon spanned wide markets. There are few other places where the growth of the organized roofing tile industry has replaced the potter's tiles. Nevertheless, the potters have lost their markets even in places where there exists no local organized roofing tile industry. The organized industry from its few localized points have captured the potter's markets.

There are four types among roofing tiles which can be said to have grown beyond the potter's local markets. These are namely, (1) Mangalore pattern, (2) Feroke pattern, (3) Allahabad pattern and (4) Raniganj pattern. Of these the

1 Large Industrial Establishments in India, 1958.

last two are manufactured in the North Eastern States of India. They are mostly demanded within these States. As compared to these, the first two have spanned the national market and even compete in the local markets of the latter types. The Mangalore type and the Feroke type tiles are manufactured in the coastal regions of Mysore and Kerala. The main reason behind the concentration of the roofing tile industry on the West Coast and the popularity of tiles made here has to be found in the availability of suitable clays. "The manufacture of earthen tiles of interlocking type has been carried on in the West Coast of South India for decades. The industry is concentrated in the district of South Kanara (Mysore State) and area covered by the former district of Malabar (Kerala State), but other centres have grown in Mysore City, Madras City, Jabalpur and elsewhere in the country.

The clays suitable for the manufacture of machine pressed tiles are found mostly in the West Coast."¹

The present study confines itself to the roofing tile industry in South Kanara (coastal Mysore) and in Kerala. The tiles made here account for almost the entire production of two types of roofing tiles viz., the Mangalore and the Feroke

1 Handbook of Commercial Information, Vol. I. Department of Commercial Intelligence and Statistics, Government of India, Calcutta, 1963, pp. 409-10.

type. The planning of discussion on the industry in the succeeding sections is presented below. Sections 2.2 to 2.5 discuss the growth of the industry in the different centres and the market pattern for their tiles during different periods. Historical data are scant. There are brief references to the industry in the Census Reports of 1901 and 1911. As the effects of the World War I, which commenced in 1914, could have been felt on the tile industry, it was felt what has been described of the industry in 1911 Census Report could be more representative of the period prior to the War. Section 2.2 thus covers a period starting from the inception of the industry to 1914. There is some information regarding the state of affairs of the industry during the Great Depression and World War II. These have been presented in Section 2.3 which covers the period 1914-48. The attainment of Independence in 1947 ushered in a new climate for investment. There are no data available as regards the production of tiles in the different centres.¹ For the period 1949 onwards it was possible to estimate the production at the different centres, making some assumptions regarding the technology in the industry and with the help of employment figures which were available. However, trade data are more comprehensive for the period 1960-67. Hence the period 1949

¹ Statewise production figures are available in the A.S.I. from 1958, but, for the present purpose centrewise information is necessary.

onwards has been divided into two. Section 2.4 deals with the period 1949-59 and Section 2.5 with 1960-67.

Section 2.6 presents a critical review of the market pattern for tiles manufactured in different centres upto 1967 discussed in the earlier sections.

Cost of manufacturing tiles in the different centres is examined in Section 2.7. In Section 2.8 manufacturing costs and transport costs are combined to present the locational advantages.

2.2 Location of the Tile Manufacturing Centres and the Early Economic History of the Industry upto 1914

2.2.1 Location of the Tile Manufacturing Centres

The roofing tile industry operating at factory scale having wide markets is a feature of the West Coast. Though the coastal districts of Madras have some production, this is very insignificant as compared to their demand; and hence they need to import large quantities of tiles made on the West Coast. Even along the West Coast the industry is localized in its stretch of South Kanara and the coast to its south. To the north of South Kanara, the tile manufacturing units are few and far between.¹ Recent years have shown Gujarat creeping ahead of the other smaller producers of roofing tiles in Konkan and Maharashtra. The coast north of South Kanara has been in the past the main market for the tiles made in South Kanara and Malabar (Northern Kerala). This still remains so. The Deccan Plateau with its black cotton soil is unsuitable for the tile industry. Unsuccessful attempts are still being made in some places in the area to produce tiles and compete with the quality tiles made on the West Coast.

The quality of clay varies from place to place, even within a small area. It is, however, said that the entire

1 See footnote 2 , p. 59

coast of Kanara and Kerala is endowed with clays suitable for the manufacture of roofing tiles. There are 71 tile factories employing 5,300 persons in South Kanara. The present production is over 10 crores of tiles per year. Mangalore town at the southern periphery of the district accounts for more than 90 per cent of the employment and production in the industry in South Kanara.¹ The dispersal of the industry along the Kerala coast is given in Table 2.2.1.

Table 2.2.1 : Number of Establishments and Employment in Tile Industry in Kerala, 1967

District	Number of Establishments	Employment
Trivandrum	1	20
Quilon	42	2,203
Alleppey	4	87
Kottayam	3	75
Ernakulam	19	943
Trichur	119	4,892
Palghat	9	602
Calicut	22	4,197
Cannanore	6	558
Total	225	13,577

Source : Economic Review - Kerala 1968, State Planning Board, Trivandrum, Kerala, Appendix 7.2.

¹ M. Rajashekara Murthy, Minister for Industries and Information, Mysore, "Progress of Industries in Canara Region", Economic Times, June 16, 1969.

The annual production of tiles in Kerala is estimated at 30 to 35 crores tiles for the year 1965.¹ As per the employment figures given in the above Table most of the production is accounted for by the three districts, viz., Trichur, Calicut and Quilon.²

In the present study the growth of the industry is discussed in relation to the localized points, viz., Mangalore, Calicut, Quilon and Trichur (Map 2).

2.2.2 The Early Economic History of the Industry upto 1914

The first tile factory in India was established in Mangalore in the year 1865 by the German missionaries--the

1 R. Poornam, "Survey of Ceramic Industries in India", All India Seminar on Ceramic Industries (AISCI), May 1966, Trichur, Souvenir, p. 99.

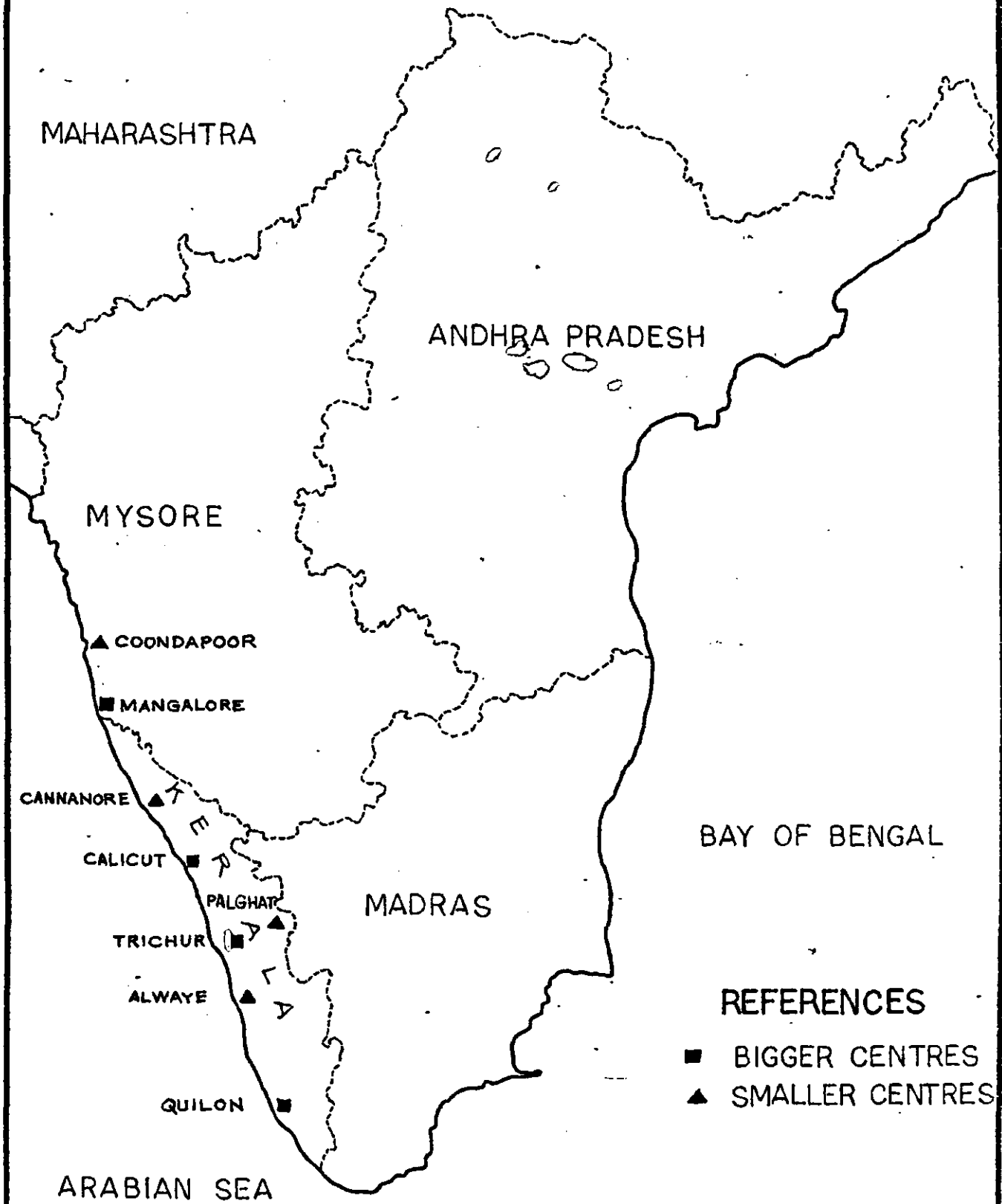
2 As compared to the localization of the industry in South Kanara and Kerala evident from the above paragraphs, the employment in the industry elsewhere along the coast is insignificant.

	<u>Year</u>	<u>No. of units</u>	<u>Employment</u>	<u>Source</u>
a) Goa	1965	5	424	<u>Statistical Yearbook, 1965 to 1968, Goa, Daman and Diu, General Statistics Department, Government Press, Panaji, 1970, Table 6.4.14.</u>
	1966	3	84	
	1967	3	127	
	1968	2	105	
b) Ratnagiri	1964	1	30	<u>Socio-Economic Review and District Statistical Abstract of Ratnagiri District 1965-66, Bureau of Economics and Statistics, Government of Maharashtra, Bombay, Table 5.1.</u>

c) "The total number of roofing tile manufacturing units in Gujarat is 35 and their annual production is nearly 2 crores of tiles." Dr. B.M. Sedala, "Roofing Tile Industry in Gujarat", AISCI, Trichur, May 1966, Souvenir, p. 67.

TILE MANUFACTURING CENTRES,

MAP. 2.



BAY OF BENGAL

REFERENCES

- BIGGER CENTRES
- ▲ SMALLER CENTRES

Basel Mission. The choice of Mangalore was not a result of any careful investigation into the locational factors of the industry. The Missionaries had other interests in the place. As the tiles grew popular and suitable clay was found, the Missionaries opened another factory in Calicut in 1874. The first tile factory in Quilon was established in 1880. By 1901 the industry had grown considerably. The employment in the industry during the census year 1901 was as follows:

Table 2.2.2 : Employment in Tile Industry, 1901

District	No. of persons employed
South Kanara (mainly Mangalore)	1,183
Malabar (mainly Calicut)	1,856
Travancore (mainly Quilon)	124

Sources: 1) Census of India, 1901, Madras, Part II - Imperial Tables, pp. 261-62.

2) Census of India, 1901, Travancore, Part III - Provincial Tables, p. 433.

The Census of India for the State of Cochin for the year 1901 states : "A few tile and brick manufactories have been opened in the Mukundapuram and Trichur taluks where tiles of the Mangalore pattern are made. The pointed and the pan tiles made by the ordinary potter are fast going out of fashion."¹

¹ Census of India, 1901, Cochin, Part I - Report, p.xxvii.

Until 1900 the growth of the industry in Quilon and Trichur was meagre. The economic history of the industry until 1900 can be said to be its history in South Kanara and Malabar.

The pioneers in Mangalore could not cope up with the demand which grew with the popularity of the factory-made tiles and "many orders could not be executed".¹ With its simple method of production, which could be easily known, competition came in within a matter of a decade. The production and value of tiles in Mangalore for the year 1885 was as is shown by the Table below.

Table 2.2.3 : Production of Tiles, Ridges and Bricks in Mangalore, 1885

Kind	Number Manufactured in lakhs	Rate/1000 Tiles in Rs.	Total approximate value in Rs.
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1. Roofing Tiles:

Class I	62.2	35 to 45	248,800
Class II	3.0	25 to 35	9,000
Class III	4.0	15	6,000
2. Ridge Tiles	2.0	80	16,000
3. Bricks	3.0	35	10,500

Source : Mrs. B. G. Karat, History and Development of Tile Industry in Mangalore. Dissertation submitted to the University of Bombay for the degree of M.A., 1954, p. 83 (unpublished).

¹ Annual Report of the Basel Mission Society, Mangalore, 1870-71.

According to the Madras District Gazetteer - Malabar 1904-05, the tiles made in Malabar and South Kanara were being exported to Rangoon, Singapore, Colombo and Australia by the year 1900.¹ The Annual Reports of the Cochin Chamber of Commerce² which give portwise exports for British ports (these include those in Kanara and Malabar) do not show any export of tiles until 1900. The first batch of exports reported here is in 1900 from Mangalore. According to the Reports of the Cochin Chamber of Commerce, exports from Calicut commenced in the year 1925. Exports from Mangalore and Calicut both to foreign countries and to other parts of India by sea must have been negligible prior to 1900. Thus a production of around 75 lakh of tiles in Mangalore in 1885 must have been necessitated only to satisfy the local demand. Mangalore at the time had no railway link. Road transport had as yet not come in vogue. Exports through rail and road being not possible, exports through the port being non-existent, it can be fairly realistically assumed that the entire production of 1885 was consumed locally. The market for tiles was in existence before the factory-made tiles were introduced. Only the mode of production changed.

In the year 1900 Mangalore exported 11.67 lakh of tiles to Ceylon and 2.30 lakh tiles to Burma. As compared to

1 Madras District Gazetteers, Malabar and Anjengo, Vol. I, Government Press, Madras, 1915, p. 252.

2 The source gives exports of 'Bricks and Tiles' which refer almost entirely to exports of tiles.

these, exports to ports in India amounted to 97.00 lakhs. The importance and the beginning of an external market for tiles (those apart from local) is visible from this period onwards.¹

The employment in the tile industry was greater in Malabar as compared with South Kanara in the year 1901 (see Table 2.2.2). For the period 1914-49 the industry in South Kanara shows a concentration in Mangalore, whereas the industry in Malabar shows a comparative dispersal. Also, in the year 1917 the employment in the tile industry was greater in Mangalore than in Calicut (see Table 2.3.2). It seems probable that around the turn of the century both employment and production were slightly more in Mangalore as compared with Calicut.

There were no exports of tiles from Malabar ports by sea. However, Calicut had a railway link with Madras as early as 1888. Madras was connected with Bombay as long back as 1871. Calicut-made tiles thus had easy accessibility to

¹ Annual Reports of the Cochin Chamber of Commerce, Cochin.

The sudden rise in exports even with a short period of 15 years from 1885-1900 has to be justified on the basis that market for tiles was in existence everywhere. As soon as the factory-made tiles were introduced they soon caught the market. The country tiles and the potter's tiles were driven out of demand. Were we to on the contrary grant that exports from Mangalore and Calicut existed prior to 1900 we have to lay lesser emphasis on the influence of local demand on the growth of these centres during the early years.

all the markets in Deccan. They could also cater to coastal Andhra Pradesh since 1898. There is no statistical evidence to show the volume of trade by rail. Whereas, the exports to erstwhile Hyderabad State and Bombay Presidency in Deccan (the present interior Andhra Pradesh and Maharashtra) could either be non-existent or small - the Calicut tiles possibly had established their name in the markets in Madras which could be reached by the broad-gauge line that also ran along the Malabar coast. For some time these markets in Madras were an exclusive monopoly of Malabar tiles, particularly those made in Calicut, later known as the Feroke tiles.¹

The first decade of the nineteenth century ushered in new competition in the tile industry. Quilon and the rest of Travancore now had eight units employing 1,510 labourers.² More remarkable is the growth of a number of small units in Trichur in the erstwhile State of Cochin. C. Achyuta Menon, writing for the Cochin State Manual, states: "Dutch tiles have nearly gone out of fashion and given place to patent tiles of Mangalore pattern. A number of tile and brick factories have consequently sprung up to supply this demand in recent years. There are 14 such factories in the neighbourhood of Trichur

1 Feroke is a village in Calicut district in the vicinity of Calicut town where the tile factories are concentrated. Feroke tiles are bit bigger in size as compared to the Mangalore pattern.

2 Census of India, 1911, Travancore.

and 2 near Chittoor employing over 750 men, women and children. ..."¹ Unlike the older tile manufacturing centres in Mangalore, Calicut and Quilon which were ports, Trichur is situated inland. While the distant coastal markets were not easily accessible to tiles made in Trichur, the broad-gauge railway which connected it both with Cochin and Madras gave it a wide range of markets. It is in Trichur tiles, as will be seen that Calicut-made tiles found their first competitor.

Trichur, as compared to the other three centres, was a commercial town of lesser importance. The only factor that could have influenced the location of the industry here, apart from the availability of clay and cheap labour, is the proven success of the units belonging to the Basel Mission and other pioneers in Palghat which is very near to Trichur.

As the raw material was available the industry spread all along the West Coast south of Mangalore. But in most cases it did not grow further than to cater to local demand. For the industry to localize in any place it is necessary to have access to wide markets. Though the broad-gauge line ran along this stretch of West Coast the smaller towns of little commercial importance, perhaps, did not have their own railway stations. As regards the possibility of exports by

1 C. Achyuta Menon, Cochin State Manual, 1911, p. 271.

sea, the bigger sailing vessels which carried tiles to distant coastal markets and the steamers which carried exports to foreign countries could not have been easily available at the small port towns. There could be one other reason why the industry did not show an even growth along the raw material stretch. Industry in general as compared with agriculture requires a relatively dense labour pool. Less urbanized tracts of the raw material belt, perhaps, did not possess a suitable supply of labour. The gradual localization of the industry, hence, could be found only in the commercial towns of Mangalore, Calicut, Quilon and Trichur.

2.3 Growth of the Industry and the Market Pattern for Tiles 1914-48¹

2.3.1 Growth of the Industry in the Four Centres viz., Mangalore, Calicut, Quilon and Trichur (1914-1948)

There are two sub-sections to the present section. The first briefly describes the growth of the industry in its localized centres that are already identified. The second attempts a glimpse at the market pattern for tiles made in some of these centres. A comprehensive view of the market pattern for the tiles manufactured in all the centres could not be presented due to the non-availability of the required statistics. However, even the discussion on the basis of the available trade data, as will be seen, helps to draw a few conclusions as regards the market pattern for tiles.

The roofing tile industry is material oriented. The industry has remained near the clay deposits. The pull from the chief fuel i.e., firewood has been less important. Tile units are located within a distance of 15 miles from the clay fields, whereas they draw fuel from forests located 50 to 80 miles from them. In spite of the material orientation of the location, the cost of clay (at the source) as such is

¹ Employment data are available only for the period 1917 onwards. However, the generalisations in this section relate to the period 1914-48.

a less important component in the delivered price of clay. The transport cost on clay forms a more important component even when the tile units are located near the place of material. (Table 2.3.1).

Table 2.3.1 : Price Structure of Clay, 1967 (Price in Rupees Per Cubic Yard)

Manufacturing Centres	Mangalore	Calicut
Distance from the factory to the clay fields (miles)	12	15
Mode of Transport	Boat	Lorry
Cost of Clay	1.20	1.50
Cost of Loading	1.46	2.50
Cost of Transport	2.84	3.50
Total	5.50	7.50

Source : Survey.

Due to the preponderance of transport cost on clay, the industry's growth confined to the region where the clay was available, even when the market for tiles spanned wider areas. The employment in the industry in its chief centres during the period 1917-48 is presented in Table 2.3.2.

In Table 2.3.2 the employment figures have been used as indicators of output. It should be noted that these can be only crude indicators. Firstly, as the period under

Table 2.3.2 : Employment in Tile Factories 1917-49

Year	South Kanara			Malabar			Central Kerala			Southern Kerala
	Manga-lore	Rest of South Kanara	Total	Calicut	Rest of Kalabar	Total	Trichur	Alwaye	Total	Quilon
1917	2,003	75	2,078	1,776	960	2,736	50	-	50	2,116
1919	1,583	122	1,705	995	1,645	2,640	150	-	150	2,268
1921	2,388	80	2,468	1,911	1,383	3,294	385	-	385	3,009
1923	2,321	124	2,445	2,381	1,106	3,487	831	-	831	1,987
1925	2,506	122	2,628	2,332	985	3,317	981	-	981	678
1927	2,688	120	2,808	2,512	958	3,470	735	-	735	960
1929	2,553	131	2,684	2,839	961	3,800	993	-	993	2,208
1931	2,541	133	2,674	1,809	1,077	2,886	1,045	239	1,284	2,062
1933	2,904	204	3,108	2,059	759	2,818	1,273	361	1,634	1,460
1935	3,159	214	3,373	2,473	748	3,221	1,210	266	1,476	1,054
1937	2,211	250	2,461	2,065	631	2,696	1,300	424	1,724	1,260
1939	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
1941	3,836	88	3,924	2,979	1,060	4,039	1,266	274	1,540	1,449
1943	3,358	237	3,595	2,539	1,793	4,332	1,750	461	2,211	1,309
1945	4,068	169	4,237	2,780	1,292	4,072	1,397	630	2,027	1,379
1947	3,626	303	3,929	3,003	1,379	4,382	1,266	660	1,926	1,270
1949*	4,159	374	4,533	4,166	1,406	5,572	1,708	863	2,571	1,224**

N. A. = Not Available.

* As the data for the year 1948 was not available data for the year 1949 has been presented here.

** Includes the employment figure of 90 in respect of Kottayam also.

Source : Large Industrial Establishments in India.

reference is long, the output per labour could have changed over time. Secondly, output per labour in different centres may not be similar at any point of time due to the differences in their technological development.

Table 2.3.2 covers the period 1917-46. This period includes three major economic sub-periods i.e., the two World Wars, and the great depression of late 1920's.

There is no descriptive account as regards the state of affairs in the industry in its different centres during the First World War. There was a fall in the employment in the industry in Mangalore and Calicut between the years 1917 and 1919.

As a supplier to the building industry which gets affected the earliest during an economic crisis, the tile industry should have experienced some lean years following the great crash of 1929. According to the Madras Census Report, 1931, (then, the districts of South Kanara and Malabar were in Madras Presidency) the tile industry suffered a set-back during the depression years. "Owing to the general economic depression building operations have been greatly restricted in all markets and consequently the demand for tiles has latterly dropped very considerably. With the result there has been over-production and prices have fallen to a marked extent."¹ The impact of this changed situation on

1 Census of India, 1931, Madras, Report, p. 238.

employment as can be seen from Table 2.3.2 was felt only in Calicut. In Mangalore the industry showed a marginal fall in the employment. Due to the difficulties faced in getting steamers to convey the shipments, there was a fall in the exports to foreign markets.¹ This was true both in the case of Mangalore and Calicut, more so in the latter's case, as it depended on these markets to a greater extent (see Tables 2.3.3 and 2.3.5).

In Quilon too, the industry suffered a setback due to a fall in demand for tiles in its markets. Its main markets were at home. The price fell through the depression years from Rs.45.00 per thousand tiles in 1928 to Rs.37.00 in 1931.²

The industry in Trichur in the erstwhile State of Cochin was not affected by the general adverse conditions of the depression years. The employment in the industry does not show a fall. The Census Report of the State for the year states that the tiles made here were very much in demand.³

The Second World War, it is said, had a favourable effect on the tile industry. "Production increased considerably due to incessant demand for building materials, but

1 Ibid, p. 238.

2 Travancore Economic Depression Enquiry Committee Report, 1931. Government Press, Trivandrum, 1932, p. 82.

3 Census of India, 1931, Cochin, Part I. Report, p.161.

a very large part of the output was assigned for military purposes from 1939 to 1945."¹

Summing up, it can be said that the major economic events did not have any far reaching effects on the tile industry. The aggregate employment in the industry and also employment in the industry in its different centres did not show any abrupt changes. There has been, however, a gradual increase in the employment in all the centres except Quilon.²

Until 1947, Mangalore continued to be the biggest tile manufacturing centre in India.³ But the industry had taken a stronger root in Kerala. The coastal strip north of Mangalore has more of iron content in its soil and thus the tiles made here turn brittle. These tiles are more susceptible to breakage in transport. Possibly, the non-availability of labour also acted as an additional constraint on the spread of the industry towards the north. South of Mangalore, raw material availability allowed a dispersal of the industry along the coast, but, the availability of labour concentrated the industry between Calicut and Cochin. Partly, the existence of two big centres in Mangalore and Calicut must have lessened the prospects of localization of the industry in the region between them.

1 Mrs. B. G. Karat, op.cit., p. 98.

2 In Quilon there was a fall in the employment in the industry. The major economic events of the period and the resultant changing condition were not a cause behind.

3 It was only in 1949 that Calicut had a marginally higher employment in the industry.

During the period after the depression a new tile manufacturing centre emerged in Alwaye. Situated on the broad-gauge line connecting Trichur and Cochin, the rise of this centre was mainly to cater to local demand. As a result, the tiles made in Trichur moved less to the south.

Although Quilon was the third town in India to have a tile factory, the growth of the industry lagged behind that of Trichur which entered the tile trade much later. Moreover, unlike the other three centres, the industry in Quilon showed a decline in employment during the period 1914-48. The main reason behind this is the spasmodic appearance of another lucrative opportunity for investors during 1930's. The new industry, which, as will be seen, showed almost an overnight growth, was the cashew decorticating industry. From the labour supply point of view, though the latter required a large supply, it did not pose any problems as it employed mostly female labour. The pinch, however, was felt on the capital side. New investments got channeled into cashew kernel exports. Compared to the tile industry, the cashew industry needs very little capital investment. It was still less when the industry was at its infant stage and was not yet bound by any statutory factory regulations.

Similarly it is the existence of other better alternative opportunities that explain the failure of Alleppey to

develop a tile industry of its own. Alleppey town was the only industrial town in the erstwhile Travancore State. It was also the most important commercial centre and port in the State.

2.3.2 Market Pattern for the Tiles Manufactured in the Four Centres (1914-48)

The growth of any industry in any place generally depends upon the cost advantage it has over others in supplying the different markets, and the demand for the product in these markets. The market for the tiles manufactured in any centre can be broadly classified into local markets and markets situated at a distance from the manufacturing centre. In the case of the former each centre always has a transport cost advantage over other centres. But this advantage is of no avail if the latter have a compensating advantage in manufacturing costs. At present, the local demand is found to be attached to the respective individual centre irrespective of its cost advantage or disadvantage. The same appears to have held true in the past. However, to understand the impact of local demand on the growth of individual centres, it is necessary to know the growth of such demand. The required statistics are not available. The population figures cannot be used as indicators of demand (for tiles), for, the tiled roof until recently was a status symbol in most parts of India. The demand for tiles even now has a semi-urban bias.

As regards the distant markets, it is essential to know the manufacturing costs at different centres and also the transport costs from these centres to the markets. Historical data on costs are scant. The locational advantage of different centres, therefore, cannot be fully judged. Further, due to the market imperfections some markets were attached to certain centres. Thus, locational advantage based merely on costs (manufacturing + transport) would not have had much significance.

Due to the above mentioned difficulties, in this subsection an attempt is made only to sketch the market pattern for tiles manufactured in some of the centres, during the reference period. Trade statistics are incomplete. One cannot have a comprehensive view of the market pattern for the tiles made in all the centres.

At present the tiles are moved by road, rail and sea. Of this, road transport is extensively used only after the coming up of lorry conveyance, which became popular since 1950's. Apart from the absence of a fast moving conveyance, the roads themselves were non-existent. The coastal belt stretching from Kanara through the State of Kerala is threaded by estuaries. The bridges across and the roads connecting these bridges are of a recent origin.

Due to the high cost of transport, the lorries are used only for the markets located nearby the manufacturing

centres. These markets can be termed as local markets. In the past, the local markets were catered to by bullock-carts, and by waterways wherever possible. The data regarding both are absent.

The date, when rail transport began to be used for conveying tiles, is not known. Some of the tile manufacturing centres were connected with a railway line as early as 1888. During the period 1914-48 all the four centres viz., Mangalore, Calicut, Trichur and Quilon, had a railway link. However, the railway statistics¹ include tile as a separate commodity only from the year 1960-61.

As regards the seaborne and coastal trade, the Cochin Chamber of Commerce provides information regarding the exports of tiles from the ports of Madras Presidency, on the West Coast. This includes the ports of Mangalore and Calicut.

In the following paragraphs the market pattern for the tiles made in each centre is separately discussed. Later, the locational justification for the spatial distribution of markets between the centres is briefly examined.

Mangalore :- The broad-gauge railway line which cuts across peninsular India from Madras to Calicut runs along the Malabar coast and terminates in Mangalore. The same broad-gauge line is extended from Shornur to Cochin. The

¹ Accounts Relating to the Inland (Rail and Riverborne) Trade of India.

tile manufacturing centre, Trichur, lies on the Shornur-Cochin stretch. The rail-head markets on the broad-gauge line were thus accessible to the three centres viz., Mangalore, Calicut and Trichur.

There are no data relating to railborne trade of tiles in respect of Mangalore as well as other centres for the period 1914-48. However, it seems probable that exports of tiles from Mangalore by rail, if existed, were small. The following arguments have been provided for the same.

Employment in the industry in Mangalore more or less remained the same during the years 1941 to 1949 (see Table 2.3.2). For the year 1949, it was possible to estimate the production of tiles in the centre; it has been put around 8 crores (see Table 2.4.3). There has been some significant improvement in the method of production which influenced productivity of labour during the early part of the period 1949-59. Thus, though the employment in the industry remained the same during the years 1941 to 1949, the production in 1949 should be higher than that in the earlier years.

The production of tiles in Mangalore was less than 8 crores during the years 1941-48. As compared with this, the foreign and coastal exports from the port of Mangalore which averaged around 5 crores (see Table 2.3.3) formed approximately 65 per cent of the production. The rest 35 per cent could be shared by the local markets nearabout Mangalore and

the rail-head markets. The share of the latter markets, however, could be small. For, in the later periods 1949-59 and 1960-67, it has been found that the local markets absorbed large quantities of tiles produced at the centre and that the railborne exports from the centre were negligible. Also, locationally, Mangalore is in a disadvantageous position as regards the rail-head markets. Railway line starting from Mangalore proceeds southwards. Two centres, Calicut and Trichur, are located on the same line south of Mangalore.

The preceding two paragraphs examined the possibility of railborne exports from Mangalore during 1941-48. The employment in the industry in Mangalore for the years 1914-41 was about 65 per cent of that for the period 1941-48 (see Table 2.3.2). Exports to foreign countries and coastal exports together were more than 3.5 crores for a greater number of years of the period 1914-41 (see Table 2.3.3). These exports should form more than 60 per cent of the production. The production in the centre on the basis of employment and making allowance to crude technology (technology being crude), can be approximated at slightly above 5 crores. Considering the importance of local markets during the period prior to 1914 and the period after 1941, it seems probable of the years 1914-41 that much of the residual production excluding the foreign and coastal exports was consumed at the local markets.

It is presumed here that railborne trade in respect of

tiles made in Mangalore was negligible during the period 1914-48. The road transport being used only to supply the nearby local markets, the same being the case with river transport, the exports by sea (coastal and foreign) should represent the centre's entire exports.

Information regarding exports of tiles from the port of Mangalore as provided in the Annual Reports of the Cochin Chamber of Commerce is presented in Table 2.3.3.

It can be seen from Table 2.3.3 that Bombay ports and the 'Other Indian Ports' were the main markets for the tiles manufactured in Mangalore. The exports to foreign countries gained some importance only during the years 1941-42 to 1948-49. This was due to the coming up of an entirely new market for tiles in East Africa.

From the inception of the industry in Mangalore, the manufacturers mainly relied on the home markets. During the early years, however, the market was local. When the production increased the tiles from the centre were exported to coastal markets north of it. It can be seen from Table 2.3.4 that even during the early decades of the present century the tiles manufactured in Mangalore were not exported to foreign countries in large numbers.

During the period 1925-26 to 1948-49, Bombay ports and the 'Other Indian Ports' were the chief importers of tiles

Table 2.3.3 : Exports of Tiles by Sea : Mangalore, 1925-26 to 1948-49 (Number in Lakhs)

Year	Foreign					Total	Coastal				Grand Total	
	Ceylon	Burma	Strait Settlements	Sindh ¹ (Pakistan)	East Africa		Bombay	Madras	Bengal	Other Indian Ports		Total
1925-26	34.20	7.55	-	-	-	41.75	215.83	24.17	-	79.84	319.84	361.59
1926-27	6.73	-	-	-	-	6.73	240.94	23.20	-	100.87	365.01	371.74
1927-28	14.38	-	-	-	-	14.38	206.47	-	-	112.99	319.46	333.84
1928-29	14.51	0.67	-	-	-	15.18	255.97	-	-	140.65	396.62	411.80
1929-30	20.28	1.32	-	-	-	21.60	220.67	-	-	126.87	347.54	369.14
1930-31	7.69	4.58	-	-	-	12.27	159.54	-	-	116.20	275.74	288.01
1931-32	1.19	-	-	-	-	1.19	220.05	-	-	101.61	321.66	322.85
1932-33	4.95	-	-	-	-	4.95	253.16	-	-	115.38	368.54	373.49
1933-34	4.70	3.09	-	-	-	7.79	253.14	-	-	142.41	395.55	403.34
1934-35	2.93	-	-	-	-	2.93	223.11	-	-	126.39	349.50	352.43
1935-36	2.50	-	1.53	3.41	0.73	8.17	212.96	-	-	139.10	352.06	360.23
1936-37	4.65	-	5.55 ²	0.04	2.89	13.13	199.78	-	-	91.50	291.28	304.41
1937-38	4.09	-	3.39 ³	0.74	2.15	10.37	265.93	-	-	123.53	389.46	399.83
1938-39	4.27	-	2.08	0.92	15.55	22.82	240.43	0.33	-	130.61	371.37	394.19
1939-40	2.73	-	7.10	0.67	8.20	18.70	258.97	-	-	119.10	378.07	396.77
1940-41	1.76	1.03	6.23	7.64	3.24	19.90	332.47	-	37.57	84.73	454.77	474.67
1941-42	0.93	-	-	60.40	-	61.33	456.98	-	-	88.55	545.53	606.86
1942-43	6.67	-	-	13.84	8.25	28.76	447.63	-	-	151.21	598.84	627.60
1943-44	22.73	-	-	0.05	27.94	50.72	292.00	-	-	103.81	395.81	446.53
1944-45	17.26	-	-	-	6.00	23.26	372.97	-	-	194.02	566.99	590.25
1945-46	18.98	-	-	2.26	53.50	74.74	298.74	-	-	142.69	441.43	516.17
1946-47	18.58	4.32	0.52	0.16	39.88	63.46	266.67	-	-	149.93	416.60	480.06
1947-48	51.78	-	4.19	0.54	44.75	103.88 ⁴	246.39	-	2.29	109.29	357.97	461.85
1948-49	34.96	-	2.10	0.65	92.40	132.73 ⁴	283.49	-	-	79.98	363.47	496.20

1 - Prior to 1935-36 Sindh was included in Bombay Presidency. Exports to Sindh if any during the period should appear under coastal exports to Bombay.

2 - Includes 1.72 lakhs to Malaya.

3 - Includes 0.60 lakhs to Malaya.

4 - Includes 2.62 lakhs to Australia.

Source : Annual Reports of the Cochin Chamber of Commerce.

Table 2.3.4 : Exports of Tiles by Sea : Mangalore (Number in Lakhs)

Year	Foreign Ports	Indian Ports	Total
1900-01	13.97	97.00	110.97
1910-11	24.16	195.70	219.86
1920-21	14.82	312.00	326.78

Source : Annual Reports of the Cochin Chamber of Commerce.

from Mangalore. Bombay ports included the ports in the present Gujarat State excluding the Kathiawar ports, ports in the present Maharashtra State, and the ports in the district of Karwar belonging to the present State of Mysore. As the present pattern of trade suggests, bulk of the imports into Bombay ports must have been accounted for by the port of Bombay. The 'Other Indian Ports' include ports other than those in the Presidencies of Bombay, Madras and Bengal. (Among 'Other Indian Ports', the Kathiawar ports must have figured important as per the present distribution of exports from Mangalore.)

Bombay ports and the Kathiawar ports, which imported tiles from Mangalore are to the north of the centre. Thus, it can be said, that apart from their local markets, the manufacturers in Mangalore depended on the coastal markets north of the centre.

Calicut :- Referring to Table 2.3.2, it can be seen that during the period 1914-48 the employment in the industry in Calicut was slightly less than it accounted for in Mangalore. For some years, however, the former shows an employment higher than the latter. Assuming that output per labourer was similar in Mangalore and Calicut, it can be accepted that the production of tiles in the two centres did not differ much during the period 1914-48.

Information regarding the exports of tiles from the port of Calicut is presented in Table 2.3.5.

The exports of tiles from the Port of Mangalore ranged from 288.01 lakhs to 627.60 lakhs during the period 1925-26 to 1948-49 (Table 2.3.3). As compared to this, the exports from the port of Calicut ranged from 61.50 lakhs to 221.05 lakhs during the same period. For a greater part of the period 1925-26 to 1948-49, the seaborne exports (coastal and foreign) from the port of Calicut were much less than half that from Mangalore.

The production of tiles in Calicut, it was stated, possibly was more or less similar to that in Mangalore. The seaborne exports from Calicut, however, did not compare favourably with the exports from Mangalore. This should mean, in contrast with the industry in Mangalore, there was a greater reliance on the local markets and the rail-head markets by the industry in Calicut during the period 1925-26

Table 2.3.5 : Exports of Tiles by Sea : Calicut, 1925-26 to 1948-49¹ (Number in Lakhs)

Year	Foreign						Coastal					Grand Total	
	Ceylon	Burma	Strait Settlements	Sind ² (Pakistan)	East Africa	Other Foreign Countries	Total	Bombay	Madras	Bengal	Other Indian Ports		Total
1925-26	39.05	29.28	-	-	-	-	68.33	4.27	11.76	6.90	10.00	32.93	101.26
1926-27	21.54	16.40	-	-	-	-	37.94	4.43	5.49	-	17.13	27.05	64.99
1927-28	56.42	33.14	-	-	-	-	89.56	3.35	-	0.26	34.89	38.50	128.06
1928-29	64.38	17.98	-	-	-	-	82.36	1.78	-	0.48	32.30	34.56	116.92
1929-30	59.63	17.86	-	-	-	-	77.49	1.43	-	0.48	27.34	29.25	106.74
1930-31	32.05	19.59	-	-	-	-	51.64	0.42	-	0.55	30.24	31.21	82.85
1931-32	24.09	3.47	-	-	-	-	27.56	5.03	-	0.21	28.70	33.94	61.50
1935-36	43.67	12.65	18.00	0.30	-	-	74.62	0.53	-	0.10	56.80	57.43	132.05
1936-37	49.61	18.52	49.40	0.01	-	0.27	117.81	0.42	-	0.13	42.46	43.01	160.82
1937-38	52.25	15.59	48.61	-	-	-	116.45	0.40	-	0.14	44.48	45.02	161.47
1938-39	41.31	12.31	81.61	-	-	0.10	135.33	0.31	-	0.15	38.68	39.14	174.47
1939-40	39.95	21.67	81.15	0.05	-	0.51	143.33	0.26	-	-	23.93	24.19	167.52
1941-42	16.88	9.12	27.56	20.04	1.27	-	74.87	12.52	-	-	33.78	46.30	121.17
1942-43	28.97	-	-	9.32	-	-	38.29	71.16	-	-	111.60	182.76	221.05
1943-44	48.66	-	-	-	1.58	-	50.24	2.25	-	-	51.74	53.99	104.23
1944-45	23.90	-	-	0.98	-	-	24.88	33.07	-	-	88.55	121.62	146.50
1945-46	49.02	-	-	0.08	2.17	-	51.27	4.91	-	-	23.86	28.77	80.04
1946-47	28.06	23.09	19.16	0.41	-	0.09	70.81	0.61	-	0.28	28.06	28.95	99.76
1947-48	91.95	5.36	52.39 ³	-	-	1.22	150.92	11.19	-	0.08	35.55	46.82	197.74
1948-49	103.72	4.07	4.38 ⁴	0.93	0.40	3.37	116.87	1.14	-	0.07	35.73	36.94	153.81

1 - For the years 1932-33 to 1934-35 and 1940-41 data are not available.

2 - Prior to 1935-36 Sindh was included in Bombay Presidency. Exports to Sindh if any during the period should appear under coastal exports to Bombay.

3 - Includes 31.55 lakhs to Malaya.

4 - Refers to exports to Malaya.

Source : Annual Reports of the Cochin Chamber of Commerce.

to 1948-49. In other words, bulk of the production from Calicut was consumed locally and by the rail-head markets. The statistical information as regards both is not available. The railborne trade statistics in respect of tiles is available only from the year 1960-61 onwards. Statistics regarding trade by road are non-existent even now. In respect of railborne trade, however, it could be learnt that there were some exports by rail from Calicut.

The exports of tiles from the port of Calicut are presented in Table 2.3.5. Some observations can be made on the basis of this. The exports to foreign countries is the more important component in the centre's exports by sea. This is in contrast to the pattern of such trade originating from Mangalore. Even by absolute quantity, the exports to foreign countries from Calicut were greater than the exports from Mangalore. Relatively the coastal markets viz., Bombay ports and the 'Other Indian Ports' were less important for Calicut than they were for Mangalore. In the case of Mangalore, Bombay ports were the chief importers of tiles amongst both foreign and Indian markets. Even among its coastal markets, Bombay ports feature less important in the case of Calicut. The exports to 'Other Indian Ports' form a greater portion of the centre's coastal exports. The 'Other Indian Ports' mainly refer to those in Kathiawar. (These are at present some of the important markets for the tiles made in Calicut.)

It can be seen by referring to Tables 2.3.3 and 2.3.5 that neither in the case of Mangalore nor in the case of Calicut, there were bulk exports to Madras or Bengal ports by sea. There were, however, as will be shown, exports to Madras markets from Calicut by rail.

Quilon :- The Cochin Chamber of Commerce does not provide information regarding exports of tiles from the port of Quilon. However, it seems, exports by sea were not substantial in the case of tiles manufactured in Quilon. The Travancore Economic Depression Enquiry Committee, 1931, observes: "There has been a railborne trade in tiles between Travancore and the Tamilnad districts of the Madras presidency. Tinnevelly, Ramnad and Madura districts offer good markets for Travancore tiles. The Quilon manufacturers have to meet the competition of the Feroke and Calicut tiles in Coimbatore, Trichinopoly and Madras. Only 25 per cent of the tiles manufactured in Quilon are sold in Travancore, the rest is entirely consumed in Madras presidency."¹

All the five stations mentioned above are in the present Madras State. Quilon had a metre gauge railway line as early as 1904. The same metre gauge railway line later had a network in southern part of Madras State. Tinnevelly, Ramnad and Madura are situated on this metre gauge line. At

¹ Travancore Economic Depression Enquiry Committee Report 1931, p. 82.

some points, the metre gauge line converges with the broad-gauge line which is linked with the other tile manufacturing centres vis., Mangalore, Calicut and Trichur. Trichinopoly and Madras city are such points. It is said, due to the cost of transshipment, the tiles made in Quilon did not cater to the markets on the broad-gauge line much farther than the converging points. Similarly, the other three centres confined to the markets on the broad-gauge line.

Few supplementary observations are possible on the basis of the extract from the Report of the Travancore Economic Depression Committee, 1931, presented earlier. First, the tiles manufactured in Calicut and Feroke (they are 10 miles apart from each other) had a market in Madras State (present). Secondly, according to the above Report, Trichur-made tiles have not posed any severe competition at the rail-head markets until the early 1930's. As will be seen, however, the tiles made in Trichur had by then ventured into the markets catered to by Calicut and Quilon.

Turning to the market pattern for tiles manufactured in Quilon, the rail-head markets in the districts of Tinnevely, Ramnad and Madurai, all in the present Madras State, were its main stay during the early 1930's. The situation had not changed after 10 years. The Trade Statistics of Travancore gives the following market pattern for the tiles made in Quilon, for the year 1939-40 and 1940-41.

Table 2.3.6 : Exports of Tiles from Travancore (Number in Lakhs)

	1939-40	1940-41
British India	123.38	74.37
Cochin	12.09	5.59
Mysore	0.30	0.61
Ceylon	0.69	0.38
Burma	0.11	-
Strait Settlements	2.03	2.84
Other	0.46	0.63
Total	139.06	84.42

Source : Trade Statistics of Travancore 1939-40 and 1940-41.

The exports to British India refer to exports to the present Madras State. As in the year 1930 in the years 1939-40 and 1940-41 bulk of the exports were to Madras State. These formed a large percentage of the production also. It can be noticed from the Table that the exports to foreign countries from Quilon were small.

Trichur :- There is no statistical information, from which can be learnt, the importance of different markets as regards the tiles manufactured in Trichur. The Cochin Chamber of Commerce gives the exports of tiles from the ports of Cochin and Ponnani. The exports from the former

may include the tiles from Trichur and Quilon, and those from the latter may include the tiles from Trichur and also those from Palghat. The exports of tiles from the ports of Cochin and Ponnani are presented in Table 2.3.7.

The exports of tiles from the ports of Cochin and Ponnani were negligible during the period 1927-28 to 1948-49. Slightly larger quantities were exported from the Cochin port during the War years. This, it is believed, was due to the diversion of the trade from smaller ports like Calicut.

From Table 2.3.7, little can be learnt as regards the market pattern for the tiles made in Trichur. It seems probable, however, that the manufacturers in Trichur relied mainly on the local markets. Trichur is located in the interior and is connected with the same broad-gauge line as is Mangalore and Calicut. There could be some exports to rail-head markets on this broad-gauge line. The Census Report of Cochin State for the year 1931 observes that the production in Trichur by then exceeded 10 million per year and that "These tiles and bricks are very much in demand in the State and the supply is also sufficient to meet in part the requirements of Southern Malabar, Travancore and some of the eastern districts of Madras presidency."¹

¹ Census of India, 1931, Cochin, Part I : Report,
p. 161.

Table 2.3.7 : Exports of Tiles by Sea: Cochin and Ponnani, 1927-28 to 1948-49 (Number in Lakhs)

Year	Cochin			Ponnani		
	Foreign	Indian	Total	Foreign	Indian	Total
1927-28	-	-	-	19.31	-	19.31
1928-29	3.21	0.55	3.76	3.21	0.55	3.76
1929-30	0.96	0.16	1.12	0.96	0.16	1.12
1930-31	7.56	0.52	8.08	3.23	-	3.23
1931-32	5.32	5.32	10.64	1.68	-	1.68
1932-33	4.34	3.49	7.83	2.18	-	2.18
1933-34	3.54	4.52	8.06	2.95	-	2.95
1934-35	3.49	2.50	5.99	-	-	-
1935-36	3.77	1.72	5.49	4.45	-	4.45
1936-37	2.83	3.35	6.18	2.74	0.13	2.87
1937-38	4.79	2.36	7.15	5.08	0.86	5.94
1938-39	5.20	1.19	6.39	9.23	1.62	10.85
1939-40	0.92	3.13	4.05	8.60	0.26	8.86
1940-41	6.98	21.52	28.50	5.49	0.82	6.31
1941-42	-	2.40	2.40	-	-	-
1942-43	2.98	4.93	7.91	0.82	6.76	7.58
1943-44	0.92	38.16	39.08	-	-	-
1944-45	1.78	0.59	2.37	-	-	-
1945-46	0.18	0.61	0.79	-	-	-
1946-47	0.71	-	0.71	-	-	-
1947-48	1.80	0.26	2.06	-	-	-
1948-49	6.12	0.54	6.66	-	-	-

Source : Annual Reports of the Cochin Chamber of Commerce.

2.3.3 Locational Justification for the Distribution of Markets between Centres (1914-48)

There was a compartmentalization of markets between the centres. The manufacturers in Mangalore mainly depended on the coastal markets north of the centre. These markets with the exception of those catered through the Kathiawar ports were not exploited by the other three centres viz., Calicut, Quilon and Trichur. Calicut, located on the coast, immediate south of Mangalore and to the north of both Trichur and Quilon, sold its produce in the local markets, the rail-head markets on the broad-gauge line in Madras State (present) and in the foreign markets. The industry in Quilon mostly confined to those markets in Madras State (present) which could be catered by the metre-gauge railway. (The centre had only the metre-gauge line.) The production of tiles in Trichur was small as compared with that of Mangalore and Calicut. This is reflected by the employment in the industry in the three centres as given earlier in Table 2.3.2. By the end of 1940's the industry in Trichur accounted for an employment greater than the employment in the industry in Quilon. The tiles from Trichur had a good local demand. These tiles also competed with those from Calicut and Quilon in some markets.

The distribution of markets between the centres as existed at the time of the survey, it was found, did not have a rational cost basis in all the cases. There is, therefore,

room to speculate that in the past too, mere cost may not explain the attachment of markets to individual centres, in every such case. However, as the data regarding costs, both manufacturing and transport, are absent, it is not possible to establish the contention. Nevertheless, a few observations that can be safely made regarding some of the markets support the viewpoint.

The coastal markets north of Mangalore, with the exception of Kathiawar ports, were almost a monopoly of the centre. In the Kathiawar ports the tiles from Calicut were also sold. It is rather difficult to explain both the facts at the same time. For, if the Calicut tiles could compete with those from Mangalore in the Kathiawar ports, there is no reason why these tiles could not offer a similar competition in the Bombay ports.

Turning to the foreign markets, it will suffice, if the relevant observations are made confining to the two centres Mangalore and Calicut. As compared with Quilon and Trichur, the above mentioned centres had a relatively large production. The foreign markets such as Burma, Malaya, Strait Settlements and East Africa are located at a great distance from both Mangalore and Calicut. Transport rates being generally telescopic, transport costs to these markets could not have differed much between the centres. The attachment of any of these distant foreign markets, thus, should

have its basis on manufacturing cost advantage.

During the reference period the exports to Burma and the Far Eastern countries were mainly from Calicut. The East African countries, on the other hand, were catered to by Mangalore (see Tables 2.3.3 and 2.3.5). If the attachment of Burma and the Far Eastern markets to Calicut was due to the centre's possessing a manufacturing cost advantage, the same raises the question, why there were no exports to East Africa from the centre. In the case of Mangalore, if one were to grant that the manufacturers in the centre had an advantage in the East African markets, it remains to be explained why there were no exports to Burma and the Far Eastern countries from the centre. The distribution of foreign markets between the centres did not seem to have a rational cost basis during the period 1914-48. Of the four centres, only Calicut relied heavily on foreign markets.

2.4 : Growth of the Industry and the Market Pattern for Tiles 1949-59

The preceding section discussed the growth of the industry in its different centres and the market pattern for tiles during the period 1914-48. The present section discusses the period 1949-59. There is no improvement in the availability of statistics in the period 1949-59 as compared with the period 1914-48. In the present section, however, some estimates of production of tiles have been made in respect of different centres for the period 1949-58. With these production estimates it is possible to have a better view of the market pattern for the tiles made in Mangalore and Calicut.

2.4.1 Production Estimates (1949-58)

The production estimates are based on (1) output per worker and (2) total employment in the industry, in different centres. Output per worker in the different centres has been estimated on the basis of information collected during the survey of the industry in 1967. Production estimates were not made for the period 1914-48. Output per worker observed during the survey period could not be used for the period 1914-48, as some changes in the method of production which effected labour productivity occurred in the beginning of the 1950's. However, as no such changes occurred after that and there is the likelihood

that labour productivity did not change drastically during the period 1949-67, crude estimates of production could be made for the period.

The process of manufacturing tiles involves three distinct stages. First, the different types of clays are finely mixed. It is then pressed into tiles. Tiles at this stage are known as 'green' tiles. The 'green' tiles are dried. Once completely dry, they are taken to the kiln for firing. What comes out of the kiln is the final product.

Encyclopaedia Britanica says, "clay roof tiles remain substantially the same form; improvements have been only in method of manufacture and not in design."¹ This observation holds true for the Indian roofing tile industry also.

The chief improvements in the method of production of tiles were necessitated due to the discovery of new fuels and energy sources. The application of these changes have been mostly confined to the clay department where clay is mixed, pugged and kneaded. While in the early stages, manpower was used for processing clay, in 1870 bullocks replaced men. The pug mill which replaced the bullocks and which now does the major part of the work in the clay department was operated by steam power from 1871 until the

1 Encyclopaedia Britanica, Vol. 22, 1964, p. 213.

turn of the century. Around 1900 diesel oil was used. During 1940's electric power was used for the first time for operating the pug mill.

In the kiln initially coal was used. As the availability of this fuel was found stringent, firewood replaced it around the year 1870. However, sometimes, cheaper fuels like coffee husk or cashew shells are used wherever available, as they are found to be economical.

Electricity was used for the first time in the industry in Mangalore during the latter half of 1940's. The introduction of electricity brought in with it some major changes. Now the grinding and mixing of clay was done by a de-airing pugmill. The pressing of tiles which was initially done by potters with the help of wooden moulds, and later when the production was at factory scale by iron moulds pressed over each other by a handwheel, now came to be pressed by a revolver press operated by electric power. Other supplementary application of electric power can be found in the use of conveyor belts and elevators. The use of electric power in the kilns is, however, rare.¹

The other improvements that resulted in the more efficient use of fuel or material is confined to the kiln

¹ An account of technological changes in the tile industry is available in Mrs. B. G. Karat, op. cit.

department. The potter-made tiles were directly burnt over the fire. When the industry raised itself to an organized scale, a crude type of kiln replaced the process. 'Down draught kiln' with high chimneys were a major change in the burning of tiles. An improvement over this is the 'continuous kiln'. While in the former (known as the intermittent kiln), the chambers were separated from each other, in a 'continuous kiln', chambers are interconnected. This enables, in the latter case, utilization of extra heat from the chambers where the tiles are fired, in the other chambers. The improvement in the method of firing the tiles and the consequent saving in the fuel cost is evident from the following fact. In 1919 the tiles made in Quilon required 1 ton of firewood/1000 tiles.¹ As compared with this in 1958, while the less efficient intermittent kiln still required 1 ton, the semi-continuous and the continuous kilns required only 0.5 to 0.75 ton/1000 tiles.²

The savings in the raw material used due to change in the method of production is conspicuous by its absence. This is mainly due to the absence of any change in the product design. The physical specification for the chief

1 S. G. Barker, Report of the Industrial Survey of Travancore, Travancore Government Press, Trivandrum, 1919, p. 395.

2 Report of the Minimum Wages Committee for Employment in Tile Industry, Kerala, 1958, p. 16.

raw material, clay, remained the same. According to the Report of the Industrial Survey of Travancore State (p.395), it needed 3 cubic yards to make 1000 tiles. The tile manufacturing units reported almost a similar requirement when surveyed in 1967.

The changes in the kiln structure and use of alternative fuel does reduce fuel cost but does not effect any substantial savings in the labour required. Labour productivity for the entire manufacturing process as a whole hardly gets influenced. Changes in the labour productivity and labour costs savings have to be found in the clay department, and the press department, so also in the mechanization of the job of shifting materials. Among these, labour cost savings will be less in the clay and press departments. With the employment of machines for mixing the clay and the hand driven presses for pressing the tiles, the labour savings were evident. Whereas the approximate labour productivity can be put around 27 tiles/day/worker in 1919,¹ in 1967 the small units in Trichur employing 75 to 100 labourers had an average productivity of 60 tiles/day/worker. This great stride in labour productivity includes the savings due to the introduction of revolver press (in place

¹ Report of the Industrial Survey of Travancore, 1919 (p. 229) says 15 coolies had a monthly production of 10,000 tiles. Assuming a month of 25 days above productivity is calculated.

of hand driven press) in the early 1950's. The substantial labour savings in the tile industry have to be achieved by mechanizing the material shifting job and in intelligent plant lay-out. The former is rarely employed and the latter is given little thought. Next to these, the introduction of the revolver press should be awarded the place of pride in effecting major labour savings. The revolver press, as said earlier, was introduced during the early 1950's. There has been no further changes in the method of production which could effect labour productivity in any significant way since then.

Though the revolver press was introduced by the early 1950's, it is possible that not all the units adopted the new technique immediately. During the survey of the industry in 1967, it was found that the manufacturers in the three centres in Kerala, viz., Calicut, Quilon and Trichur, mostly used the revolver press. It is only in Mangalore that some still stuck to the traditional hand driven press. It is possible that the employment of revolver press in different centres was gradual. To this extent the production estimates presented here are crude.

There were two alternatives open for estimating the production of tiles in different centres. First, to calculate the average output per worker for all the units in all the centres and apply the same to all the centres.

Second, to treat each centre separately. In other words, arrive at an average output per worker for different centres separately and apply these to the respective centres. The second method has been adopted here.

In the tile industry the productivity of labour in different units could differ due to the following factors:

1) Inherent differences in labour productivity.

Such differences in labour efficiency are due to the experience of the labour in the particular skill.

2) Arbitrary fixation of work-loads.

3) Method of production.

4) Differences in the plant lay-out.

The plant lay-out is a random factor. Due to this nothing less than a census should give the correct approximates of production. Except for this, as regards the other three factors the units within a centre were more similar than those belonging to different centres. Hence the basis for treating each centre separately while estimating the production figures.

Weighted average output per worker in each centre has been used for estimating the production in the centre. The weighted average output per worker is arrived at, by dividing the total output among the surveyed units (in the centre) by the employment they accounted for.¹ The average

1 See Appendix Table 1.

productivity of labour in different centres thus arrived at, are given in Table 2.4.1.

Table 2.4.1 : Average Output Per Worker Per Year (in No. of Tiles), 1965-66

Centre	Average output/Worker/Year
Mangalore	23,263
Calicut	20,617
Quilon	19,367
Trichur	18,967

Source : Survey.

With the above average productivity of labour for each centre and the employment in the industry in the centre as given in the 'Large Industrial Establishments in India' the production estimates have been made. Two Tables are presented below (Tables 2.4.2 and 2.4.3). The first gives the employment in the industry; the second gives the estimated production for the four centres, viz., Mangalore, Calicut, Quilon and Trichur.

With the help of the above production estimates, it is possible to have a better view of the market pattern for the tiles manufactured in Mangalore and Calicut. During the period 1949-59 tiles could be transported by road, river, rail or by sea. With the coming up of lorries road transport came to be extensively used for short distances. In some

Table 2.4.2 : Employment in Tile Factories, 1949-58

Year	South Kanara		Malabar			Central Kerala		Southern Kerala		
	Manga- lore	Rest of South Kanara	Canna- nore	Calicut	Palghat	Trichur	Erna- kulam	Kotta- yam	Alleppy	Quilon
1949	4,159	374	471	4,166	935	1,708	863	90	-	1,134
1952	4,394	437	429	5,371	1,074	2,704	745	116	19	1,658
1953	4,268	426	449	4,753	1,020	N.A.	1,270	220	20	N.A.
1954	3,794	448	380	3,872	786	2,393	512	81	30	1,634
1955	3,803	464	374	4,032	800	2,433	712	101	30	1,636
1956	N.A.	N.A.	311	5,977	1,031	2,511	786	100	31	1,971
1957	3,945	540	572	4,789	798	3,151	787	61	25	1,815
1958	5,397	890	528	4,804	834	3,566	839	59	11	1,880

N. A. = Not Available.

Source : Large Industrial Establishments in India.

Table 2.4.3 : Estimated Production of Tiles, 1949-58
(Number in Lakhs)

Year	Mangalore	Calicut	Quilon	Trichur
1949	967.51	858.90	219.62	323.96
1952	1022.18	1107.34	321.10	512.87
1953	992.86	979.93	N.E.	N.E.
1954	882.60	798.29	316.46	453.88
1955	884.69	831.28	316.84	461.47
1956	N.E.	1232.28	381.72	476.26
1957	917.73	987.35	351.51	597.65
1958	1255.50	990.44	364.10	676.36

N.E. = Not Estimated.

cases it replaced water transport and in some others it replaced bullock-carts. One other consequence of the introduction of lorries was that the markets catered to by road spanned slightly wider areas.

Roads were still being improved, though a fast moving conveyance was available. As tiles are easily susceptible to breakage in transit, unless roads were in good condition transportation over long distances was not possible. It can be broadly said that only the markets within a radius of approximately 50 miles from the centre were supplied by road even during the late 1950's. There could, however, be some exceptions where availability of good roads facilitated distant transportation of tiles by ~~the~~ roads.

In the case of Mangalore sea-borne exports from the centre are known. It could be shown that railborne exports from the centre could be of a small magnitude. With the help of production estimates it is possible to infer the relative importance of markets supplied by sea and those by road.

As regards Calicut the exports from the centre could be mainly by rail or by sea. With the help of production estimates and the knowledge about exports from the port to foreign and coastal markets by sea, it is possible to indicate the centre's reliance on the local markets, markets catered to by road and rail-head markets.

In the case of Quilon, though the centre is on the coast, exports by sea have been negligible. There is, however, no information as regards this. Exports from the centre to different markets by rail not being known, the production estimates do not help in understanding the reliance on different markets, local and external, by the centre.

The tile manufacturing centre, Trichur, is located in the interior. The exports from the place are by rail. There is no statistical information as regards this. The production estimates do not in any way help to visualize the market pattern for the tiles made here.

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2.4.2 Market Pattern for Tiles 1949-59

In the following paragraphs the market pattern for the tiles made in the different centres is discussed. To facilitate the discussion the broad distribution of markets between the centres has been presented in Map 3.

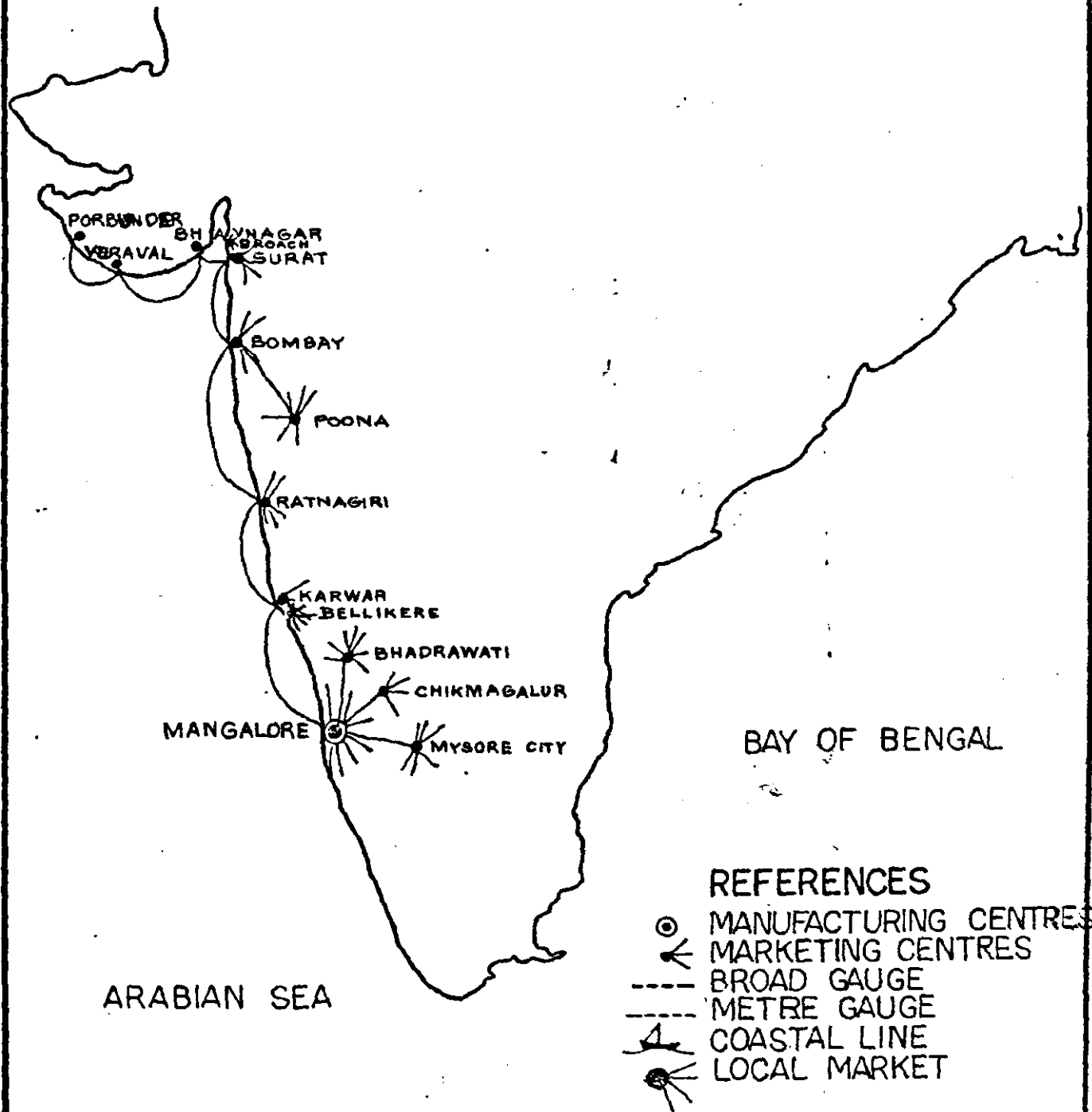
Mangalore :- Referring to the early 1950's B. G. Karat states that seventy-five per cent of the tiles manufactured in Mangalore were sent by steamers to Bombay and the rest twenty-five per cent by rail throughout the length and breadth of Madras Presidency.¹ The statement is not accepted here. Following arguments have been provided for the same.

Firstly, though the ports in Bombay State imported large number of tiles from Mangalore, they did not form 75 per cent of the production at the centre. Exports to erstwhile State of Bombay formed less than 40 per cent of the estimated production during the mid-fifties (see Table 2.4.4).

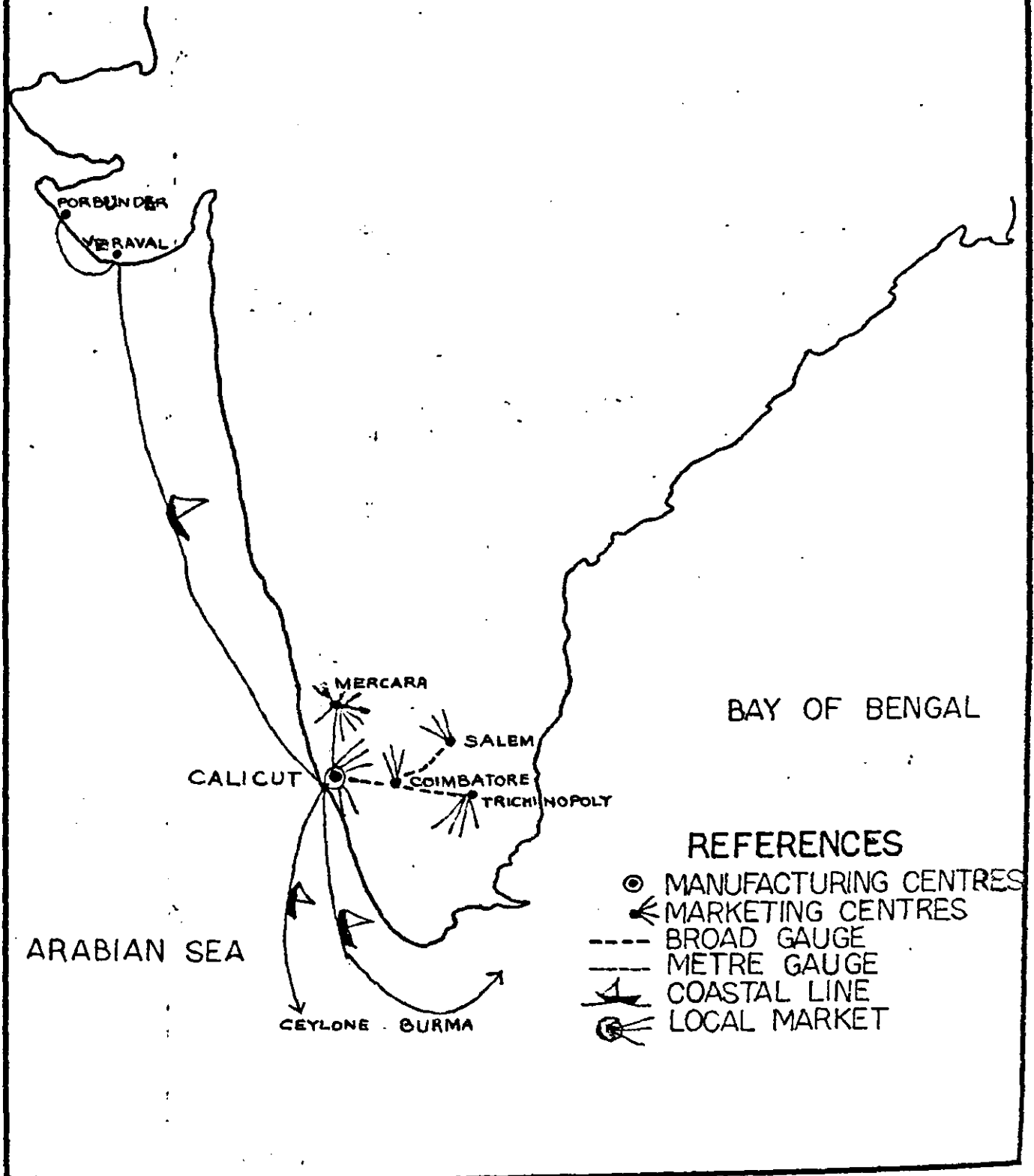
Secondly, the statement that 25 per cent of the production in Mangalore during the 1950's was exported by rail to the markets in Madras Presidency cannot be accepted. The Presidency of Madras included South Kanara district,

¹ Mrs. B. G. Karat, op.cit., p. 13.

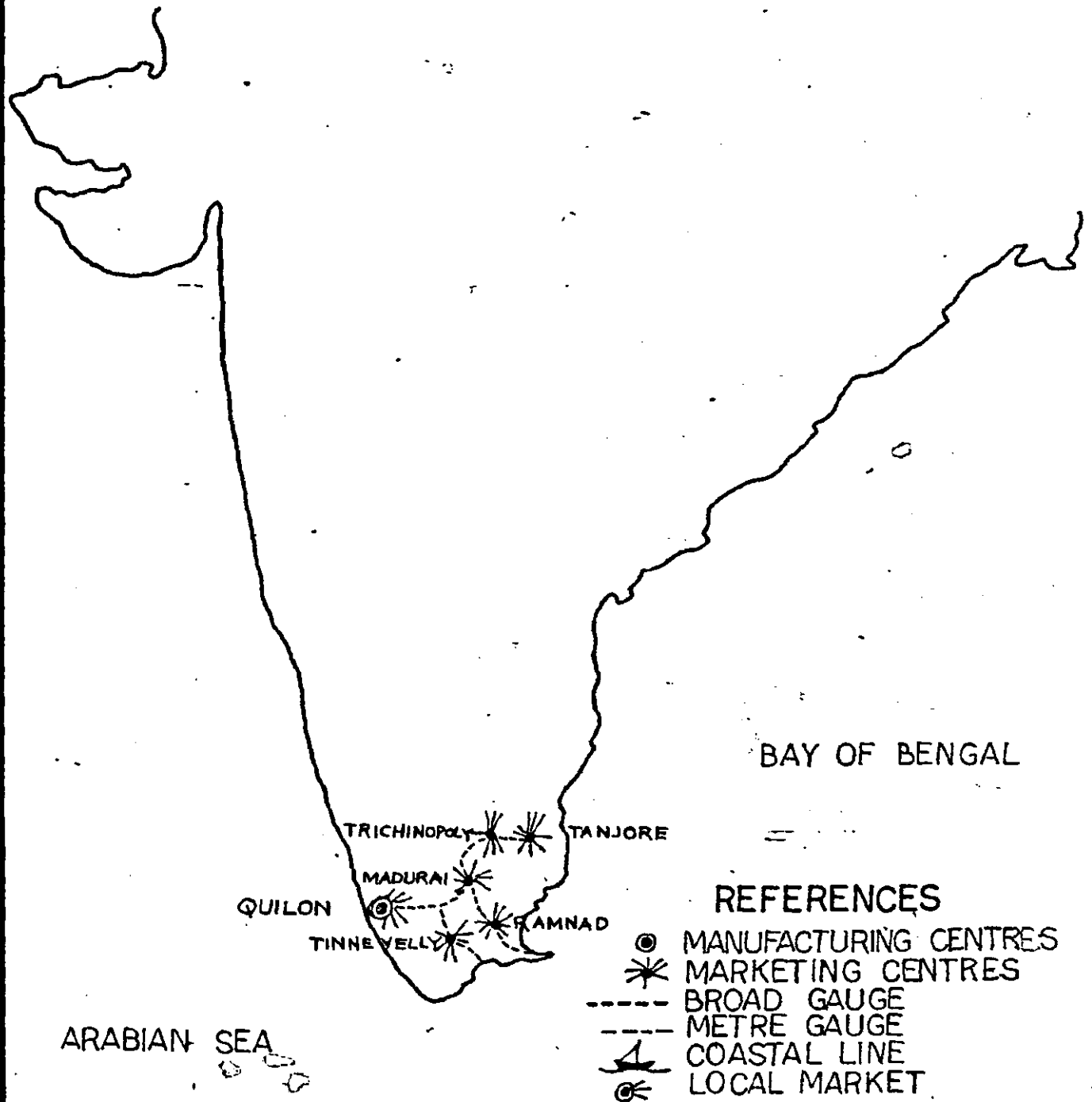
MARKET PATTERN FOR TILES MANUFACTURED IN DIFFERENT CENTRES, 1949-59 MANGALORE



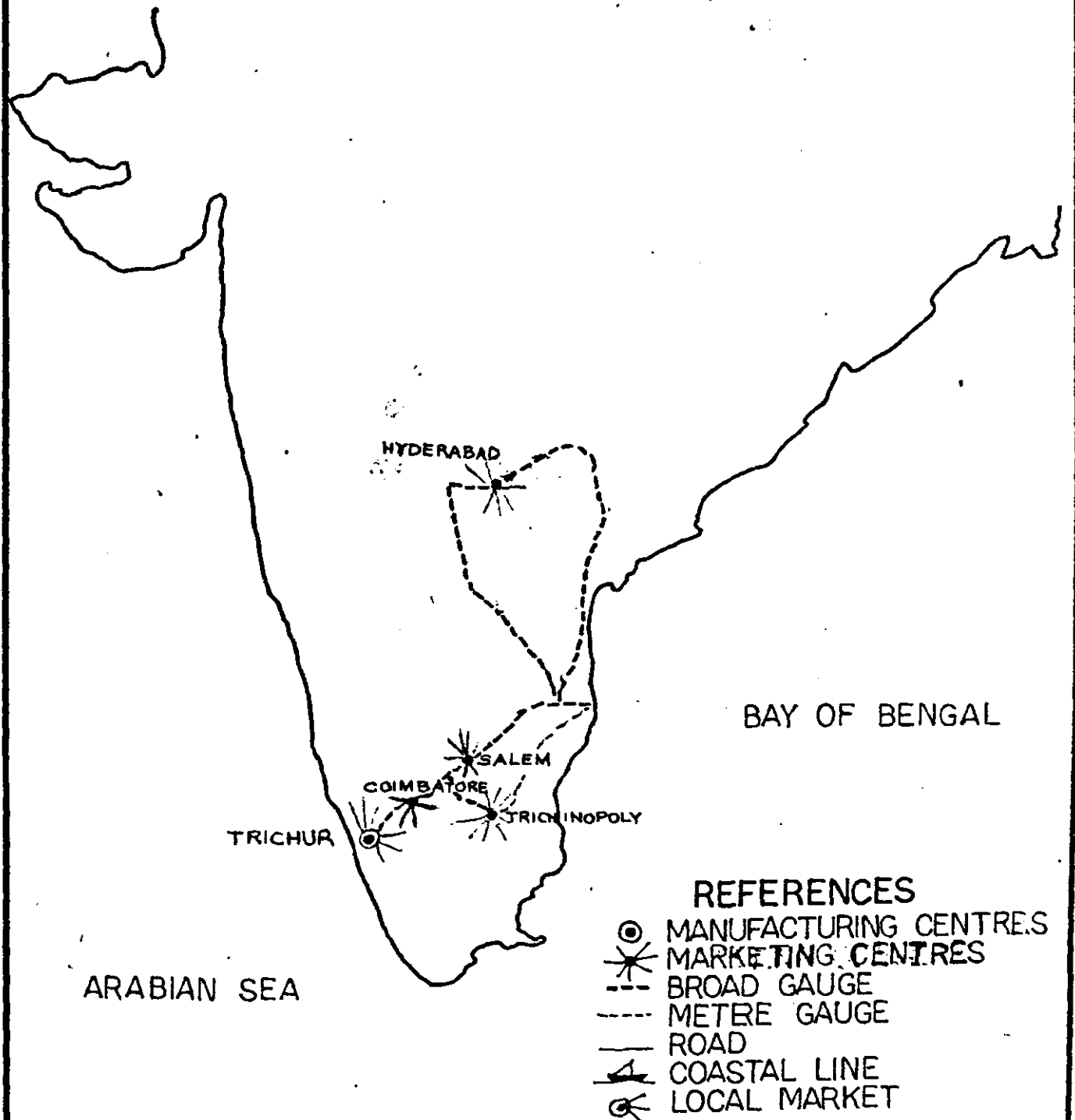
MARKET PATTERN FOR TILES MANUFACTURED IN DIFFERENT CENTRES, 1949-59 CALICUT



MARKET PATTERN FOR TILES MANUFACTURED IN DIFFERENT CENTRES, 1949-59 QUILON



MARKET PATTERN FOR TILES MANUFACTURED IN DIFFERENT CENTRES, 1949-59 TRICHUR



part of Kerala i.e. Malabar, Madras State and part of Andhra Pradesh. There is no railway line linking Mangalore with the rest of South Kanara district as yet. Thus supply from Mangalore to local markets in South Kanara district could not have been included in the above-mentioned railborne exports from the centre. These railborne exports have to be necessarily to the markets in Kerala, Madras and Andhra Pradesh. With an estimated production of around 9 crores (Table 2.4.2) during the early fifties, a 25 per cent railborne exports would be slightly above 2 crores. Total railborne exports from Mangalore to markets in Kerala, Madras and Andhra Pradesh during the years 1960-61 to 1966-67 were 1.25 lakhs, 5.18 lakhs, 5.03 lakhs, 3.28 lakhs, 2.45 lakhs, 2.19 lakhs and 1.80 lakhs respectively (Table 2.5.5).¹ It is possible that one may view that the small volume of railborne trade at present is due to change in the mode of transport. There has been an increasing use of road transport since the late 1950's and hence, large volume of railborne exports of 1950's are now replaced by exports by road. There is, however, little to support the above viewpoint. The markets in Central and Southern Kerala, Madras and Andhra Pradesh are located at long distance from Mangalore. These cannot be economically catered to by road

¹ Accounts Relating to the Inland (Rail and Riverborne) Trade of India, 1961-62 to 1966-67.

from the centre. It is only in the case of Northern Malabar that the markets can be catered to by road. The manufacturers in Mangalore contacted during 1967 reported that exports by road to Malabar though exist are negligibly small. Thus the volume of tile exports from Mangalore to Kerala, Madras and Andhra Pradesh cannot be much higher than what is indicated by railborne exports. A suggested railborne export of over 2 crores of tiles from Mangalore to the markets in Kerala, Madras and Andhra Pradesh during 1950's and an export of less than 6 lakhs during 1960's thus cannot be explained by shift in the mode of transport. To grant that railborne exports from Mangalore during the 1950's were to the tune of 2 crores is to accept a drastic change in the market pattern for the tiles manufactured in the centre within a span of 10 years.

Finally, if 75 per cent of the production were exported by sea and the rest 25 per cent by rail, there would be no supply left for local consumption. Respective local markets have been one of the chief consumers of tiles produced at the individual centres. In the case of Mangalore apart from the coastal markets north of the centre, its local markets have been the main stay all through. To reiterate the contention, the statement that 25 per cent of the tiles manufactured in Mangalore were sent by rail to markets in Madras Presidency during 1950's is not accepted here.

Exports of tiles from Mangalore were mainly by sea. Sea-borne exports from the centre for the period 1949-59 are presented in Table 2.4.4.

Exports from Mangalore to Ceylon in large numbers continued until the early 1950's. There were some bulk exports to Strait Settlements and Malaya during the two years 1951-52 and 1952-53. Exports to East Africa which were substantial during the years 1949-50, 1951-52 and 1952-53 showed a significant decline in the next three years. There were no exports to East Africa or any other foreign market during the year 1959-60. (Foreign markets were lost forever as will be seen.) As in the past, a good portion of the tiles manufactured in Mangalore were consumed in the coastal markets north of the centre, during the period 1949-59.

As per Table 2.4.4, local markets and markets catered to by road accounted for a substantial part of the centre's production. Local markets continued to absorb much of the tiles produced in Mangalore. There were some building construction activities in progress in interior Mysore¹ during the latter half of 1950's. The manufacturers reported that there were exports to interior Mysore by road.

1 In connection with Bharavathi Project.

Table 2.4.4 : Exports of Tiles from Mangalore by Sea and Combined Estimates ^{1/} of 'Local Consumption and Exports by Road', 1949-50 to 1959-60 ^{2/} (July to June) (Number in Lakhs)

	1949-50	1950-51	1951-52	1952-53	1953-54	1954-55	1957-58	1958-59	1959-60
Foreign									
Ceylon	9.89	12.25	31.18	24.87	2.48	2.29	1.39	10.63	-
Burma	-	0.49	4.17	2.63	2.04	-	-	-	-
Strait Settlements and Malaya	-	-	49.56	45.83	13.90	-	-	-	-
East Africa	122.24	30.01	63.74	101.57	33.68	44.29	21.05	-	-
Australia	10.56	1.02	5.25	2.62	5.54	5.28	-	-	-
Other Foreign Countries	-	-	1.37	-	-	-	-	-	-
Total	142.69	43.77	155.27	177.27	57.64	51.86	22.44	10.63	-
Coastal ^{3/}									
North Kanara	-	-	-	-	-	-	42.94	33.41	34.60
Goa	-	-	46.13	42.34	24.93	-	-	-	-
Konkan	-	-	-	-	-	-	152.66	147.08	154.90
Bombay ^{4/}	373.76	395.40	328.09	260.56	329.97	343.17	77.59	108.11	123.16
Gujarat	-	-	-	-	-	-	78.48	52.79	72.49
Saurashtra (Kathiawar)	-	-	-	-	-	-	136.27	164.51	178.14
Madras	-	-	37.61	39.20	18.69	17.74	-	-	-
Other Indian Ports	142.39	170.04	57.07	70.66	100.74	91.80	-	-	-
Total	516.15	565.44	468.90	412.76	474.33	452.71	487.94	505.90	563.29
Local Markets and Exports by Road	N.E.	N.E.	N.E.	487.49	405.76	379.08	576.24	N.E.	N.E.

N.E. = Not estimated as production estimates could not be made due to lack of employment data.

^{1/} Combined estimates of 'Local Consumption and Exports by Road' have been arrived at by deducting sea-borne exports from the production estimates. For example, for the year 1952-53, it equals average of the production estimates for the years 1952 and 1953 minus sea-borne exports during 1952-53.

^{2/} Trade data relating to the years 1955-56 and 1956-57 could not be obtained.

^{3/} Trade blocks for the years 1949-50 to 1954-55 are the erstwhile States of Bombay, Madras and West Bengal and 'Other Indian States'. There were no exports to West Bengal during the period. Exports to 'Other Indian States' appear as exports to 'Other Indian Ports' in the Table. Until 1954-55 exports to Kathiawar ports are included in exports to 'Other Indian Ports'. Of the trade blocks of 1957-58 to 1959-60, North Kanara, Konkan, Bombay and Gujarat are included under Bombay until 1954-55.

^{4/} For the years 1957-58 to 1959-60 exports to Bombay refer to exports to port of Bombay.

Source : Annual Reports of the Cochin Chamber of Commerce 1949-50 to 1954-55. The Western India Tile Manufacturers Association, Mangalore, provided the data for the years 1957-58 to 1959-60.

Calicut :- Table 2.4.5 presents the exports of tiles to foreign countries and to coastal markets from the port of Calicut.

As was the case prior to 1949, the Bombay ports did not feature as important markets in the case of Calicut during the period 1949-59, whereas these remained the main external markets for the tiles manufactured in Mangalore. The coastal exports from Calicut as in the past were to Kathiawar ports (included in 'Other Indian Ports'). It can be noticed by comparing Tables 2.4.4 and 2.4.5 that exports to foreign countries from Calicut were greater than such exports from Mangalore.

The Report of the Minimum Wages Committee for Employment in Tile Industry, Kerala, observed that the industry in Calicut mainly depended on foreign markets.¹ The source further states that apart from the foreign markets, the manufacturers in Calicut used to sell their tiles "locally, in Mysore State and in North Madras."² Exports to Mysore refer to exports to regions in Mysore adjacent to Malabar. Such exports were only by road. As compared with this, exports to North Madras were by rail.

¹ Report of the Minimum Wages Committee for Employment in Tile Industry, Kerala, 1958, p. 10.

² Ibid, p. 52.

Table 2.4.5 : Exports of Tiles from Calicut by Sea and Combined Estimates 1/ of 'Local Consumption and Exports by Road and Rail', 1949-50 to 1959-60 2/ (July to June) (Number in Lakhs)

	1949-50	1951-52	1952-53	1953-54	1954-55	1955-56	1956-57	1957-58	1958-59	1959-60
Foreign										
Ceylon	108.30	170.13	161.90	142.71	145.48	133.44	47.59	171.17	119.55	166.55
Burma	-	14.86	10.82	13.66	23.02	4.08	-	-	-	-
Strait Settlements and Malaya	42.59	74.17	53.68	99.13	144.47	106.55	-	41.93	46.60	39.84
East Africa	0.85	-	-	-	0.97	0.30	-	0.57	-	-
Australia	6.98	24.30	-	-	-	-	-	-	-	-
Other Foreign Countries	0.52	-	-	-	0.22	-	-	0.01	1.36	-
Total	159.24	283.46	226.40	255.50	314.16	244.37	47.59	213.68	167.51	206.39
Coastal^{3/4/}										
Bombay	10.21	5.08	1.23	4.17	5.97	6.27	6.53	11.05	4.30	21.49
Other Indian Ports	70.74	53.91	37.52	69.17	60.74	70.70 ^{5/}	48.34	1.15	0.55	91.25 ^{6/}
Total	80.95	58.99	38.75	73.34	66.71	76.97	54.87	12.20	4.85	112.74
Local Markets and Markets Catered by Road and Rail										
	N.E.	N.E.	778.49	560.27	433.92	710.44	1007.36	763.02	N.E.	N.E.

N.E. = Not estimated as production estimates could not be made due to lack of employment data.

- 1/ Combined estimates of 'Local Consumption and Exports by Road and Rail' have been arrived at by deducting sea-borne exports from the production estimates. For example for the year 1952-53, it equals average of the production estimates for the year 1952 and 1953 minus sea-borne exports during 1952-53.
- 2/ Trade data for the year 1950-51 could not be obtained.
- 3/ Trade blocks for the years 1949-50 to 1954-55 are the erstwhile States of Bombay, Madras and West Bengal and 'Other Indian States'. Exports to 'Other Indian States' appear as exports to 'Other Indian Ports' in the Table. There were no exports to West Bengal during the period. An export of 4.25 lakhs to Madras during the year 1954-55 is included in exports to 'Other Indian Ports'. Kathiawar ports are included in 'Other Indian Ports'.
- 4/ For the years 1955-56 to 1958-59 Bombay refers to Bombay State of November 1956 to April 1960, excluding the Kathiawar ports. Kathiawar ports are included in 'Other Indian Ports'. For 1959-60 exports to Bombay refer to exports to the ports in present Maharashtra State, i.e., Konkan coast inclusive of port of Bombay. Kathiawar ports are included in 'Other Indian Ports' for the year 1959-60.
- 5/ Includes 0.90 lakhs to West Bengal.
- 6/ Of the 91.25 lakhs exports to 'Other Indian Ports', 90.87 lakhs were to Kathiawar ports.

Sources : 1) Annual Reports of the Cochin Chamber of Commerce, 1949-50 to 1954-55.

2) Annual Reports of the Calicut Chamber of Commerce and Industry, 1955-56 to 1959-60.

In Table 2.4.5 though the foreign markets appear as important buyers of tiles manufactured in Calicut, their relative importance is not clearly reflected. A good part of the tiles produced at the centre seem to have been consumed locally, in the markets catered to by road, and in the rail-head markets. Road transport could not have been used extensively beyond the local markets in Malabar. There were small exports by road to Mysore State. Thus much of the residual production after deducting the sea-borne exports could have been consumed locally and in the rail-head markets. Railborne exports from Calicut were mainly to markets on the broad gauge railway line in North Madras. The broad gauge railway line extends to Andhra Pradesh, Maharashtra and Central India. The tiles manufactured in Calicut perhaps did not reach these far off markets. As will be seen, Trichur tiles have ventured into these wider markets by 1958.

Quilon and Trichur :- There is no statistical account of the market pattern for the tiles manufactured in Quilon and Trichur. The Report of the Minimum Wages Committee says: "A large proportion of the tiles made in the Quilon area is sold in the neighbouring districts of the Madras Presidency in centres fed by the meter gauge railway system. Tinnevely, Madura, Ramnad, Tanjore, Trichinopoly, Madras etc. are the main markets for these tiles. ... The Ollur-Pudukkad area (suburbs of Trichur)

which produces about 700 lakhs of tiles a year sell nearly 70% of the production in the Indian markets, outside the Kerala State in Madras, Andhra, Mysore, Hyderabad and even farther North in Indore, Bhopal etc. These areas are connected by a network of broad gauge railway lines. Ollur-Pudukkad tiles have also penetrated into the meter gauge area of South India. Though transport of tiles to this area involves the additional cost of transshipment from the broad gauge waggons, to the meter gauge waggons, these tiles have in recent years been able to capture some of these markets."¹ There were no sea-borne exports for the tiles manufactured in Quilon and Trichur. Exports from the port of Cochin which could contain tiles from Trichur averaged 6.58 lakhs for the years 1949-50 to 1959-60.²

For the tiles manufactured in Quilon, the local markets and those on the meter gauge railway line in Madras State were the important markets during the period 1914-49. There has been no change in the market pattern from this period to the ten years 1949-59.

The tile industry in Trichur grew rapidly during the period 1949-59. Prior to 1949, the tiles made in the place were sold in the local markets. During the ten years from

1 Ibid, p. 10.

2 Annual Reports of the Cochin Chamber of Commerce, 1949-50 to 1959-60.

1949 to 1959 they have spanned wider markets as far as Central India.

The exports of tiles from Trichur to markets in Andhra Pradesh, Maharashtra, Hyderabad and Central India are by rail. These markets are accessible to the manufacturers in Calicut by the same broad gauge line. It is said that Calicut tiles are of a better quality than those manufactured in Trichur, and hence can stand longer transit. However, they have a higher price at the factory door and hence delivered at a higher price to the distant consumer than the Trichur tiles. The latter are priced low and are able to bear cost of transportation over long distances.

2.4.3 Faster Growth of the Industry in Trichur 1949-59

The tile industry in Mangalore was stagnant during the period 1949-57. There was a substantial increase in the production in 1958. In the case of Calicut there has not been any significant change in the production of tiles though there has been some variation. There was an increase in the employment and production in Quilon, the spurt being in 1952. The tile industry in Trichur, however, showed a rapid growth during the period 1949-58.¹

¹ There was a sudden increase in the employment in the industry in Mangalore in 1958. As compared to this, the employment in the industry in South Kanara District which includes Mangalore during the period 1960-67 was much lower. It is presumed here that the sudden increase in the employment in Mangalore was an abnormal feature due to better trade condition and is particular of the year. Whereas the industry in Trichur showed an increase in the employment even during the period 1960-67. Hence the case of Trichur alone is discussed.

The rapid growth of the industry in Trichur cannot be attributed to the new climate for investment after the attainment of Independence. For, this would have been the same for all the centres. Locational advantage of different centres due to innovations in transport mode and coming up of new lines, did not change from the previous period (1914-49). The major railway lines which connected the tile producing centres with the main markets were already built. No new major lines came to alter the situation or open new markets. The coming up of automobile transport enlarged the local markets for all the centres.

The manufacturers in Trichur had a price advantage over others. In 1958 the price of Trichur tiles was between Rs. 110.00 and Rs. 115.00 per 1000 tiles whereas those from Calicut were priced above Rs. 150.00 and those from Quilon above Rs. 140.00.¹ But the price advantage cannot lend an explanation, for the simple reason that such an advantage for Trichur must have existed prior to 1949. The industry in Trichur, however, had shown only a tardy growth during its long tenure of fifty years from 1900.

It was found that the manufacturers in Mangalore mainly depended on the coastal markets north of it. The

¹ Report of the Minimum Wages Committee for Employment in Tile Industry, Kerala, 1958, p. 52.

Calicut tiles depended on the foreign markets and those in Northern Tamilnad (Madras). The industry in Quilon confined its supply to the markets on the meter gauge railway line in Southern Tamilnad. The manufacturers in Trichur were the first to venture into the distant markets in Andhra Pradesh and Central India which could be reached by the broad gauge railway line. This may lead one to hypothesize that the industry's stride in Trichur within a short span of ten years from 1948-58 could be due to the finding up of these new markets. The markets in Andhra Pradesh, Maharashtra and in Central India are supplied by rail. The rail and Riverborne trade statistics provides information regarding exports of tiles from Kerala to different States in India from 1960-61 onwards. According to the above source exports of tiles from Trichur and Calicut to Andhra Pradesh in any significant way commenced from the year 1961-62. Substantial exports to Maharashtra featured during the year 1963-64. Madhya Pradesh imported large quantities of tiles from Trichur and Calicut area from 1964-65. In 1960-61 Madras State was the chief importer of tiles manufactured in these two centres. It is possible that the markets in Madras State were the main markets for the tiles manufactured in Trichur and Calicut during the period 1949-58. Hence the argument that the finding of new markets in Andhra Pradesh, Maharashtra and Central India should explain the faster rate of growth of the industry in Trichur cannot be accepted

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without reservations.

The manufacturing centre in Trichur had a price advantage over other centres. This, perhaps, was not of much avail prior to 1949 due to lack of sufficient demand. There could have been an increase in the demand for tiles in Madras since 1949. The Trichur tiles being lower priced than the tiles from other centres possibly stood to gain by the change.

The growth of the tile industry in Trichur during 1949-59 can also be partly due to the lack of other investment opportunities in the place. Possibly the existence of better outlets for investments should explain the slower growth of the industry in other centres.

2.5 : Growth of the Industry and the Market Pattern for Tiles 1960-67

2.5.1 Production Estimates (1962-67)

'Large Industrial Establishments in India' which provided the employment data for the years 1917-58 is not available for the period 1960-67. As regards the centres in Kerala 'Economic Review—Kerala', a Kerala Government publication gives the necessary information from 1962 onwards. Similar information is not available in respect of Mangalore. From the District Census Handbook for South Kanara (the district where Mangalore is located) could be learnt the employment accounted for by the industry in the district, in the year 1961. A reference to the employment in the industry in South Kanara could be obtained from Economic Times, June 16, 1969. Table 2.5.1 presents the employment in the industry in the districts of Kerala and in South Kanara in Mysore State.

Production estimates for the period 1962-67 have been made on the basis of Table 2.5.1 and output per worker in different centres during 1966-67, as given in Table 2.4.1. The estimates of production are presented in Table 2.5.2.

The production estimates for the two periods 1949-58 and 1962-67 are based on employment figures provided by different sources. Further, for the period 1962-67, the source of employment data for Mangalore differs from that

Table 2.5.1 : Employment in Tile Factories, 1962-67

Year	South Kanara	Malabar			Central Kerala		Southern Kerala			
		Canna- nore	Calicut	Palghat	Trichur	Erna- kulam	Kotta- yam	Alleppy	Quilon	Trivan- drum
1962	4,892 (refers to 1961)	525	4,700	800	4,406	930	76	33	2,051	-
1963	N.A.	624	4,357	749	5,054	977	77	61	2,070	-
1964	N.A.	566	4,142	681	5,182	921	69	88	2,102	-
1965	N.A.	582	4,134	661	5,223	951	62	67	2,121	-
1966	N.A.	496	4,144	624	5,092	928	68	64	2,216	20
1967	5,300 (refers to 1969)	558	4,197	602	4,892	943	75	87	2,203	20

N.A. = Not available.

- Source :** South Kanara : a) District Census Handbook, South Kanara, 1961, p. xxxiii.
b) M. Rajashekara Murthy, "Progress of Industries in Canara Region", Economic Times, June 16, 1969.
- Kerala :** a) An Economic Review, Kerala, 1963 to 1966, Bureau of Economics and Statistics, Government of Kerala, Trivandrum.
b) An Economic Review, Kerala, 1967, State Planning Board, Government of Kerala, Trivandrum.
c) Economic Review, Kerala, 1968, State Planning Board, Government of Kerala, Trivandrum.

Table 2.5.2 : Estimated Production of Tiles, 1962-67

Year	(Number in Lakhs)			
	Mangalore	Calicut	Quilon	Trichur
1962	1138.03	769.00	397.22	835.69
1963	N.E.	898.28	400.90	958.59
1964	N.E.	853.96	407.09	982.87
1965	N.E.	852.31	410.77	990.65
1966	N.E.	854.37	429.17	965.80
1967	1232.94	865.30	426.66	927.87

N. E. = Not Estimated

for the centres in Kerala. With the available data, it is possible to compare the growth of the industry in the three centres in Kerala during the period 1962-67. For the same period, no such comparison is possible between Mangalore and the centres in Kerala. A broad comparison of their relative positions during the two periods, 1949-58 and 1962-67, is possible in respect of the centres in Kerala. Again, Mangalore gets excluded from such a comparison.

During the period 1962-67, the industry in Trichur fared better as compared with the other centres in Kerala. Over the production in 1962, the production in the later years, except for the year 1967, was higher by more than a crore, in Trichur. In Calicut, on the other hand, except for the year 1963, the increase in production over that of

1962 was less than a crore. There was a marginal increase in the production in Quilon throughout the years 1962 to 1966; the centre experienced a slight decline in the production in 1967.

A broad comparison of their relative positions during the periods 1949-58 and 1962-67 is possible in respect of the centres in Kerala. Average production during each period has been given in Table 2.5.3 in respect of these centres.

Table 2.5.3 : Estimated Average Production of Tiles for the Periods 1949-58 and 1962-67 : Calicut, Quilon and Trichur

	(Number in Lakhs)		
	Calicut	Quilon	Trichur
1949-58	973.23	324.48	500.35
1962-67	848.87	411.97	943.58

Quilon did not compare favourably with the other two centres in either of the periods. Confining to the two centres, Calicut and Trichur, the average production in the latter was 51.41 per cent of that of the former for the period 1949-58. During the period 1962-67, the relative positions changed. All throughout the period, the production in Trichur was higher than that in Calicut. In spite of the fact that data relating to the two periods are not

accurately comparable it can be said that of the three centres in Kerala, Trichur performed better during the years 1949-67.

According to Table 2.5.2, during 1960's, there was an increase in the production in South Kanara district, where Mangalore is located. This may be partly due to the development of a new centre, i.e. Coondapur, in the northern periphery of the district.

2.5.2 Market Pattern for Tiles 1960-67

Statistical information regarding trade in tiles is more comprehensive for the period 1960-67. Sea-borne trade data are continuous from the previous period. Railborne trade data for tiles are available from the year 1960-61.¹ Information relating to trade by road is not available even for the period 1960-67.

Data regarding sea-borne exports of tiles from Mangalore could be obtained from the Western India Tile Manufacturers Association, Mangalore. From Rail and Riverborne Trade Data could be learnt the exports of tiles by rail from the centre. The above statistical source divides

¹ Accounts Relating to the Inland (Rail and Riverborne) Trade of India. Riverborne Trade accounted for by the publication confines to such trade between the trade blocks Calcutta, West Bengal (excluding Calcutta) and Assam. Data relating to trade in tiles utilized here refers to that carried by rail.

the State of Mysore into two trade blocks viz., (i) 'Mysore excluding Ports' and (ii) 'Mysore Ports'. Mangalore is the only port in the State which has a railway line. Exports from the trade block 'Mysore Ports' refer to those originating from Mangalore.

In Kerala, stray units manufacturing tiles can be found almost throughout the State. However, in most places they thrive to supply the local demand. "The small isolated factories in the Alleppy and Kottayam districts mostly sell their tiles for local consumption only. The medium sized factories in Alwaye [Ernakulam District] also sell their tiles in the neighbouring taluks."¹ It is only in the case of the three centres studied here, namely, Calicut, Quilon and Trichur that the tiles manufactured are demanded beyond their local markets and in the markets in other States. Hence, it can be realistically assumed that published statistics relating to exports of tiles from Kerala refer to the three centres only. As said earlier, there are no statistics relating to trade by road. Sea-borne exports appear only in the case of Calicut. The above assumption need be made only in respect of railborne trade data.

1 (a) Report of the Minimum Wages Committee for Employment in Tile Industry, Kerala, 1958, p. 10.

(b) Report of the Minimum Wages Committee for Revision of Minimum Rates of Wages Fixed for Employment in Tile Industry, Kerala, Government of Kerala, Trivandrum, 1964, p. 6.

Exports of tiles from Calicut are by sea, rail and road. Road transport is used for catering (apart from the local markets) the nearby markets in Madras State, mostly within a distance of 200 miles.

There are no sea-borne exports of tiles from Quilon. The markets in Madras State are catered to both by rail and by road.

Tiles from Trichur do not move to the coast. The markets in Madras State that are conveniently located from the centre are supplied either by road or by rail. To other States, where these tiles are demanded, they are transported by rail.

Exports of tiles by sea feature only in respect of Calicut among the three centres in Kerala. The Calicut Chamber of Commerce and Industry, Calicut, provided the necessary data. There are railborne exports from all the three centres. Rail and Riverborne Trade Data does not provide the necessary breakdown as are suitable. The statistical source divides the State of Kerala into three trade blocks viz., (i) 'Kerala excluding Ports', (ii) 'Cochin Port' and (iii) 'Other Kerala Ports'. Railborne exports of tiles from 'Cochin Port' are negligible, and can be ignored.¹ As regards the other two trade blocks,

¹ Average exports per year from 'Cochin Port' during the years 1960-61 to 1966-67 were 0.10 lakhs.

their constitution, as far as tile exports are concerned, is given in Table 2.5.4.

Table 2.5.4 : Trade Blocks Where Exports from Calicut, Quilon and Trichur Appear in the Accounts Relating to the Inland (Rail and Riverborne) Trade of India

	Kerala excluding Ports	Other Kerala Ports
Tile Manufacturing Centres included in the Trade Block	Calicut Quilon Trichur	Calicut

Trichur is located in the interior. The industry in Calicut is concentrated in Feroke, 10 miles from the port. The exports of tiles are generally from Feroke railway station, which comes under the trade block 'Kerala excluding Ports'. Though Quilon is a port, the centre is not included in the trade block 'Other Kerala Ports'.¹ Almost the entire exports from Quilon and Trichur and a major portion of the exports from Calicut appear under the trade block 'Kerala excluding Ports'. 'Other Kerala Ports' includes only the ports in Malabar. Exports of tiles from other ports being

¹ In the Accounts Relating to Inland (Rail and Riverborne) Trade of India, 'Other Kerala Ports' were included in 'Other Madras Ports' prior to October 1960. The latter did not include Quilon port. Further, prior to October 1960, Travancore Cochin was divided into two trade blocks viz., Cochin Port and Travancore Cochin excluding Cochin Port. Quilon was thus not treated as a port prior to October 1960.

negligible or non-existent, exports appearing under 'Other Kerala Ports' refer to those from Calicut.

Centrewise exports under 'Kerala excluding Ports' are not available. The published statistics of railborne trade thus are not directly useful. During the field survey, data relating to exports of tiles from Quilon railway station, and from Oliur, Pudukkad and Trichur railway stations, which account for the railborne tile exports from Trichur area, were obtained for the year 1966-67. By deducting the exports of Quilon and Trichur areas from the total exports under 'Kerala excluding Ports', exports of tiles from Feroke (representing Calicut) could be arrived at for the year 1966-67.

The centrewise composition of railborne exports from the trade block 'Kerala excluding Ports', could thus be known only for the year 1966-67. The same, however, could not be used for apportioning the trade under the head for the years 1960-61 to 1965-66. There has been a change in the market pattern for the tiles made in Calicut during the period 1960-67. There was also a change in the mode of transport used for supplying the markets in the adjacent State of Madras, in the case of all the three centres in Kerala.

The preceding paragraphs described the nature and form of the trade data. Below, the market pattern for the

tiles manufactured in different centres is discussed. As Rail and Riverborne Trade Data does not provide the necessary breakdown in respect of the centres in Kerala, namely, Calicut, Quilon and Trichur, the three centres are discussed together. To facilitate the discussion the broad market pattern for the tiles manufactured in the four centres is shown in Map No. 4.

Mangalore :- Railborne exports of tiles from Mangalore were negligible. Exports by rail from Mangalore during the period 1960-61 to 1966-67 are presented in Table 2.5.5.

Table 2.5.5 : Exports of Tiles by Rail ; Mangalore, 1960-61 to 1966-67 (April to March) (Number in Lakhs)

	1960- 61	1961- 62	1962- 63	1963- 64	1964- 65	1965- 66	1966- 67
Andhra Pradesh	-	0.11	0.44	0.86	0.31	0.22	-
Kerala	1.25	4.95	4.33	1.84	1.21	0.77	0.50
Madras	-	0.12	0.26	0.58	0.93	1.20	1.30
Maharashtra	5.31 ¹	10.69 ³	12.95	14.01	13.74	15.59	13.95
Mysore	0.41	2.80	2.67	1.64	0.70	0.11	-
Madhya Pradesh	0.51 ²	0.75	0.90	-	1.11	0.55	-
Other	-	-	-	-	0.08	0.22	-
Total	7.48	19.42	21.55	18.93	18.08	18.66	15.76

1 Refers to exports to erstwhile Bombay State (present Maharashtra and Gujarat States) excluding Vidarbha Region.

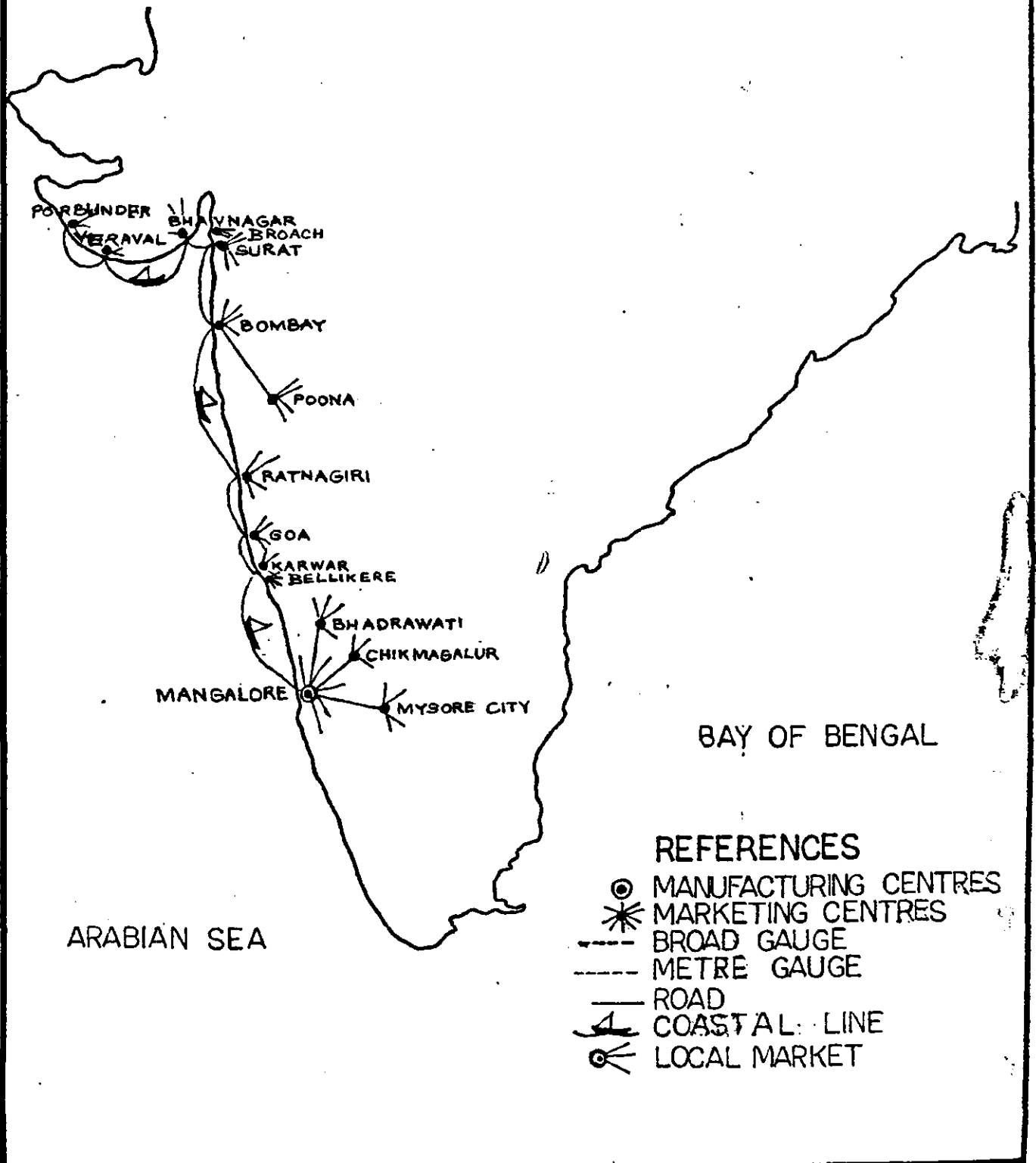
2 Includes exports to Vidarbha Region of Maharashtra.

3 Refers to exports to erstwhile Bombay State.

Basis: Accounts Relating to the Inland (Rail and Riverborne) Trade of India, 1960-61 to 1966-67.

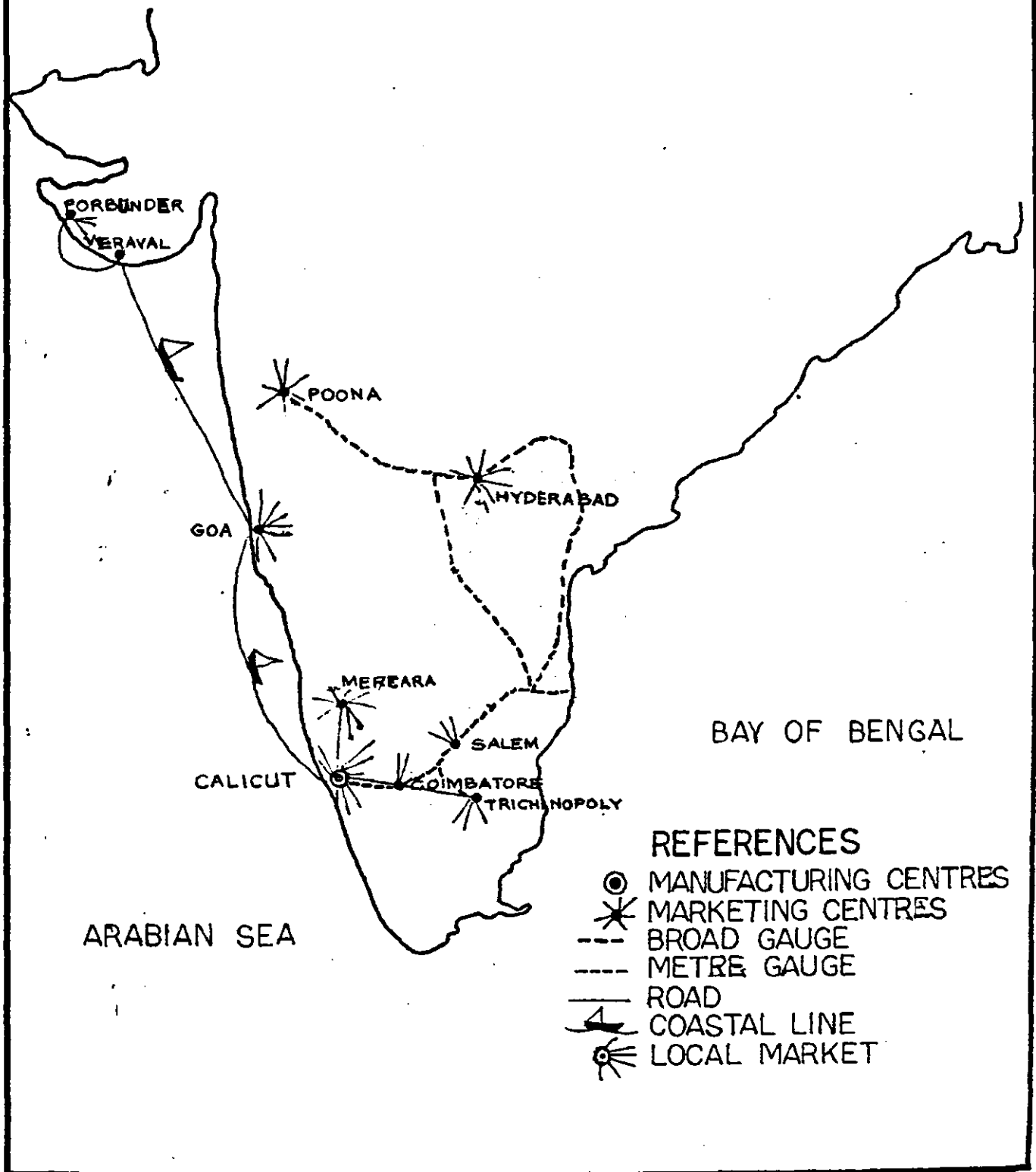
MARKET PATTERN FOR TILES MANUFACTURED IN DIFFERENT CENTRES, 1960-67

MANGALORE



MARKET PATTERN FOR TILES MANUFACTURED IN DIFFERENT CENTRES, 1960-67

CALICUT

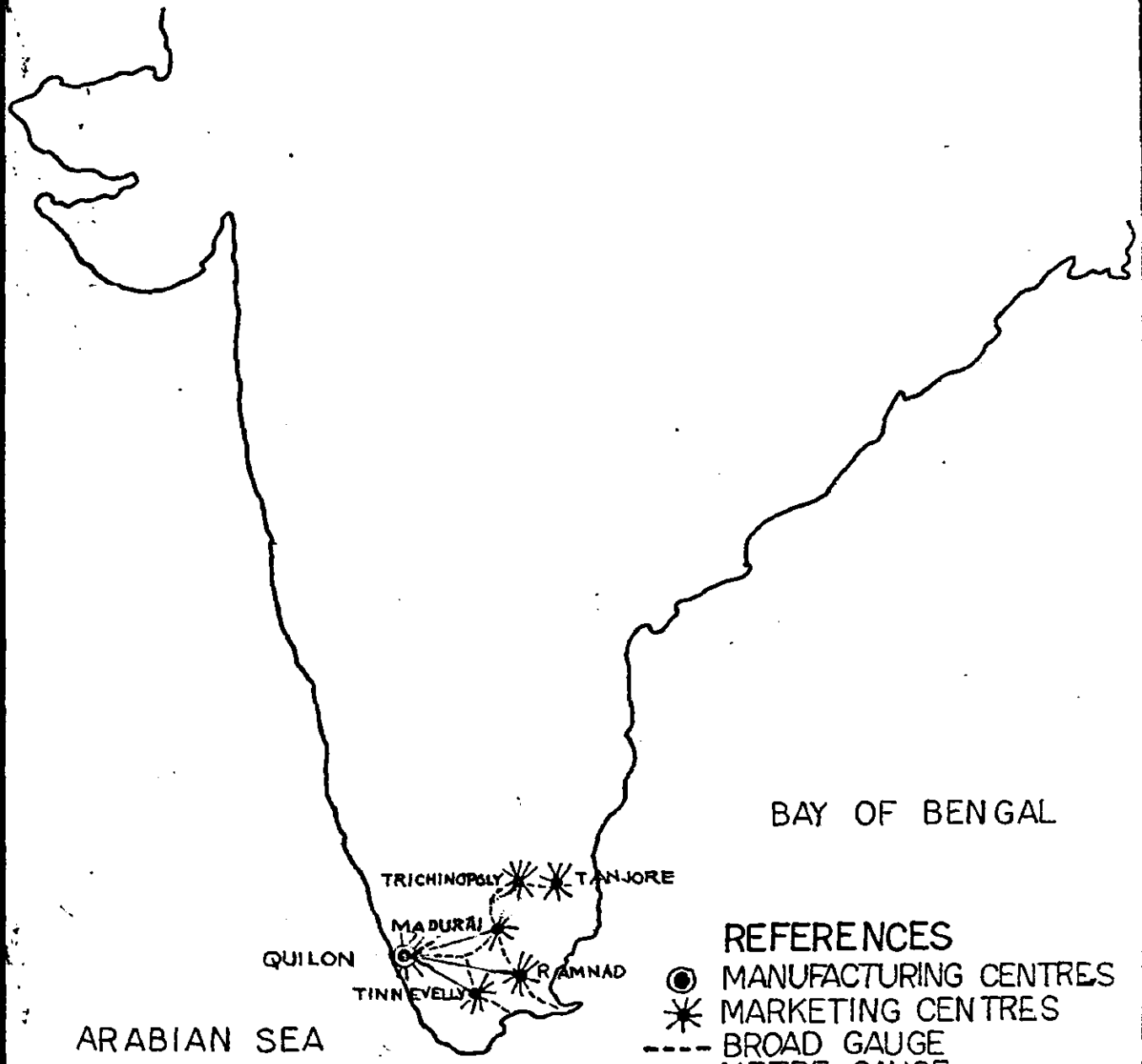


REFERENCES

- ⊙ MANUFACTURING CENTRES
- ★ MARKETING CENTRES
- BROAD GAUGE
- - - METRE GAUGE
- ROAD
- COASTAL LINE
- ★ LOCAL MARKET

MARKET PATTERN FOR TILES MANUFACTURED IN DIFFERENT CENTRES, 1960-67

QUILON



BAY OF BENGAL

ARABIAN SEA

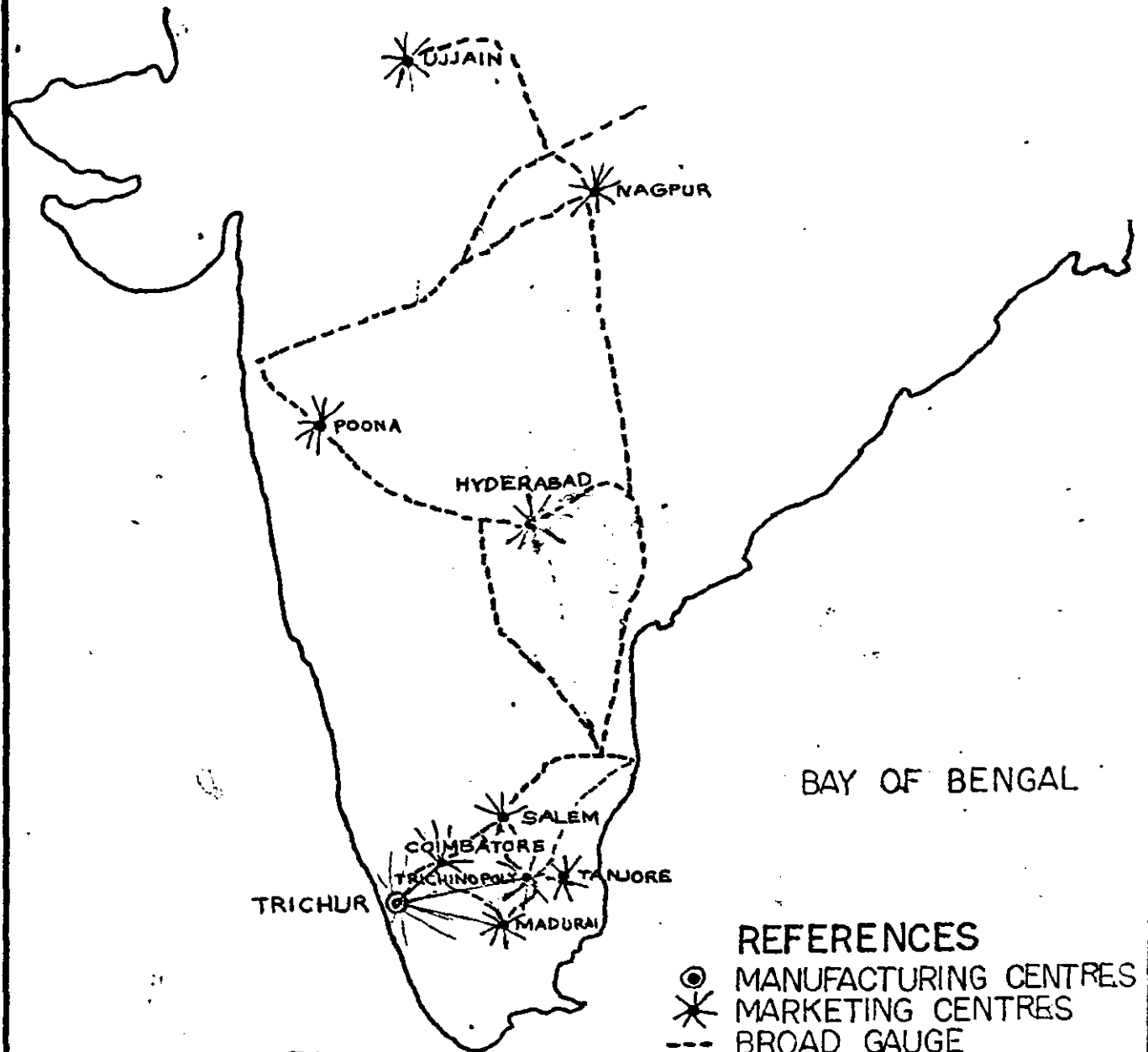
TRICHINOPOLY * TANJORE
MADURAI *
QUILON (O) *
TINNEVELLY * RAMNAD *

REFERENCES

- (O) MANUFACTURING CENTRES
- * MARKETING CENTRES
- BROAD GAUGE
- METRE GAUGE
- ROAD
- COASTAL LINE
- ☼ LOCAL MARKET

MARKET PATTERN FOR TILES MANUFACTURED IN DIFFERENT CENTRES, 1960-67 .

TRICHUR



ARABIAN SEA

BAY OF BENGAL

REFERENCES

- ⊙ MANUFACTURING CENTRES
- ★ MARKETING CENTRES
- - - BROAD GAUGE
- · - · METRE GAUGE
- ROAD
- △ COASTAL LINE
- ⊘ LOCAL MARKET

Exports of tiles by rail from Mangalore averaged less than 20 lakhs per year during the above period. Assuming a production of little over 10 crores a year, these exports formed less than 2 per cent of the production.

Bulk of the exports of tiles from Mangalore are by sea. The quantity of tiles moved from the port of Mangalore is presented in Table 2.5.6.

Table 2.5.6 : Exports of Tiles by Sea : Mangalore, 1960-61 to 1964-65 (July to June) (Number in Lakhs)

	1960-61	1961-62	1962-63	1963-64	1964-65
North Kanara	30.84	N.A.	27.95	19.14	10.95
Goa	-	N.A.	63.10	58.54	66.74
Konkan	157.93	N.A.	177.36	227.85	238.53
Bombay	104.46	N.A.	142.16	156.62	120.23
Gujarat	82.78	N.A.	76.00	99.33	98.46
Saurashtra (Kathiawar)	185.16	N.A.	140.28	126.52	140.10
Divi Isles	-	N.A.	3.38	1.49	1.08
Total	561.17	N.A.	630.23	689.49	676.09

N.A. = Not available.

Note : Trade blocks remain the same as in 1957-58. See Footnote 4 to Table 2.4.4.

Courtesy: The Western India Tile Manufacturers Association, Mangalore.

Exports of tiles to foreign countries from Mangalore had shown signs of decline during the period 1949-58. In

the year 1958-59, 10.63 lakhs to Ceylon were the only foreign exports. There were no foreign exports during 1959-60 to 1964-65.

Coastal exports ranged between 412.76 lakhs and 565.44 lakhs during 1949-50 to 1959-60 (see Table 2.4.4). There was an increase in the exports to these markets during 1960's. The trade data for the period until 1954-55 was provided by the Cochin Chamber of Commerce. For the years 1957-58 and after, the Western India Tile Manufacturers Association, Mangalore, is the source. Due to the differences in the method of presentation of data adopted by the above agencies, it is difficult to point out precisely whether any shifts in the spatial pattern of demand occurred. However, it can be seen that Bombay still remains an important consumer of tiles made in Mangalore. (It can be observed by referring to Table 2.5.5 that exports by rail from Mangalore are mostly destined to Maharashtra.) Possibly, the ports between Mangalore and Bombay emerged as major buyers of Mangalore tiles since the late 1950's. So also, there has been an increase in the exports to Kathiawar (Saurashtra) and Gujarat Ports. A feature of the trade pattern for Mangalore tiles during the period 1960-67 is the re-emergence of Goa as a market since 1962-63. (Earlier to 1962-63, there were exports to Goa during the years 1951-52 to 1953-54. See Table 2.4.4.)

The manufacturers in Mangalore contacted during the survey of the industry in 1967 reported that the inland Mysore State offered good markets for their tiles. To these markets tiles are transported by road.

Calicut, Quilon and Trichur :- As said earlier Rail and Riverborne Trade Data does not provide the necessary breakdown as are suitable. The three centres in Kerala are therefore had to be discussed collectively.

Whereas, exports of tiles by rail appear in the case of all the three centres in Kerala, sea-borne exports appear only in the case of Calicut. The latter is examined first. The discussion on rail-head markets follows.

Table 2.5.7 presents exports of tiles from Calicut by sea during the period 1960-61 to 1966-67. It can be seen from the Table that there has been a sudden fall in the foreign exports in the year 1962-63. From 1964-65 onwards foreign markets have been almost extinct for the tile manufacturers in Calicut. The production in the centre, however, did not show any change as a result (Table 2.5.2). A part of the loss in demand due to the fall in foreign exports was made good by increased exports to coastal markets. A part was absorbed by the local markets and the markets catered to by road and by rail-head markets.

Table 2.5.7 : Exports of Tiles by Sea: Calicut, 1960-61 to 1967-68 (April to March)
(Number in Lakhs)

Year	Foreign				Coastal			Total	
	Ceylon	Strait Settlements and Malaya	Other	Total	Bombay Ports	Kathia-war Ports	Other Indian Ports		
1960-61	229.03	44.76	-	273.79	34.47	126.54	1.12	161.73	435.52
1961-62	118.17	35.41	0.65	154.23	33.98	110.58	3.53	148.09	302.32
1962-63	41.51	18.71	0.43	60.65	24.45	151.92	6.08	182.45	243.10
1963-64	18.27	14.68	0.26	33.21	32.26	138.34	27.76	198.36	231.57
1964-65	7.11	2.65	0.73	10.49	32.80	177.87	43.77	254.44	264.93
1965-66	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
1966-67	-	-	-	-	15.26	150.59	21.86	187.71	187.71
1967-68	-	-	0.62	0.62	40.97	142.56	45.11	228.64	229.26

N.A. - Not Available.

Note : Trade Blocks remain the same as in 1959-60. See Footnote 4 to Table 2.4.5.

Source : Annual Reports of the Calicut Chambers of Commerce and Industry, 1960-61 to 1967-68.

Among the coastal markets Kathiawar Ports remained the most important buyers for Calicut tiles. Increase in the exports to 'Other Indian Ports' since 1962-63 was due to the opening of a new market for tiles in Goa.

Turning to markets served by rail, for reasons given earlier, the three centres are discussed together. Table 2.5.8 presents railborne exports appearing under the trade block 'Kerala excluding Ports'. The Table is useful in making certain qualifications as regards railborne exports from the three centres during 1966-67 presented in Table 2.5.9.

It can be seen from Table 2.5.9 that it is only in the case of markets in Madras State that tiles from all the three centres, Calicut, Quilon and Trichur, compete. Railborne exports to other important buyers of tiles viz. States of Andhra Pradesh, Maharashtra and Madhya Pradesh feature only in the case of Calicut and Trichur. The fact that the tiles from Quilon are not exported to the latter States has the following basis. Firstly, while Quilon is connected with metre gauge railway line the markets in Andhra Pradesh, Maharashtra and Madhya Pradesh are situated on broad gauge line and it entails heavy costs in transshipment. Secondly, unlike the Madras markets, markets in the above-mentioned States are located at long distance from any of the centres in Kerala, hence cannot be catered to by road.

Table 2.5.8 : Exports of Tiles by Rail: 'Kerala Excluding Ports',¹ 1960-61 to 1966-67, (April to March) (Number in Lakhs)

	1960-61	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67
Andhra excluding Ports	54.78	82.53	98.00	138.73	161.76	185.74	152.81
Andhra Ports	4.07	7.95	6.10	4.01	3.83	3.96	136.58
Madras excluding Ports	273.47	187.58	145.64	209.01	153.42	195.35	174.98
Madras Port	5.10	13.20	12.39	20.07	12.99	7.48	5.92
Other Madras Ports	22.70	23.09	13.14	22.30	12.54	10.49	13.28
Pondicherry	0.89	1.16	1.99	2.37	7.62	3.10	2.84
Mysore excluding Ports	8.99	8.15	3.55	11.99	8.20	3.72	1.31
Mysore Ports	0.01	0.14	0.11	-	0.53	0.66	0.74
Cochin	-	0.11	-	1.88	0.32	0.32	-
Other Kerala Ports	4.23	1.32	2.10	1.33	2.29	0.71	0.44
Maharashtra excluding Ports	38.70 ²	58.51 ⁴	45.35	101.95	126.22	209.10	177.72
Bombay Port	-	0.23	0.02	1.39	1.80	1.17	0.74
Other Maharashtra Ports	-	0.20 ⁵	-	0.03	55.51	0.53	-
Gujarat excluding Ports	*	**	0.11	-	4.19	7.58	4.27
Gujarat Ports	-	*	-	-	0.11	2.22	1.31
Madhya Pradesh	10.92 ³	15.28	19.78	33.77	97.79	146.15	122.46
Rajasthan	-	-	-	-	0.64	10.97	18.14
Punjab	-	-	-	-	-	-	0.62
Uttar Pradesh	-	-	-	-	0.20	0.11	-
Delhi	-	-	-	0.41	-	-	-
Bihar	-	-	0.10	-	-	0.98	-
Orissa	0.10	1.92	0.69	2.31	5.41	9.55	7.20
West Bengal excluding Calcutta	-	-	-	-	-	14.87	-
Calcutta	-	-	-	-	0.01	2.49	-
Total	423.96	401.37	349.03	551.85	655.38	817.25	821.36

1 Includes exports from Feroke (representing Calicut), Quilon and Trichur areas.

2 Refers to exports to erstwhile Bombay State (present Maharashtra and Gujarat States) excluding ports and Vidarbha Region of Maharashtra.

3 Includes exports to Vidarbha Region of Maharashtra.

4 Refers to exports to erstwhile Bombay State (present Maharashtra and Gujarat States) excluding the ports.

5 Refers to ports in the erstwhile Bombay State (present Maharashtra and Gujarat States) excluding Bombay Port.

* See Footnote 2.

** See Footnote 4.

* See Footnote 5.

Basis : Accounts relating to the Inland (Rail and Riverborne) Trade of India, 1960-61 to 1966-67.

Table 2.5.9 : Exports of Tiles by Rail : Calicut, Trichur and Quilon, 1966-67 (April to March)
(Number in Lakhs)

To	From		
	Calicut*	Trichur	Quilon
Andhra excluding Ports	61.25	92.80	-
Andhra Ports	133.98	2.60	-
Madras excluding Ports	93.21	84.64	60.49
Madras Port	5.92	-	-
Other Madras Ports	23.88	1.63	0.93
Pondicherry	2.92	0.12	0.31
Mysore excluding Ports	1.15	0.16	-
Mysore Ports	0.74	-	-
Cochin Port	-	-	-
Other Kerala Ports	-	0.44	-
Maharashtra excluding Ports	53.75	124.04	-
Bombay Port	0.74	-	-
Other Maharashtra Ports	-	-	-
Gujarat excluding Ports	3.83	0.45	-
Gujarat Ports	1.51	-	-
Madhya Pradesh	32.71	89.75	-
Orissa	2.69	4.51	-
Rajasthan	0.31	18.14	-
Punjab	-	0.62	-
Other	0.13	-	-
Total	418.72	419.90	61.73

* Estimated by deducting from exports under the trade block Kerala excluding Ports, the exports from Quilon and Trichur (i.e. Trichur, Ollur and Pudukkad railway stations) and adding to the same exports under 'Other Kerala Ports'.

Basis: Survey and Accounts Relating to the Inland (Rail and Riverborne) Trade of India, 1966-67.

In the following paragraphs the markets in Madras State are discussed first, the discussion on other major tile importing States follows. Finally a few observations are made as regards the local markets.

Railborne trade in tiles does not represent the entire volume of trade between the centres in Kerala and the markets in Madras. The markets in Madras State are catered to by road also. There has been an increasing tendency in this direction during 1960's. It can be seen from Table 2.5.8 that, whereas there has been an increase in the railborne exports to Andhra Pradesh, Maharashtra and Madhya Pradesh, such exports to the other important buyer of tiles, Madras, declined since 1960-61. Similar trend is reflected in Table 2.5.10 which depicts railborne exports from the trade block 'Other Kerala Ports'. The trade block exclusively refers to Calicut. During the survey in 1967, the manufacturers contacted in the three centres in Kerala reported that road transport was used for those markets in Madras State that are around 200 miles from the centre.

There are three questions to be examined in respect of the centres in Kerala, as regards the markets in Madras State: (i) the spatial pattern of railborne exports; (ii) the spatial pattern of exports by road; and (iii) total exports to Madras from the individual centres.

Table 2.5.10 : Exports of Tiles by Rail from Calicut under the Trade Block 'Other Kerala Ports', 1960-61 to 1966-67 (April to March) (Number in Lakhs)

	1960-61	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67
Andhra excluding Ports	-	0.46	1.24	2.34	5.51	1.83	1.24
Andhra Ports	-	-	0.22	-	-	-	-
Madras excluding Ports	45.63	92.12	79.73	75.84	72.22	58.90	63.36
Madras Port	-	0.92	0.64	0.07	1.03	0.70	-
Other Madras Ports	7.66	17.96	15.30	13.99	10.06	11.08	13.16
Pondicherry	-	0.07	0.10	0.12	0.11	0.78	0.51
Mysore excluding Ports	0.10	0.21	-	-	-	-	-
Mysore Ports	0.28	-	0.01	-	0.30	-	-
Kerala excluding Ports	0.13	0.16	0.67	-	0.32	0.01	-
Maharashtra excluding Ports	} 0.42 }	} 0.46 }	0.63	0.21	1.20	1.18	0.07
Gujarat excluding Ports			-	-	0.32	0.61	0.01
Gujarat Ports			-	-	-	-	0.43
Madhya Pradesh	-	-	-	0.33	0.33	-	-
Orissa	-	-	-	0.11	0.21	-	-
Other	-	-	-	0.07	-	-	0.44
Total	54.22	112.36	98.54	93.08	91.61	75.52	78.99

Basis : Accounts Relating to the Inland (Rail and Riverborne) Trade of India, 1960-61 to 1966-67.

Confining to railborne trade in tiles between the centres in Kerala and markets in Madras State detailed information could be obtained in respect of Quilon and Trichur. There have been some changes as regards the two centres which are worth noting. Tiles from Quilon previously used to compete with the tiles manufactured in Calicut in the rail-head markets such as Madras city, Trichinopoly, where the broad gauge and metre gauge lines converge. Survey data for the year 1966-67 revealed that exports from Quilon railway station almost entirely confined to markets on the metre gauge line, except for a small consignment of 0.14 lakhs to Coimbatore. This is due to the influx of cheaper Trichur tiles into these markets. Report of the Minimum Wage Committee for Employment in Tile Industry, Kerala, 1958 observed that tiles from Trichur have penetrated into the markets on the metre gauge line. Survey data for the year 1966-67 revealed that 20.66 per cent of the total railborne exports to Madras State from Trichur were destined to markets on the metre gauge railway line. Data relating to railborne exports from Calicut could not be obtained. The centre has a broad gauge railway line. It can be realistically assumed that for Calicut the rail-head markets in Madras mostly confine to those on the broad gauge line in the northern part of the State.

In the past the existence of different types of

railway lines in particular parts had resulted into a compartmentalization of the markets in Madras State between the centres. With the coming up of the road transport some of the markets which were not previously accessible due to high cost of transshipment could now be catered to by road. The tendency, however, could stretch within certain limits, as road transport cannot be used for long distances. Road transport is amenable for the manufacturers in Calicut for the markets in North Madras and for the manufacturers in Quilon in respect of the markets in South Madras. Again Trichur due to its central location is able to cater a wider market area by road, in Madras State.

As regards the relative share of the three centres in the markets in Madras State, it is difficult to assess the same. Some of the markets in Madras are catered to by road and there are no statistics relating to trade by road. Apart from the markets in Madras, road transport is used for supplying the local markets by the three centres. For the year 1966-67, a rough estimate of the quantity moved by road from Calicut, Quilon and Trichur could be put at 384.65 lakhs, 366.81 lakhs and 536.42 lakhs respectively (Table 2.5.11). The quantity moved by road is significantly larger in the case of Trichur. Thus it is possible that exports to Madras by road could be higher in the case. The same seems probable viewing the location of Trichur as compared with the other two centres.

Railborne exports from Calicut to Madras ^{Pondicherry} (125.93 lakhs) were higher than such exports from Quilon (61.73 lakhs) or Trichur (86.59 lakhs). However, considering the possibility of a greater use of road transport by Trichur, total exports to Madras could not have differed widely between the two centres, Trichur and Calicut.

Inter-State exports of tiles from Quilon are to Madras State. In the case of Calicut railborne exports to Madras are higher than such exports to other States. In addition exports by road from the centre feature only in respect of the markets in Madras. As regards Trichur, railborne exports to Madras are lower than such exports to other States. However, as exports by road exist only in the case of Madras, total exports to the State would be higher as compared with exports to other States. It can be safely stated that for all the three centres, Calicut, Quilon and Trichur, Madras State is the most important buyer outside Kerala.

Excluding Madras, the States of Andhra Pradesh, Maharashtra and Madhya Pradesh are the major importers of tiles by rail from Kerala. The emergence of these markets, however, is perceptible only during 1960's. It can be seen from Table 2.5.8 that large scale exports to Madhya Pradesh commenced from the year 1964-65. Similarly bulk exports to Maharashtra are noticeable only from the year 1963-64. In

the case of Andhra Pradesh exports to the State in 1960-61 were much lower than those in later years. It seems, prior to 1960 railborne exports from Kerala were mostly destined to Madras State.

Railborne exports to Andhra Pradesh, Maharashtra and Madhya Pradesh are from Calicut and Trichur (Table 2.5.9). Of the trade blocks which show large imports in the above States, it is only in the case of 'Andhra Ports' that exports from Calicut are higher than those from Trichur. As per Table 2.5.9 the trade block almost exclusively depended on Calicut for its substantial requirement in 1966-67. There are reasons to doubt the large exports from Calicut to 'Andhra Ports' during the year 1966-67.

(i) Total imports into 'Andhra Ports' ranged from 3.83 lakhs to 7.95 lakhs during the years 1960-61 to 1965-66 (Table 2.5.8); during the years 1967-68 and 1968-69 total imports into the trade block were only 1.01 lakhs and 2.15 lakhs respectively.¹

(ii) During the year 1966-67 there was a fall in the imports into the trade block 'Andhra excluding Ports' and the other major buyers of tiles vis. the States of Madras, Maharashtra and Madhya Pradesh.

¹ Accounts Relating to the Inland (Rail and Riverborne) Trade of India, 1967-68 and 1968-69.

(iii) By 1962-63 the foreign markets have shown signs of dwindling (Table 2.5.8), as a result of which increased exports from Calicut to other home markets have been gradual as compared with the sudden spurt in exports to 'Andhra Ports' in 1966-67.

For reasons cited above, the large exports to 'Andhra Ports' from Calicut in the year 1966-67 are deemed to be inconsistent.

The markets in Andhra Pradesh, Maharashtra and Madhya Pradesh are situated at long distance from all the three centres in Kerala. There are no exports from Quilon to the above markets. Of the two other centres exports from Trichur are substantially greater than those from Calicut. The same is more true of Maharashtra and Madhya Pradesh. Calicut tiles have a higher factory price; possibly when transported over long distances these tiles are delivered at a price which is beyond the means of ordinary buyers. In contrast to the distant markets, in Madras Calicut tiles are in a better position. Railborne exports to Madras State are higher in the case of Calicut. Total exports to the State (by road and by rail) may not differ widely between Calicut and Trichur. There can be reasons which explain the competitiveness of Calicut tiles in Madras markets, in spite of their being priced higher. The tiles manufactured in Calicut are deemed superior to those in Trichur. The markets in Madras were the traditional

buyers of Calicut tiles. There is, as will be seen, some element of consumers' preference in these markets. The distant buyers in Central India may not be of a discerning type.

All throughout the past their respective local markets have been one of the important consumers of tiles manufactured at the individual centres. Local markets are catered to by road. During the period 1960-67 road transport was also used to supply some of the markets in Madras State, by the centres in Kerala. As statistics relating to trade by road are not available, it is not possible to assess the importance of local markets for the centres, Calicut, Quilon and Trichur. A rough estimate of the total supply by road which includes quantity consumed locally and the quantity exported to Madras by road is given in Table 2.5.11 for the three centres in Kerala.

The preceding pages in this section discussed in detail the market pattern for the tiles manufactured in different centres. The same is summed up below to facilitate the analysis in the succeeding section.

There was no significant change in the market pattern for the tiles manufactured in Mangalore, from the period prior to 1959 to the years after 1959. The coastal markets north of the centre remained the most important external

Table 2.5.11 : Exports of Tiles by Sea, Road and Combined Estimate of 'Local Consumption and Exports by Road': Calicut, Quilon and Trichur, 1966-67 (Number in Lakhs)

	Estimated Production ¹	Exports by Sea ²	Exports by Rail ³	Local Consumption and Exports by Road
Calicut	857.10	187.71	284.74	384.65
Quilon	428.54	-	61.73	366.81
Trichur	956.32	-	419.90	536.42

1 Estimated Production for 1966-67 (April to March)
= Estimated Production for 1966 x 0.75 + Estimated
Production for 1967 x 0.25

2 Refers to 1966-67 (July to June)

3 Refers to 1966-67 (April to March)

markets. During 1960's Coondapur in the northern periphery of South Kanara has been developing as a tile centre. The manufacturers here, it was learnt, sell in the coastal markets where tiles from Mangalore are imported. The quantity supplied by Coondapur being small the centre has not posed any severe competition for Mangalore.

As regards Calicut, with the loss of foreign markets the manufacturers now rely more on the home markets. Among the home markets apart from the local demand within the district and around, the markets in Madras State and Kathiawar ports feature important. Andhra Pradesh and

Maharashtra are the other buyers of Calicut tiles. As regards Maharashtra the coastal markets are supplied by sea, the interior markets are catered to by rail.

There has been no significant change in the market pattern for the tiles manufactured in Quilon. The centre, as in the past, depends on the local markets and the markets in Southern Madras. Tile manufacturers in Quilon, however, now face competition from those in Trichur in some of the markets in Madras.

Trichur at present has the widest market in India. The tiles from the centre are demanded in the distant Central Indian markets such as Ujjain, Indore and Nagpur. Among the four centres studied here Trichur tiles have the lowest f.o.b. price. These tiles are able to bear a higher transport cost as compared with others. In the ^{rail-head} markets located in ^{Northern} Maharashtra and Madhya Pradesh, to a lesser extent in the markets in Andhra Pradesh, Trichur tiles have a substantially greater demand as compared with that of the nearest rival, Calicut. Due to their lower price the tiles from Trichur have been able to compete with those from Quilon in the latter's traditional markets in South Madras.

2.6 : Review of the Market Pattern for Tiles (Upto 1967)

In this section the historical evolution of the present market pattern for the tiles manufactured in different centres is briefly reviewed. This enables the formulation of certain hypotheses as regards the distribution of markets between the centres.

2.6.1 Main Characteristics of the Distribution of Markets between the Centres

In Table 2.6.1 the important markets for the tiles manufactured in the four centres viz., Mangalore, Calicut, Quilon and Trichur, during different periods are presented.

Table 2.6.1 indicates only the important markets in respect of each centre. Thus, for example, there have been small quantities exported to Bombay ports from Calicut all along in the past and even at present. The Bombay ports (of which port of Bombay accounted for most of the trade) imported considerably smaller quantities from Calicut than they did from Mangalore. Also for the latter Bombay ports were and are important markets. The industry in Calicut was less dependent on these markets. Among the coastal markets Calicut relied only on Kathiawar Ports (Saurashtra Ports). Similarly there have been small quantities exported to foreign countries from Mangalore. Only during the years 1945-46 to 1954-55 were such exports (continuously)

Table 2.6.1 : Market Pattern for the Tiles Manufactured in Different Centres during Different Periods

Centre	Mangalore	Calicut	Quilon	Trichur
District	South Kanara	Calicut	Quilon	Trichur
Upto 1914	South Kanara District Konkan Coast Maharashtra Coast Gujarat Coast Saurashtra Coast (Kathiawar Ports)	Calicut District	Quilon District	Trichur District
	} After 1900			
1914-48	South Kanara District Konkan Coast Maharashtra Coast Gujarat Coast Saurashtra Coast (Kathiawar Ports)	Calicut District Malabar Coast North Madras (State) Saurashtra Coast (Kathiawar Ports) Foreign Markets	Erstwhile Travancore State (Quilon, Alleppey and Trivandrum Districts) Central Madras (State) South Madras (State)	Trichur District
1949-59	South Kanara District Konkan Coast Maharashtra Coast Gujarat Coast Saurashtra Coast (Kathiawar Ports)	Calicut District Malabar Coast North Madras (State) Saurashtra Coast (Kathiawar Ports) Foreign Markets	Quilon, Alleppey and Trivandrum Districts South Madras (State) Central Madras (State)	Trichur District North Madras (State) Andhra Pradesh Maharashtra Madhya Pradesh
1960-67	South Kanara District Mysore State Konkan Coast Maharashtra Coast Gujarat Coast Saurashtra Coast (Kathiawar Ports) Goa	Calicut District Malabar Coast Saurashtra Coast (Kathiawar Ports) North Madras (State) Andhra Pradesh Goa	Quilon, Alleppey and Trivandrum Districts Central Madras (State) South Madras (State)	Trichur District Madras State Andhra Pradesh Maharashtra Madhya Pradesh

substantial from the centre. On the other hand exports from Calicut to foreign countries have been large. The foreign markets were some of the main markets for the tiles manufactured in Calicut. With these qualifications (in respect of Table 2.6.1) in mind some broad characteristics of the market pattern for tiles can be indicated.

It is noticeable from Table 2.6.1 that some markets are attached to a particular centre. There are others which are not attached to any one individual centre, but where the tiles manufactured in more than one centre compete. The best example in the former category are the local markets, (which are conveniently catered to by road), around the four centres studied here. The tiles manufactured in any centre have never been able to compete in the local markets of the other. There are also markets which are located at a distance from the four centres studied here, that are attached to some one centre. For example, the coastal markets north of Mangalore with the exception of Kathiawar ports, imported their requirement from Mangalore. The foreign markets, to cite another instance, were a monopoly of Calicut. Madras State in South is a major consumer of tiles. Of the markets in the State, those in its southern part were until recently wholly catered to by tiles from Quilon. Of recent, Trichur tiles have intruded into these markets. Nevertheless, these markets buy more

from Quilon than from any other centre. A good portion of the tiles made in Trichur now sell in the distant markets in Maharashtra and Madhya Pradesh. Possibly the markets in Maharashtra, such as Poona, are supplied by Mangalore via Bombay port. But the others, such as Nagpur in Northern Maharashtra and those in Madhya Pradesh, are to a great extent supplied by Trichur. Small quantities, however, are exported to these markets from Calicut also.

There are some markets where tiles manufactured in more than one centre sell. These markets were not attached to any particular centre in the past. In Kathiawar ports tiles from Calicut and Mangalore are sold. In the past, however, exports from Mangalore to these markets were of a higher magnitude. The markets on the broad gauge railway line in Madras State are also a case in the above category. As regards these markets Table 2.5.9 depicting the rail-borne exports from Calicut, Quilon and Trichur is only a part evidence. Some of the markets in Madras are catered to by road also. It is a fact that the industry in Calicut and Trichur depend heavily on the markets in Northern Madras, which were in the past solely supplied by rail. In the same way, the markets in Andhra Pradesh too are shared by the above two centres. Trichur, however, has a greater share of the markets in Andhra Pradesh. At some points in Madras, the broad gauge railway line and the metre gauge railway line converge. Here until recently, Quilon (which

are situated on the broad gauge) used to compete. The survey data for 1966-67, however, revealed that the tiles made in Quilon do not go to such points; only Calicut and Trichur tiles compete.

On the basis of the discussion in the preceding paragraphs, the main markets for tiles manufactured in the four centres can be classified into two categories: firstly, markets which have remained attached to some one particular centre, i.e., 'attached markets'; secondly, markets where more than one centre compete, i.e., 'non-attached markets'. In Table 2.6.2 the markets have been classified accordingly.

Categorization of markets as 'attached' or 'non-attached', as done in Table 2.6.2, involved certain arbitrariness. The same was inevitable due to two types of reasons.

(a) (i) Trade blocks changed in their geographical demarcation over time. (ii) Trade data for different centres and for the same centre in respect of different modes of transport are not provided by the same source. In such cases, sometimes, trade block carrying the same name may actually refer to slightly different geographical areas. (iii) Trade blocks are 'market areas'; it is a possibility that exports to the same trade block from two centres may refer to exports to different market points within the trade block. For problems of the above type there is no solution.

Table 2.6.2 : Classification of Main Markets for Tiles into Categories Attached and Non-attached

Attached Markets		Non-attached Markets	
Markets	The centre to which it is attached	Markets	The centres which compete
South Kanara	Mangalore	Saureshra Coast (Kathiawar Ports)	Mangalore
Calicut Dist.	Calicut		Calicut
Quilon Dist.	Quilon		
Trichur Dist.	Trichur	Markets on the broad gauge railway line in Northern Madras	Calicut
Coastal markets between Mangalore and Bombay and 'Gujarat Coast excluding Kathiawar Ports'	Mangalore		Trichur
Foreign markets	Calicut	Markets on the metre gauge railway line in Central and Northern Madras	Quilon
Markets on the metre gauge railway line in Southern Madras	Quilon		Trichur
Markets in Madhya Pradesh and in Northern Maharashtra	Trichur	Andhra Pradesh	Calicut
			Trichur

(b) There were other difficulties which necessitated the application of the rule of the thumb. (i) 'Attached' and 'non-attached' character of a market is a long run phenomenon, possible only if the market has a sufficiently

long past. In the case of new markets their categorization had to be on the basis of data for a relatively short period. For instance, rail-head markets in Madhya Pradesh, interior Maharashtra and those in interior Andhra Pradesh, emerged as important buyers of tiles only during the early 1960's. (ii) In the case of some of the markets, it was difficult to say whether a preponderant share of the market went to one of the centres or the market was shared by the competing centres. For example, in the case of Andhra Pradesh, exports from Trichur were higher than those from Calicut. But it was difficult to categorize the difference in exports from the two centres as significant or otherwise. The markets in Andhra Pradesh have been categorized as 'non-attached'. (iii) Kathiawar ports posed a problem of slightly different type. In the past exports from Mangalore to these markets were of a higher magnitude as compared with those from Calicut. However, since at present the exports from the two centres closely resemble each other, Kathiawar ports have been categorized as 'non-attached' markets. (iv) Lack of trade data prevented a knowledge of relative share of different centres in the case of some of the markets. The markets in Madras, which are catered to by road from the centres in Kerala, are examples.

Thus, categorisation of markets, as shown in Table 2.6.2, is precise in certain cases and tentative in others.

The analytical device is meant to facilitate the discussion.

2.6.2 Economic Basis for the Distribution of Markets between the Centres

Some of the markets have been 'attached' to particular centres over long periods. In the case of 'non-attached' markets, the competing centres have remained the same. Now it remains to be seen whether the above-mentioned long run phenomenon has any economic basis. A test to examine the same is to compare the delivered prices of tiles manufactured in the four centres in different markets. Where the market is 'attached' to a particular centre, the centre should have an advantage over others. Where the market is 'non-attached', the competing centres should not have any advantage over each other. The above should hold good in a competitive spatial economy where:

- 1) there are no differences in the design of product;
- 2) there are no differences in the quality (when the product design is the same);
- 3) there are no consumers' preferences;
- 4) the producers have perfect knowledge about the spatial distribution of markets.

There are three types of information necessary for comparing the delivered price of tiles manufactured in the four centres at the various markets: (i) identification of important market points, (ii) f.o.b. price for the tiles manufactured at the four centres, and (iii) transport costs from the individual centres to the various market points.

For the year 1966-67, the breakdown of export trade in tiles from different centres, except Calicut, could be obtained. In respect of the centres, Quilon and Trichur, this refers to exports by rail. In the case of Mangalore, the main external markets are those along the coast north of the centre. The detailed trade data here refers to the coasting trade.¹ From the above information the important market points for the tiles made in these three centres could be learnt. Tiles from Calicut compete with those from Trichur on the rail-head markets on the broad gauge railway line with which the two centres are connected. Important market points for Calicut are similar as that for Trichur. The important market points identified on the basis of the detailed trade data obtained for the year 1966-67 have been taken into account while evaluating the locational advantage of different centres. A good portion of the tiles made in the four centres are consumed in their respective local markets. The local markets of the four centres are thus included, while comparing the delivered prices of tiles from these centres in different markets.

The f.o.b. price in respect of each centre is the weighted average price per 1000 tiles quoted by the units

1 See Appendix Table 2 for the detailed trade data in respect of Mangalore.

In the case of Trichur and Quilon there were innumerable small stations which imported tiles from these centres. Detailed trade data in respect of these centres, hence, is not presented.

surveyed in the centre in 1967. The f.o.b. prices for the tiles manufactured in the four centres, thus calculated, are given in Table 2.6.3.

Table 2.6.3 : Weighted Average f.o.b. Price Per 1000 Tiles for Different Centres based on Prices Quoted by the Units in 1967 *

Centre	Mangalore	Calicut	Quilon	Trichur
Price (in Rs.) *	179.44	201.27	183.03	145.46

* The method and computations in arriving at the weighted average f.o.b. price are given in Appendix Table 3.

Transport costs were calculated with reference to the mode of transport in vogue.¹ Where alternative modes were used, these have also been taken into consideration wherever possible. As regards the markets in Madras State the tiles from the three centres in Kerala—Calicut, Quilon and Trichur—at present are conveyed both by road and by rail. Since a good portion of the trade still is effected by rail and also as transport cost by road varied from unit to unit even within the centre, the former mode only has been taken into account.

Table 2.6.4 presents the delivered price of tiles manufactured in the four centres vis., Mangalore, Calicut, Quilon and Trichur, at the various markets. The following

¹ See Appendix Table 4 for transport costs.

Table 2.6.4 : Locational Advantage I : 'Weighted Average f.o.b. Price based on Prices Quoted by the Units + Transport Cost' Per 1000 Tiles* (in Rs.), 1967.

Market	State in which the market is located	Centres							
		Mangalore		Calicut		Quilon		Trichur	
		(By Rail)	(By Coast upto Bombay, Rail There-after)	(By Rail)	(By Coast upto Bombay, Rail There-after)	(By Rail)	(By Coast upto Bombay, Rail There-after)	(By Rail)	(By Coast upto Bombay, Rail There-after)
A: RAIL-HEAD MARKETS									
(i) Local Markets of the Four Centres									
Mangalore	Mysore	<u>179.44</u>		229.83		244.23		182.18	
Calicut	Kerala	208.00		201.27		231.51		<u>165.86</u>	
Quilon	- do -	240.64		249.75		<u>183.03</u>		185.78	
Trichur	- do -	216.16		221.67		223.35		<u>145.46</u>	
(ii) Other Rail-Head Markets									
Salem	Kadras	231.28		238.47		247.27		<u>178.58</u>	
Madurai	- do -	242.56		251.19		214.95		<u>192.26</u>	
Tinnevelly	- do -	250.48		260.31		207.99		<u>200.90</u>	
Hyderabad	Andhra Pradesh	277.84	322.96	290.07	354.79	286.23	346.55	<u>231.86</u>	339.38
Poona	Maharashtra	293.44	283.84	305.91	315.67	301.35	307.43	<u>247.70</u>	300.26
Ujjain	Madhya Pradesh	315.28	319.60	333.99	351.43	319.83	343.19	<u>274.82</u>	336.02
B: COASTAL MARKETS - - - - - By Sea - - - - -									
Panjim	Goa	<u>221.44</u>		253.27		245.03		237.86	
Ratnagiri	Maharashtra	<u>229.44</u>		261.27		253.03		245.86	
Bombay	- do -	<u>237.44</u>		269.27		261.03		253.86	
Broach	Gujarat	<u>252.44</u>		284.27		276.03		268.86	
Veraval	- do -	<u>257.44</u>		289.27		281.03		273.86	

* See Appendix Table 4 for Transport Costs.

Note: The lowest delivered price in respect of each market has been underlined.

exercise for evaluating the locational advantage of different centres makes the implicit assumption that the manufacturers do not practise price discrimination between the various markets.

It can be noticed from Table 2.6.4 that in their local markets the manufacturers in Mangalore and Quilon have a slight advantage over those in Trichur. Whereas, as regards Calicut market, the tiles from the place, are at a disadvantage. The delivered price of Trichur tiles at Calicut is much lower than the f.o.b. price (transport cost being zero) of the local produce. It is only in the case of Trichur market that the local manufacture has a significant advantage over others. Broadly it can be said that the tiles from Trichur can compete in the local markets of the other three centres. In the past, however, there was no such attempt.

Salem, Madurai and Tinnevelly are in Madras State. Salem is situated in North Madras, Madurai in the Central and Tinnevelly in the Southern part of the State. In Salem and Madurai Markets, Trichur tiles have a significant advantage over the others. In Tinnevelly market its advantage is small. In spite of the advantage Trichur possesses Salem market, at present, is shared by Calicut and Trichur; Madurai market by and large is shared between Trichur and Quilon; and Tinnevelly to a great extent,

possibly, remains a monopoly of Quilon.¹

In Hyderabad (Andhra Pradesh), Poona (Maharashtra²) and Ujjain (Madhya Pradesh) the tiles from Trichur are delivered at a much lower price than those from any other. A greater share of Ujjain market goes to Trichur. In Hyderabad, Trichur tiles face the competition from Calicut tiles. Here the delivered price of Calicut tiles, as can be seen from Table 2.6.4, is higher than that of Trichur tiles by Rs. 58.21 per 1000 tiles. As regards Poona market, the dealers in Bombay reported that the coastal imports into the port from Mangalore are distributed to markets in interior Maharashtra and Poona is an important one among them. To Poona, Trichur tiles are conveyed by rail. The tiles from Mangalore are delivered at a price higher by Rs. 36.14 per 1000 tiles than that from Trichur, in this market.

The coastal markets north of Mangalore are important external markets for the tiles made in Mangalore. In these markets the manufacturers from the place have a small advantage over those from Trichur. Hitherto the coastal

1 As regards the markets in Madras State it is difficult to make any categorical statement. The markets are supplied by both road and rail. The road statistics are absent. Hence the difficulty.

2 Nagpur in Northern Maharashtra is an important buyer of tiles. As this market is located at almost similar distance as Ujjain is from the four manufacturing centres, the market has not been taken into account.

markets between Mangalore and Bombay have remained a monopoly of Mangalore. In Kathiawar markets (represented by Veraval in Table 2.6.4) the tiles from Calicut compete with those from Mangalore. It can be seen from Table 2.6.4 that the delivered prices of Calicut tiles at Veraval is much higher than the delivered price of Mangalore tiles. At this place, though Quilon and Trichur tiles could be delivered at a price lower than that of Calicut, they never were.

Delivered prices of tiles manufactured in the four centres could not be calculated in respect of foreign markets. The transport costs in these cases are not known. The transport costs to the distant markets such as East Africa, Burma and Singapore should not differ much between that for Mangalore, Calicut and Quilon. Trichur is located in the interior. Here the transport cost will be slightly higher than in the case of other three centres. Nevertheless, with a f.o.b. price significantly lower than the others', it is possible that Trichur tiles can be delivered at the lowest price in the foreign markets mentioned above. In the past, however, (with the exception of few years, 1945-46 to 1954-55, when there were bulk exports from Mangalore), the foreign markets were a monopoly of Calicut tiles.

The economic basis for the 'attachment' of some

markets to individual centres and the 'non-attachment' of some markets to any one of them was examined by comparing the delivered price of the tiles manufactured in the four centres in the various markets. The delivered price was defined as f.o.b. price plus transport cost. The f.o.b. prices used were those quoted by the surveyed units during the year 1967. It was learnt from the discussion with some of the manufacturers that the quoted f.o.b. prices were negotiable. For the year 1965-66 information regarding the quantity of tiles sold and the value from these sales could be collected from the surveyed units. The weighted average price per thousand tiles obtained by the manufacturers in the four centres during the year 1965-66 is given in Table 2.6.5.

Table 2.6.5 : Weighted Average Price Per 1000 Tiles for Different Centres based on Sales Data, 1965-66*

Centre	Mangalore	Calicut	Quilon	Trichur
Price (in Rs.)	157.66	157.07	136.45	120.32

* See Appendix Table 5.

In respect of the three centres in Kerala viz., Calicut, Quilon and Trichur, the quoted f.o.b. prices for the year 1967 show a wider difference than the actual prices obtained during 1965-66. In the case of Mangalore the 1967

quoted f.o.b. price was lower than that of Calicut and Quilon. The actual price secured per thousand tiles by the manufacturers from Mangalore was higher than that secured by the manufacturers in Calicut and Quilon during 1965-66. It is probable that manufacturers discriminate between buyers and between markets. The average price indicated in respect of each centre, above, is a result of all these forces. The test for an economic basis for the 'attachment' of some markets to individual centres and 'non-attachment' of some others to any, which was conducted with the help of quoted f.o.b. prices for the year 1967, is now repeated with average price secured during the year 1965-66. Table 2.6.6 presents the delivered price of tiles manufactured in the four centres in the various markets; the delivered price now defined as the average price obtained in 1965-66 plus transport cost.

It can be seen from Table 2.6.6 that in their local markets the manufacturers in Quilon and Trichur have significant advantage over others. In the case of Mangalore the local producers have a marginal disadvantage. The tiles from Trichur can ^{be} delivered in Mangalore at a price slightly lower than that of the local produce. In Calicut market the tiles from Trichur have a significant advantage over the local manufacturers.

In Salem market (in Madras State) where at present the tiles from Calicut and Trichur sell, the latter have a

Table 2.6.6 : Locational Advantage II : 'Weighted Average Price based on Sales Data, 1965-66 + Transport Cost' Per 1000 Tiles* (in Rs.)

Market	State in which the market is located	Centres							
		Mangalore		Calicut		Quilon		Trichur	
		(By Rail)	(By Coast upto Bombay, Rail There-after)	(By Rail)	(By Coast upto Bombay, Rail There-after)	(By Rail)	(By Coast upto Bombay, Rail There-after)	(By Rail)	(By Coast upto Bombay, Rail There-after)
A: RAIL-HEAD MARKETS									
(i) Local Markets of the Four Centres									
Mangalore	Mysore	157.66		185.63		197.65		<u>157.04</u>	
Calicut	Kerala	186.22		157.07		184.93		<u>140.72</u>	
Quilon	- do -	218.86		205.55		<u>136.45</u>		160.64	
Trichur	- do -	194.38		177.47		176.77		<u>120.32</u>	
(ii) Other Rail-Head Markets									
Salem	Madras	209.50		194.27		200.69		<u>153.44</u>	
Madurai	- do -	220.78		206.99		168.37		<u>167.12</u>	
Tinnevely	- do -	228.70		216.11		<u>161.41</u>		175.76	
Hyderabad	Andhra Pradesh	256.06	301.18	245.87	310.59	239.65	299.97	<u>206.72</u>	314.24
Poona	Maharashtra	271.66	262.06	261.71	271.47	254.77	260.85	<u>222.56</u>	275.12
Ujjain	Madhya Pradesh	293.50	297.82	289.79	307.23	273.25	296.61	<u>249.68</u>	310.88
B: COASTAL MARKETS									
By Sea									
Penjim	Goa	199.66		209.07		<u>198.45</u>		212.72	
Retnagiri	Maharashtra	207.66		217.07		<u>206.45</u>		220.72	
Bombay	- do -	215.66		225.07		<u>214.45</u>		228.72	
Broach	Gujarat	230.66		240.07		<u>229.45</u>		243.72	
Veraval	- do -	235.66		245.07		<u>234.45</u>		248.72	

* See Appendix Table 4 for Transport Costs.

Note : The lowest delivered price in respect of each market has been underlined.

significant advantage. Madurai market to a great extent is shared by Trichur and Quilon. The delivered price of tiles from the two centres is almost similar in the case. In Tinnevely, the Quilon tiles are made available at a price considerably lower than that of others. The market possibly to a great extent is supplied by Quilon.

The Central Indian markets like Ujjain, Nagpur are catered to by Trichur. It can be seen from Table 2.6.6 that in Ujjain market the tiles from the centre have an advantage over others. In Hyderabad (Andhra Pradesh), tiles from Calicut and Trichur compete. According to Table 2.6.6 Trichur tiles are made available in these markets at a price lower than that of Calicut. Poona market is supplied by both Trichur and Mangalore, though the latter is at a disadvantage.

In the coastal markets, north of Mangalore, the tiles from Mangalore and those from Quilon can^{be} delivered almost at^a similar price. The latter, however, has a marginal advantage. In contrast to this observation, all along the coast these markets with the exception of Kathiawar ports have been a monopoly of Mangalore. Kathiawar ports imported tiles from Mangalore and Calicut. Here the tiles from Quilon too can be delivered at a price lower than that of Calicut.

The discussion in the preceding paragraphs revealed

that when a market is 'attached' to a particular centre, the latter did not always have an advantage over other centres. The discussion also revealed that in the 'non-attached' markets the tiles from the competing centres are delivered at different prices. As regards the latter there is further evidence.

The Annual Report of the Calicut Chamber of Commerce and Industry for the year 1967-68 observes: "Trichur and Quilon regions are in a position to produce tiles much cheaper than the Feroke region [Calicut] and their lower pricing creates great disparity in selling rates between them and Malabar [Calicut]."¹ According to the Central Kerala Tile Manufacturers Association, Trichur: "... all Indian buyers prefer Feroke and Quilon Tiles at rate higher by Rs. 50 to Rs. 60 than the Trichur tiles."² In 1967, when the researcher visited the industry in Calicut, a firm in the place had conducted a survey of the markets in Madras State. From the said firm's market survey could be learnt the actual prices at which the tiles from Calicut and Trichur were sold in some of the Madras markets in the year 1967. The same is presented in Table 2.6.7.

¹ Annual Report of the Calicut Chamber of Commerce and Industry, Calicut, 1967-68, p. 24.

² The Central Kerala Tile Manufacturers Association, Annual Report for the Year Ending 31-3-1963, Trichur, p.30.

Table 2.6.7 : Actual Price at which Calicut and Trichur Tiles Were Sold in Madras Markets in 1967 (Rupees Per 1000 Tiles)

Name of the Market	Price range of	
	Calicut Tiles	Trichur Tiles*
Coimbatore	225 to 275	205 to 225
Trichinopoly	275 to 330	220 to 240
Madurai	260 to 315	215 to 235
Pudukkottai	280 to 335	250 to 270

* In some of the markets possibly Trichur Tiles could be sold at a lower price. Viewing the high price at which the tiles from Calicut have to be disposed off, perhaps the dealers take the advantage.

The tiles manufactured in Calicut and Trichur, it can be seen from Table 2.6.7, sell at different prices in the same market. This is not a phenomenon which is true of a particular year. Such price differences between the tiles made in different centres existed in the past also. In 1958 the price of Trichur tiles ranged between Rs. 100 and Rs. 115 per thousand tiles in the Madras markets. As compared to this, Quilon tiles were priced above Rs. 140 and those from Calicut fetched more than Rs. 150 per thousand tiles.¹

¹ Report of the Minimum Wages Committee for Employment in Tile Industry, Kerala, 1958, p. 52.

The tiles from Mangalore generally do not meet competition from the tiles manufactured in the other three centres. Kathiawar markets import tiles from Mangalore and Calicut as well. The actual prices at which the tiles from the two centres sell in these markets, however, are not known. Some information could be obtained as regards Bombay market. Here, mostly, tiles from Mangalore sell. It was observed that during the 1960's a new centre, i.e., Coondapur, developed in the northern periphery of South Kanara district. Small quantities from Coondapur appear in Bombay market. The dealers in Bombay¹ reported that in 1967, the price of Mangalore tiles ranged from Rs. 260 to Rs. 280 per thousand tiles whereas the price for those manufactured in Coondapur ranged from Rs. 230 to Rs. 240. According to the said dealers in Bombay market, the tiles from Mangalore always fetched a price higher by Rs. 25 to Rs. 30 per thousand tiles than that secured by Coondapur tiles.

2.6.3 Market Imperfections in the Roofing Tile Industry

The discussion in the preceding paragraphs revealed that in the roofing tile industry:

(1) local markets are 'attached' to the individual centres even when the centre does not have a significant advantage over others or actually is at a disadvantage;

1 The United Tile Agency, Mazgaon Dock, Bombay.

(2) in some cases the distant markets (too) are 'attached' to some one particular centre even when the centre does not have any significant advantage over others; and

(3) in the 'non-attached' markets the tiles from competing centres sell at different prices.

The possible market imperfections which may lend an explanation to the above facts are:

- (1) Differences in the product design,
- (2) Differences in the quality of the product,
- (3) Consumers' preferences, and
- (4) Producers' lack of initiative.

The market imperfections listed above need some elucidation.

In the roofing tile industry, the shape of the tiles manufactured in Mangalore differs a little from those made in Calicut. The former is known as Marseilles pattern (or Mangalore pattern in India), the latter Feroke pattern. Hence there is a difference in the product design.

It is said that the tiles manufactured in Trichur are inferior as compared with those from Calicut and Quilon. Of the three, the Calicut tiles are deemed to be the best. The tiles from Mangalore do not compete with the above except in the Kathiawar market where they meet the Calicut tiles. The quality gradations between the two is not known.

Consumers' preference (which is a possible factor)

may have two influences. Firstly, in every market there is a leader. Where the consumers' preferences are strong, once the leader has established himself, the other may have little scope of entry. Secondly, consumers' preference may influence prices for the products of different centres in the same market. Where there are no quality differences, the consumers' subjective evaluation of the product may lead to some differences in the prices they will be prepared to offer. Where there are quality differences, the factor may lead to an exaggeration of the price differences, over and above what the former suggests.

By producers' lack of initiative, it is meant here that the manufacturers in a centre have not made an attempt to sell their tiles in some markets. This can be due to any or all of the following reasons: (i) imperfect knowledge as regards the spatial spread and existence of markets; (ii) due to some oligopolistic element in the market; (iii) due to the manufacturers being able to sell their output in some other markets; (iv) due to fear of consumers' preference for the product already existing in the market.

It should be noted at this stage that in the present study no survey of markets for tiles could be conducted. Some data relating to the market imperfections already cited were an incidental outcome during the survey of the industry which was mainly intended towards obtaining data relating

to costs in the four centres. Some of the market imperfections indicated are only possible ones. An explanation for the distribution of markets between centres on the basis of these market imperfections as is attempted below is a supplementary investigation. Its results are tentative.

Attachment of Markets to Individual Centres and Market Imperfections

Differences in the Design of the Product:- There are two main patterns among the roofing tiles manufactured in the four centres studied here. These are Mangalore pattern and Feroke pattern. In Mangalore mostly the former and in Calicut the Feroke pattern tiles are pressed. In Quilon and Trichur both types are in vogue. It is possible that due to the differences in the design of the product that once one pattern establishes itself in a particular market, the other has less scope.

There are instances in the history of roofing tile industry which show that differences in the design of their product could not have led to an attachment of markets to individual centres. The Calicut tiles which are of Feroke pattern have been able to monopolize the foreign markets where the manufacturers from Mangalore were the pioneers. Also it is a fact that Kathiawar ports have been important markets for the tiles manufactured in Mangalore and Calicut as well. The following explanations can be offered for the

above two historical facts. Firstly, it is possible that the manufacturers adjust to the market specifications. In other words, they press the pattern that is demanded in a particular market. As regards the ability of Calicut tiles to establish themselves in the foreign markets where the tiles from Mangalore had set the precedence, this can be due to one other reason. The demand for tiles recurs after 25 to 30 years of time. Thus at any point of time in the total demand, replacement demand is a less important component than the new demand. Hence it is possible for the tiles of a particular pattern to win the new demand (which is the substantial part in the total) even when the other has preceded into the market. In the case of Kathiawar ports where the tiles from Mangalore and Calicut compete, it is possible (apart from the already cited reasons) the two have distinct group of buyers. Without much evidence any analysis further in these lines is speculation.

During the survey of the industry in 1967, it was found that some of the manufacturers kept the moulds of both the patterns and pressed the required type as demand arose. Shifting from one pattern to the other does not involve any extra cost apart from the initial investment in two types of moulds instead of one. Labour, material and fuel specifications remain the same for both the patterns. Thus, as it is at present, in the past too, it should have

been possible for the manufacturers to cater to the market needs, i.e., press the pattern of tiles that is demanded in the market, if they intended to. Hence differences in the design of the product could not have led to the 'attachment' of markets to individual centres.

Differences in the Quality of the Product:- It is said that the tiles from different centres differ in their quality. Differences in the quality of tiles as a market imperfection has two facets. Firstly, it is said that inferior tiles cannot stand long transit and hence cannot cater to markets which are located at a distance from the manufacturing centre. Due to this, it is possible that distant markets are accessible and may remain 'attached' to those centres which produce superior quality tiles. Secondly, it is possible that the consumers in a particular market prefer the tiles of a particular quality. If the required quality is provided by the product of only one centre, the market can remain 'attached' to the centre.

It is said that the pattern of Calicut tiles (Feroke pattern) is adjusted to the tastes of foreign consumers. It is also said that these tiles have a higher breaking strength which is necessary for shipping the tiles to foreign countries.¹ At present the tiles from Trichur which are

¹ Report of the Minimum Wages Committee for Employment in Tile Industry, Kerala, 1958, p. 10.

deemed to be of an inferior quality as compared with the tiles from other three centres, reach the farthest markets (in India). Thus quality acting as a bottleneck in transportation for some and not so for some others cannot be the explanation for the 'attachment' of markets to individual centres.

An ordinary consumer generally is not able to discern the quality. It is true that the purchases sometimes are made through an intermediary who is in the building activity and who, it can be presumed, is able to detect the quality differences. However, the field survey of the industry revealed the following facts. The tile units graded their product. Number of grades left to the discretion of the manufacturer varied from three grades to six. It was also learnt that the manufacturers are able to sell inferior grades as superior grades. In such a situation it is difficult to visualize that the consumers preferences are purely based on a judicious scrutiny of quality differences. The consumers in most cases are not able to detect the pure quality differences.

The most inferior tiles have a life of 20 years. Thus, it is possible that even if the consumer is able to detect the quality differences he may not weigh the factor at all. Furthermore even when the consumers are able to make out the differences in quality, it is improbable that

all the consumers in any market are uniformly biased towards the product of one centre, when the tiles from other centres are also available. In each market there are groups of buyers who demand tiles of different quality. The 'attachment' of market to an individual centre cannot be due to consumers' preference for its brands because of their distinct quality.

Consumers' Preferences :- In every market there is a leader. This will be a single manufacturer from an individual centre. The pioneer will be more closely followed by other manufacturers in the same centre than from other centres. If the manufacturers from a particular centre establish themselves in a market before those from others venture, there is a possibility of a strong consumers' preference in favour of the pioneering centre. The consumers' preference here is irrespective of the quality or the design of the product, but has its basis on the fact that the brands from the centre were first introduced into the market.

It was found that the local markets have been 'attached' to the respective centres. In the case of Mangalore, Calicut and Quilon the manufacturers in the centre were the leaders in their local markets. It is possible that consumers in these centres have a strong preference for the local produce. But consumers' preference

for the local produce can be established only if the tiles from other centres too have been made available to them. There is no clear evidence of rival centres competing in each other's local markets, in the case of above-mentioned three centres.

The case of Trichur is different. The manufacturing centre in Trichur developed much later than Calicut. The local markets of Trichur were previously supplied by the latter. At present, these markets are supplied by the local manufacturers. This is an evidence for consumers' preference for the local product. It is also an evidence against the leadership argument that the leaders in any market enjoy a premium preference. The consumers' preference for the local manufacture may have, however, another basis. The Trichur tiles can be delivered in any market in India at a price lower than that of the Calicut tiles. In their local market the advantage of Trichur tiles is higher. Tiles from Calicut will have a much higher price than the local produce.

Some of the distant markets too have been 'attached' to individual centres. In the Kathiawar markets, the tiles from Calicut compete with those from Mangalore. It should have been possible for the manufacturers in Calicut to compete with those in Mangalore in the other coastal markets north of Mangalore too. These markets, however, have

remained a monopoly of Mangalore. In the coastal markets north of Mangalore, the tiles from Trichur and Quilon can be delivered at a price lower than that of Calicut under different assumptions (see Tables 2.6.4 and 2.6.6). In the past there has been no attempt from either centres to sell their tiles in these markets. To say that distant markets have been 'attached' to individual centres due to the prevalence of strong consumers' preference for the product of the centre, needs evidence to show that others actually made an attempt to compete in these markets. Such evidence is lacking.

Producers' Lack of Initiative :- The 'attachment' of markets to individual centres could be due to lack of initiative on the part of rivals. The rivals' lack of initiative may be due to (a) imperfect knowledge about the spatial spread (existence) of markets, (b) oligopolistic element in the market i.e., live let live policy, (c) their being able to sell their output in the markets which are 'attached' to them, and (d) fear of consumers' preference for the product already existing in the market.

Though it is possible that the manufacturers in a centre did not (or do not) know all the markets where their rivals in other centres sold (or sell) their product, it is difficult to grant that they had (or have) no knowledge of each others important markets. It is the important

markets in respect of each centre that have remained 'attached' to the centre. Respective local markets are an instance in the category. It is, however, possible that a substantial part of the producers in any centre had imperfect knowledge of the markets. They depended on the markets already established by the few pioneers in the industry in the centre. The latter's decision to confine to only some markets may have some other basis than imperfect knowledge of the markets.

Producers' lack of initiative could be due to oligopolistic element in the market. Where there are few producers, it is reasonable to argue that the rivals possibly practised a "live let live" policy. In the roofing tile industry, (studied here), though there are only four main centres, in each of them there are many producers competing between them. It is a fact that the manufacturers in any of the centres do not join in a consortium to decide the marketing of tiles from the centre. It is unreasonable to presume that they acted as one in the past.

Producers' lack of initiative to venture into others' markets could be due to their being able to sell their output in some other markets. The growth of the industry in the three centres viz., Mangalore, Calicut and Quilon, in the early years was mainly due to local demand. There was no necessity for the rival centres to compete. In later

years, production at different centres increased. The search for wider markets became inevitable. Even at this stage rival centres carved in their own markets and it is in few cases that there was any competition between them. As mentioned earlier, there was no attempt on the part of individual centres to compete in some of the others' markets. It is probable that the individual centres for a long time were able to dispose off their output in the markets that were 'attached' to them (due to their leadership in the market).

The argument that producers' lack of initiative was due to their being able to sell their product in the markets 'attached' to them, suggests that these markets were sellers' markets. This raises the question, why the production in these centres did not increase if the supply always lagged behind the demand. The growth of an industry depends upon supply of and demand for the product and also on the availability of investment capital which is a function of alternative opportunities available to the investors. The producers' lack of initiative resultant upon excess demand conditions in the markets 'attached' to respective centres can be questioned from one other quarter. Various markets usually do not offer the same returns. In such a case, there is no reason why the individual centres should have remained satisfied with the markets which they have ventured into first.

Producers' failure to compete in the markets 'attached' to other centres may be due to sheer fear of consumers' preference for the tiles already existing in the market. In the early years, the manufacturing centres were mainly dependent on their local markets. Later, when production increased, the rival centres established their own distant markets, though, sometimes, markets where others preceded were more convenient. Further, when a centre lost some of its traditional markets, there was no attempt in any marked way on the part of the concerned centre, to compete in the markets that were already 'attached' to other centres. The concerned centre relied now more on the markets which were its traditional buyers and have remained so. Perhaps, fear of consumers' preference for the product already existing in the market prevented the centre from competing in some of the markets. The individual centres have never competed in each other's local markets. Here too fear of consumers' preference for the local product must have prevented such competition.

Producers' lack of initiative when it is a result of excess demand conditions in the markets 'attached' to the centre, was found questionable on some counts. In spite of these qualifications, it seems probable that the factor explains the historical facts prior to 1949. The historical facts are the 'attachment' of coastal markets north of

Mangalore to the centre, the monopoly of foreign markets to Calicut, and the 'attachment' of markets in South Madras to Quilon. Until 1949, the production in Trichur had not showed any considerable increase. The tiles from the place were demanded in the local markets; these tiles were also supplied to the adjacent markets in Madras State.

After 1949, there occurred some important changes. The industry in Trichur made a rapid stride. Though in the early stages the increased production was dumped in the markets in Madras State, in later years the Trichur tiles had to search wider markets as distant as Central India. The tiles from Trichur are delivered at a lower price in the Madras markets than those from Calicut and Quilon. What necessitated the travel of Trichur tiles to the distant markets in Central India, in spite of their price advantage in the more convenient Madras markets, speaks for consumers' preference in favour of the pioneers (i.e., Calicut and Quilon) in the latter. It is, however, possible that Madras markets have reached a semi-saturation stage where they cannot accommodate the large increase in the supply from Trichur. Perhaps this necessitated the Trichur manufacturers to go in search of markets which are at a longer distance. It is possible that the manufacturers in Trichur secure better returns when they sell in those distant markets where there is less competition from the old established centres.

Another important change that took place since 1949, occurred in the 1960's. Calicut lost its foreign markets. (The signs of decline in the exports to these markets, however, were evident earlier.) The centre now had to rely more on the home markets. The manufacturers in Calicut have not intruded the markets 'attached' to other centres in any marked way. Excepting some exports to rail-head markets in Maharashtra and Central India, the centre now relies more on its traditional markets viz., the Kathiawar ports, and the markets in Madras. Among the coastal markets, there have been some exports from Calicut to newly opened Goa market. Leaving Goa apart, there has been no attempt by Calicut to supply the coastal markets between Mangalore and Bombay which buy large quantities of tiles from Mangalore. This may be due to manufacturers' fear of strong preference for Mangalore tiles in these markets. Whereas the Goa market being new, there is no question of consumers' preference for the tiles manufactured in any centre already prevalent. The manufacturers from Calicut and Mangalore compete here.

Non-Attached Markets and Market Imperfections

In the 'non-attached' markets tiles from different centres sell at different prices. The differences in the prices are not due to differences in the design of the product: (i) In Bombay market, Mangalore and Coondapur tiles,

both of which are of Mangalore pattern, sell at different prices. (ii) In Madras, in the northern part of the State tiles from Calicut and Trichur compete. Calicut tiles are of Feroke pattern. The manufacturers in Trichur press both Mangalore and Feroke pattern as the need arises. It is possible where Trichur tiles compete with those from Calicut, they cater Feroke pattern. Nevertheless, in these markets Calicut tiles are priced higher. (iii) As regards the markets in Northern Madras, where the tiles from Calicut and Trichur sell, one can make the alternative assumption that the tiles from Trichur are of Mangalore pattern. The manufacturers who pressed both the patterns reported that the cost of production did not differ between the patterns. However, as Feroke pattern is of a slightly bigger size, it is priced higher by Rs.5 per 1000 tiles than Mangalore pattern. But the price differences between Calicut and Trichur tiles in the Madras markets, were to the extent of Rs. 40 per 1000 tiles. Thus, even if Calicut tiles are of Feroke pattern and that from Trichur are of Mangalore pattern, the price difference of Rs. 40 cannot be due to differences in the design of the product. (iv) In some of the markets in Southern Madras, Quilon and Trichur tiles sell. Here the tiles from Quilon are priced higher.

The differences in the quality of tiles may lead to differences in their prices. But as consumers are not able

to discern the pure quality differences, their option to pay higher price for tiles from a particular centre cannot be related to this factor. It is difficult to delineate the part of the price differences which is an attribute of quality, and the part which is a result of consumers' value judgement.

In the 'non-attached' markets it was found that the tiles made in different centres sell at different rates. This suggests that there exist consumers who prefer tiles from a particular centre in spite of their being priced higher.

The leadership in the 'non-attached' markets incidentally has been of high priced tiles. The Madras markets were first ventured by the manufacturers in Calicut and Quilon. The tiles from Trichur entered these markets later. As has already been stated many times, Trichur tiles are priced lower than either Calicut or Quilon tiles. The competitiveness of Trichur tiles is due to the existence of a group of consumers who prefer the cheapest. Similarly there must be a group of buyers who prefer tiles from a particular centre irrespective of their being priced higher. The manufacturers from Calicut and Quilon have been able to sell their tiles in Madras markets in the face of competition from cheaper Trichur tiles due to the existence of a group of buyers who do not consider the price element (to a certain extent).

It seems, however, probable that where the leadership is of lower priced tiles, the higher priced ones will find it difficult to make an entry.

There could be another reason which explains the prevalence of tiles priced at different rates in the same market. Where demand is in excess of supply, it is inevitable that a part of the consumers have to go in for higher priced tiles. Thus, tiles from different centres are able to remain in the market in spite of the price differences.

In this section an attempt was made to explain the main characteristics of market pattern for tiles. The main characteristics being the 'attachment' of markets to individual centres and the fact that in the 'non-attached' markets the tiles from different centres sell at different prices. As regards the 'attachment' of markets to individual centres, it was found that this could not be due to differences in the product design or due to differences in the quality of the product of different centres. There was no clear evidence that the consumers show preference to the tiles made in a particular centre irrespective of the price or the quality of the product. In many cases the tiles from individual centres, it was seen, never ventured into some of the markets. It can be broadly said the 'attachment' of markets to individual centres was due

to rivals' lack of initiative to compete in these markets. Their lack of initiative could be in some cases due to the fear of strong consumers' preference in favour of the product already existing in the market. In the 'non-attached' markets the tiles from different centres sell at different rates. This may be due to consumers' evaluation of the quality of tiles or a result of subjective element in the evaluation of products from different centres.

2.7 : Cost of Manufacturing

In the previous section economic justification for the distribution of markets between the centres was examined by comparing the delivered prices. The delivered price was defined as price at the place of manufacture plus transport cost. Price at the place of manufacture, apart from other influences, is mainly dependent on the cost of manufacture. The present section concerns cost of manufacturing tiles at different centres.

2.7.1 Introduction to Costs

For comparing the manufacturing cost advantage of alternative locations, it is not necessary that all the items of manufacturing cost be taken into consideration. It is sufficient if only those production cost elements which differ significantly from one area to the other are examined. While locating a new industry the following simplified procedure is generally applied, wherever possible. By simultaneously comparing the plants using different methods of production and different sizes in each of them, the best is chosen. If the above plant, of a predetermined size, using a particular method of production can be located at the alternative locations, and if land costs, construction costs, interest charges, depreciation charges, plant maintenance, insurance cost and taxes do not differ between these locations, the advantage of alternative locations can

be learnt by comparing the variable costs.¹ Again, it is not necessary to include all the variable cost items for locational comparison. Those items which are important and which are prone to show variation over space be considered.

In the case of roofing tile industry, if the problem were one of locating a new plant, the above-stated procedure would have been suitable. Plants of any size using any of the existing methods of production can be located at all the centres studied. As these centres do not differ significantly in the degree of urbanization, it can be realistically assumed that initial construction costs and cost of service items would be similar between them.

In the present study the problem was not one of evaluating the advantage of alternative locations for locating a new plant. The problem was one of evaluating the advantage of alternative locations where units were already in existence. The simplifying procedure for delineating the relevant costs stated in respect of the former case has been adopted here too. In other words, it could be decided that data on office overheads and service items are not relevant for examining the cost advantage of different tile centres; the simple reason

1 Joseph Airov, op.cit., pp. 30-33.

being that for the same unit the above costs would be identical at all the centres.

For comparing the manufacturing cost advantage of different centres, it was decided, that data in respect of a few selected items would be sufficient. The relevant items could be selected on the basis of discussion with the manufacturers in Mangalore, that preceded the actual survey. The items thus singled out are termed as 'locationally significant costs'.

Office overheads and service items are invariant over space. In contrast to the items under locationally significant costs, these items are susceptible to economies of scale. The latter have been termed as 'scale costs'. The classification of cost items in the roofing tile industry, as locationally significant costs and scale costs, is given below.

Locationally Significant Costs: (i) Labour (ii) Raw material (i.e. clay) and (iii) Fuel (i.e. firewood) and power.

Scale Costs : (i) Supervisory and managerial personnel (ii) Plant maintenance and repairs (iii) Post and telegraph (iv) Stationery and printing (v) Audit and banking services (vi) Local rates and factory licence (vii) Insurance (viii) Interest (ix) Depreciation and (x) Others.

Data relating to scale costs were not necessary for locational comparison. The data, however, was obtained with a view to examine the economies of scale in the industry. It can be anticipated in advance, the data collected could not be used for the purpose. It was found that scale costs were influenced by historical factors which were particular to the individual units. Thus it can be noted, even if it was not decided that scale costs should be excluded for location comparison, the fact these costs are influenced by historical factors of the individual units would have necessitated the same.

Manufacturing cost advantage of different centres can be learnt by limiting the comparison to locationally significant cost items. Expenditure on any of these items depends upon (a) physical specification of the input per unit of output and (b) cost per unit of input. Physical specifications of the inputs, except in the case of clay, are influenced by the method of production. As stated earlier these items are not susceptible to economies of scale. In other words, scale of operation individually does not influence their physical specifications.

Both method and production and scale of operation are extra locational factors in the present industry case. If the units at different centres compared use the same method of production, the influence of method of

production is taken care of. It should, however, be noted that cost comparison need be done in respect of best of the alternative methods. As scale of operation does not influence the physical specifications of these items, the size of the units compared does not matter if they employ the same method of production.

When the units compared use the same method of production, physical specifications of the inputs remain identical for all the centres. Consequently locational differences in costs arise only due to differences in the cost per unit of input between them. However, in certain cases, as was found in the case of roofing tile industry, quality of inputs available at different places differs. Needless to say, in the above situation physical specifications of the inputs will vary over space even when the method of production is held constant. Further, locational differences in costs are now due both to differences in the physical specifications of the inputs required and differences in the cost per unit of input between the alternative locations.

2.7.2 Sample, and Method of Collection and Analysis of Cost Data

In the present study Mangalore is of special interest. When the researcher visited the centre, the manufacturers expressed the fear of competition from Coondapur. Coondapur

is an emerging centre in the northern periphery of South Kanara district, the district in which Mangalore is located. It was decided that cost data should be obtained in respect of Coondapur also.

At the commencement of the survey, there was no information as regards the method of production employed by different units. As regards the scale of operation, in the case of Kerala, the list of factories registered in the State, giving the size of employment, was available.¹ A similar list was not available in respect of Mangalore and Coondapur. However, even in the case of centres in Kerala, the information regarding scale of operation could not be used. In other words, a meticulous choice of units of varying sizes could not be made. A visit to Mangalore before the commencement of the survey and discussion with the manufacturers in the centre revealed that it would be difficult to obtain cost data in cases where the researcher had no contacts. Hence only those units where the researcher had contacts were visited. Care was taken to include in the sample, wherever possible, plants of different sizes. Table 2.7.1 gives some preliminary information regarding the units surveyed. Table 2.7.2 gives the coverage of the survey in different centres.

¹ List of Factories in Kerala as on 31st December 1964,
Government of Kerala, Trivandrum, 1965.

Table 2.7.1 : The Year of Establishment, Capital, Employment and Output - Surveyed Units, 1965-66

	Year of Establishment	Book Value of Fixed Capital (Rs.)	Net Working Capital (Rs.)	Employment Workers	Super-visory	Output (Number in lakhs)
<u>CALICUT</u>						
A	1956	47,296	-37,027	60	6	13.54
B	1964	262,981	5,723	104	4	22.50
C	1947	141,993	87,730	125	25	29.28
D	1864	748,478	887,849	480	59	91.08
E	1917	569,206	326,795	513	45	107.91
<u>QUILON</u>						
A	1956	N.A.	51,181	38	8	12.49
B	1941	87,892	86,315	84	9	17.48
C	1912	593,859	387,513	264	21	45.18
D	1915	303,996	43,064	271	24	57.22
<u>TRICHUR</u>						
A	1917	N.A.	N.A.	60	5	12.00
B	1942	119,436	77,551	75	10	15.38
C	1962	216,534	11,534	47	2	15.75
D	1929	119,415	26,076	90	7	15.90
E	1917	N.A.	N.A.	135	18	25.00
F	1943	431,000	102,411	150	24	43.39

(continued)

Table 2.7.1 : (continued)

	Date of Estab- lish- ment	Book Value of Fixed Capital (Rs.)	Net Working Capital (Rs.)	Employment		Output (Number in lakhs)
				Workers	Super- visory	
<u>MANGALORE</u>						
A	1963	N.A.	N.A.	50	4	12.50
B	1963	N.A.	N.A.	40	5	13.61
C	1962	648,991	-111,947	130	10	26.41
D	1960	334,560	-34,860	112	3	27.71
E	1916	233,358	-127,715	110	10	28.00
F	1941	54,905	7,173	137	7	32.03
G	1961	447,970	220,964	137	19	33.41
H	1896	184,789	91,813	171	15	34.20
I	1929	N.A.	N.A.	217	8	46.60
J	1913	163,798	-147,529	174	11	47.14
<u>COONDAPUR</u>						
A	1966	N.A.	N.A.	45	8	9.63
B	1960	234,000	25,500	98	9	23.92
C	1958	163,761	12,361	80	9	25.64
D	1947	180,915	302,131	100	9	26.00
E	1931	184,122	257,219	142	10	30.72

N.A. = Not Available.

Source : Survey.

Table 2.7.2 : Sample Coverage

	No. of Units		Employment	
	Popula- tion	Sample	Popula- tion	Sample
Calicut	21	5 (23.8)	4,134	1,282 (31.0)
Quilon	40	4 (10.0)	2,121	657 (31.0)
Trichur	117	6 (5.1)	5,223	557 (10.7)
South Kanara (Mangalore and Coondapur)	71	15 (21.1)	5,300	1,773 (33.5)

Note : The figures in brackets represent the percentages the samples formed of different populations.

Source : For Population: Economic Review: Kerala, 1968, State Planning Board, Trivandrum, Kerala, for Calicut, Quilon and Trichur; M. Rajashekara Murthy, "Progress of Industries in Canara Region", Economic Times, June 16, 1969, for Mangalore.

Before presenting the method of collection of cost data and the method of computation of costs, it is necessary to introduce the alternative methods of production. The same is useful while discussing the advantage of alternative methods.

Preliminary discussions with the manufacturers in Mangalore revealed that the method of production could differ between units mainly because of the type of press and the type of kiln used. There were two types of presses, viz., (i) the hand driven press known as 'hand press' and

(ii) the mechanically driven press known as 'revolver press'. The types of kilns commonly found were of three types: (1) intermittent, (2) semi-continuous and (3) continuous. It was learnt that any combination of the presses and the kilns could be found. Also, as regards the press, a single unit could possess and operate both the types at the same time. Thus, six main combinations of different types of presses and kilns could be envisaged : (i) hand press and intermittent kiln, (ii) hand press and semi-continuous kiln, (iii) hand press and continuous kiln, (iv) revolver press and intermittent kiln, (v) revolver press and semi-continuous kiln, (vi) revolver press and continuous kiln.

While these are the choices in the method of production open to moderate investors, those who have capital to invest could have excavators, de-airing pugmill in the clay department, electric driers to dry the green tiles or exhaust machine which can use the heat from the kilns to dry the green tiles and conveyer belts to move tiles both green and dry.

Turning to collection of cost data usually cost information is obtained from the records of the individual units. From the source can be obtained data relating to both locationally significant costs and scale costs. The method of collecting cost data has been termed as Accounts Method.

As already pointed out, for knowing the advantage of alternative locations, it is sufficient if locationally significant costs are compared. From the Accounts Data one can estimate, unit expenditure on these cost items at different centres. As the method does not go into the physical quantities of inputs, it is not possible to know from this data physical specifications of inputs at different centres. Where there exist differences in the physical specifications of inputs between alternative locations, for the same method of production, and where such differences are due to quality of inputs available to them, it is a locational factor. There is no scope for such an analysis from the Accounts Data.

There are three main locationally significant costs in the roofing tile industry. They are labour, clay and firewood. The possibility of differences in the physical specifications of inputs between the centres, for the same method of production, was not visualized in respect of any of the above three cost items at the beginning of the survey. Thus, it was believed that Accounts Data could be relied upon in spite of its failure to go into physical quantities of cost items. However, the above shortcoming of the Accounts Data and the necessity to go into physical terms of the item was felt in the case of labour costs from an altogether different angle.

Preliminary discussions with the manufacturers in Mangalore revealed that unit requirement of labour differs with the type of press used. From the manufacturers it was learnt that there exist some units which use both types of press simultaneously. In respect of the above units it was necessary to separate labour costs due to the two types of presses before they could be compared with units which used only a single type. To separate labour costs in the above type of units meant going into physical terms of labour.

The shortcoming of the Accounts Data as regards labour costs could be anticipated from few other points. There are always some units in any industry which work extra-time. Wage rates being higher for extra-time, labour costs in respect of such units will be higher. There could be some units which provided the workers benefits above the statutory minimum. The above-mentioned two factors have no locational relevance. They are particular to individual units. They may bias the average costs for a centre one way or the other. Existence of a relatively higher number of units which have worked extra-time and/or which have provided excess benefits to workers may raise the labour costs in respect of a centre. By going into physical units of labour and calculating labour costs with respect to wage rates for an average day and accounting for a flat rate of benefits, it is possible to take care of the above-mentioned extra locational factors.

For the above cited reasons, it could be anticipated in advance that Accounts Data would not be a reliable basis in the case of labour costs. An alternative method of obtaining information which goes into the physical units of the item was envisaged at the outset. The latter method of collecting cost data which goes into physical or engineering items of cost has been termed as Engineering Method.

The researcher did not anticipate above type of difficulties in the case of the other main locationally significant cost items, viz., clay and firewood. As said earlier, the possibility of differences in the physical specifications of inputs between the centres was not visualized. Thus, it was the belief that unit expenditure on clay and firewood as could be calculated on the basis of Accounts Data would be reliable indicators of locational advantage. However, it was decided to obtain the information regarding these items also by the Engineering Method. The same had its advantage. The Engineering Method by going into the physical quantities of these cost items, revealed that there exist differences in the unit requirement of material and fuel between the centres.

Thus, it was decided that cost information should be collected by two methods. The nature and use of the two types of data are briefly given below.

(i) Accounts Method:- Here the information regarding

the year's output, value of output and expenses on particular cost items was collected for the year 1965-66. This method covers both scale costs and locationally significant costs.

(ii) Engineering Method :- Data obtained by the method relate to locationally significant cost items. They pertain to the time of the survey, i.e., March 1967 to May 1967. As regards labour costs, data relating to the number of persons employed in each stage of production and the wages paid to them were obtained. Raw material (i.e., clay) and fuel (i.e., firewood) requirement per unit of output and cost per unit of material and fuel was orally learnt.

There is a fourth item of locationally significant cost i.e. electric power. Reliable information could not be obtained by the Engineering Method as regards power costs for units employing different methods of production. However, power costs in the industry are of little importance except to a minor extent in the case of mechanized units. Differences in the expenditure on the item between the centres, due to differences in the rates per unit of power, hence, is of little locational significance (see Table 2.7.3). Assuming away power costs does not in any way invalidate comparison of locationally significant costs at different centres, based on Engineering Data.

Scale costs are invariant with location. In the roofing tile industry, it was also found that these costs are of lesser importance as compared with locationally significant costs. Only the Accounts Data provide information regarding scale costs. Scale costs have been analysed on the basis of Accounts Data to examine the existence of economies of scale in the industry.

As said earlier the locationally significant costs are labour, clay and firewood. It was known that Accounts Data are unsuitable in the case of labour costs. As regards the other two cost items, the Engineering Data revealed that physical specifications of the material and fuel differed between the centres. The Accounts Data which do not provide information regarding physical specifications of the items are not suitable in this case too. Hence it was thought from the point of all the three main locationally significant cost items, the Engineering Data provided a better basis.

The Engineering Method was envisaged to overcome some of the difficulties regarding labour costs that are inevitable in the Accounts Method. Even the Engineering Method was found insufficient in the case of labour costs. Labour costs for a centre based on the Engineering Data depended on the unit requirement of labour among the units surveyed in the centre and wage rates reported by them.

During the course of the survey it could be learnt that unit requirement of labour could be considerably influenced by the lay-out of the plant. Plant lay-out is an extra locational factor. Its influence on labour costs at different centres had to be eliminated. This has been done by assuming a single plant lay-out for all the centres. In other words, labour costs have been calculated for the same plant by assuming a shifting of the plant to different locations. The method ignores the differences in the efficiency of labour that may exist between the centres. However, considering the long tenure of the industry in all the centres, the efficiency of labour should not differ much between them. As regards wage rates it was found that wage rate reported by some of the units in some centres were not representative of the centre and were influenced by factors particular to the unit. Appropriate modifications have been introduced in this respect too.

The Engineering Data revealed that physical specification of clay and physical specification of firewood for the same type of kiln differed between the centres. The differences in the unit requirement of clay and firewood between the centres have been attributed to differences in the quality of material and fuel available to them. In other words, their respective physical specifications for

clay and firewood have been taken into account while calculating the costs.

The method employed in computing the costs in the present study has been explained. At this stage, it is possible to draw a broad line of comparison between the method employed here and the method generally employed.

1. Generally locational advantages are inferred by comparing only the locationally significant costs. The same has been done in the present study also.

2. Locational comparison of costs is done in respect of a particular method of production. The same physical specifications of inputs are assumed for alternative locations. Differences in costs in the above case arise only due to differences in the cost per unit of inputs. In the present study, it is only in the case of labour costs that the same physical specification of the item has been assumed for all the centres. Calculating the labour costs for the same plant at different centres has its basis, a fixed unit requirements of labour for all the centres. As regards clay and firewood in contrast to usual practice, physical specifications of the items taken into account for alternative locations differ. In this study actual requirement of the above cost items at respective centres have been utilized. It was found that

requirement of material and fuel differed between the centres. As, such differences are attributed to quality, the same could not be ignored.

It should be noted that costs have been calculated here per unit of output (i.e. 1000 tiles). The units surveyed manufactured, apart from the main product tiles, ridges and in some cases, bricks. There was no scientific formulae for converting the subsidiary products into the main product. In the industry circles, however, the following crude conversion formulae are in vogue:

1 Ridge Tile = 2 Tiles

1 Brick = 1 Tile

In the absence of better alternative the above conversion formulae have been used.

In the succeeding sub-sections scale costs and locationally significant costs have been discussed separately. Sub-section 2.7.3 examines the scale costs on the basis of Accounts Data. The Accounts Data provides information regarding locationally significant costs also. The same has been presented; however, no analysis of the data in this respect has been done for reasons explained earlier. Locationally significant costs have been analysed in sub-section 2.7.4 on the basis of Engineering Data.

2.7.3 Scale Costs

Economies of scale are locational attributes when

the markets or material deposits are closed areas and when the output of the optimum size plant can be absorbed by particular markets or the raw material required by the optimum size plant can be supplied by only few areas.

In an international economy when the markets or the material deposits of a country are closed to other countries, large sized plants and the consequent economies of scale are an attribute of particular countries. In a national economy, neither the markets nor the areas of material deposits are bound; they are accessible whatever be the location. The scale economies as such can be reaped irrespective of the location. The location, however, should not be indiscriminate. This is because the individual markets differ in their size or the raw material supply differ between areas. It is possible that optimum size plant is too large in comparison to some of the individual markets or the raw material requirement of the optimum plant is too large in comparison to some of the material deposits; in other words, optimum size plant can supply a number of markets or utilize the material from a number of areas. In the above situation, there is certain advantage in locating the plant near big markets in the case of market oriented industries and near big material deposits in the case of material oriented industries. The above choice of location saves on transport costs.

The roofing tile industry is material oriented. The constraint on plant size for any location has to arise from the raw material side. That is to say raw material supply in some of the individual raw material supplying regions may not be sufficient for the optimum size plant. The individual investor in the above case would benefit by locating the plant near larger material deposits. Indian roofing tile industry however does not throw up a situation of the above type. The largest of the existing plants is small in comparison to material deposits. In other words, the largest plant in the industry can be located in any of the centres. In fact the supply of clay at any of these centres is sufficient for a number of such plants.

The largest plant in the industry can be located in any of the centres studied. However, the largest plant may not be the most economical. By examining the variation in scale costs with output one can know the most efficient plant size.

Unfortunately it was found that with the available data the scale economies cannot be calculated and hence the identification of the most efficient size. The data were found useful merely to know the significance of scale costs in the total costs. Only the Accounts Data provided both locationally significant costs and the scale costs. The costs calculated per unit of output,

i.e., 1000 tiles, on the basis of the above data are presented in Table 2.7.3.

From Table 2.7.3 it can be seen that the locationally significant costs are more important in the industry than those which are generally invariant with locational but may vary with scale.

As stated there are some difficulties in using the Accounts Data for calculating the scale economies. The difficulties arise due to the following cost items, viz., (1) salaries paid to managerial and supervisory staff, (2) plant maintenance and repairs, (3) depreciation and (4) interest charges. The cost items and the problems they pose are discussed below.

• Salaries Paid to Managerial and Supervisory Staff:-

In the roofing tile industry (as would be the case in most industries) the old established firms many a times paid salaries to the supervisory and managerial staff, twice as much paid by the smaller ones. Thus a small unit belonging to an established firm may show a higher cost on the item than a bigger unit belonging to a new firm. The cost, it can be seen from the Table 2.7.3, shows no regular variation with the size of the unit.

Plant Maintenance and Repairs:- Recurring expenditure on the item is generally low. The expenditure, however, will soar high for the years in which the unit has to

Table 2.7.3 : Cost of Manufacturing Per 1000 Files : Accounts Data, 1965-66 (in Rupees)

Centre	Calicut					Quilon				Trichur				
	Unit	A	B	C	D	E	A	B	C	D	B	C	D	F
Locationally Significant Costs														
Labour	53.34	56.86	53.10	56.90	48.60	43.02	50.70	53.10	48.23	44.09	38.91	44.93	39.41	
Clay	20.64	22.72	21.84	21.14	19.92	15.11	15.87	18.74	15.10	15.21	14.13	15.72	16.16	
Firewood	22.95	23.25	26.37	23.77	24.25	28.52	27.09	27.37	26.02	28.48	27.01	26.96	24.16	
Power	2.41	2.06	3.06	7.90	5.09	0.99	0.60	6.53	3.67	1.36	0.84	1.16	3.69	
Total	99.34	104.89	104.37	109.71	97.86	87.64	94.26	105.74	93.02	89.14	80.89	88.77	83.42	
Scale Costs														
Salaries to Supervisory and Managerial Personnel	3.67	5.17	13.20	19.57	17.27	15.94	11.09	16.69	14.24	2.03	2.66	5.01	13.75	
Plant Maintenance and Repairs	10.75	1.15	9.88	10.23	11.97	0.46	2.62	3.23	5.01	2.05	3.51	4.35	2.07	
Post and Telegraph	0.46	0.45	0.46	0.69	0.65	0.38	0.22	0.47	0.89	1.88	0.52	0.24	0.34	
Stationery and Printing	0.14	0.12	0.20	0.45	0.23	0.28	0.29	0.45	0.59	-	0.21	-	0.23	
Audit and Banking Services	2.46	0.24	0.27	0.23	0.31	0.34	0.17	0.23	0.28	0.12	0.17	0.19	0.18	
Local Rates and Factory Licence	1.18	0.90	0.39	0.79	1.02	0.25	1.07	0.22	0.72	0.38	0.33	0.35	0.35	
Insurance	2.54	0.31	0.23	3.12	0.32	-	-	0.72	0.19	0.07	0.27	0.11	0.50	
Interest	1.86	6.68	5.06	3.83	3.07	5.52	6.08	6.67	3.91	1.06	6.02	6.24	2.36	
Depreciation	3.83	9.69	5.42	8.10	4.22	5.09	5.10		4.39	5.66	7.28	6.69	9.21	
Others	7.19	8.64	-	3.94	4.33	2.24	3.53	0.07	0.69	0.89	2.00	3.32	3.24	
Total	34.08	33.35	35.11	50.95	43.39	30.50	30.17	28.75	30.91	14.14	22.97	26.50	32.23	
TOTAL	133.42	138.24	139.48	160.66	141.25	118.14	124.43	134.49	123.93	103.28	103.86	115.27	115.65	

(continued)

Table 2.7.3 : (continued)

Centre Unit	Mangalore						Coondapur				
	C	E	F	G	H	I	J	B	C	D	E
Locationally Significant Costs											
Labour	53.92	55.29	60.32	46.63	57.00	58.88	55.85	38.46	36.92	39.34	38.69
Clay	25.65	27.23	25.63	28.16	30.70	26.75	25.29	18.46	19.05	22.25	20.77
Firewood	24.12	18.68	27.46	30.42	20.43	17.96	18.08	21.00	20.00	19.58	21.63
Power	0.20	2.27	1.82	0.90	1.57	1.71	1.02	2.25	1.17	1.97	3.87
Total	103.89	103.47	115.23	106.11	109.70	105.30	100.24	80.17	77.14	83.14	84.96
Scale Costs											
Salaries to Supervisory and Managerial Personnel	2.66	13.70	9.30	8.59	12.34	9.58	13.00	2.46	8.76	6.75	5.73
Plant Maintenance and Repairs	2.35	2.56	8.62	2.57	-	4.47	3.61	5.42	10.37	5.15	8.69
Post and Telegraph	-	-	0.11	0.32	0.56	-	0.11	0.25	0.12	0.33	0.38
Stationery and Printing	-	-	0.13	-	0.29	-	0.04	-	0.03	0.29	0.33
Audit and Banking Services	-	-	0.12	0.11	0.14	-	0.07	0.14	0.16	0.22	0.39
Local Rates and Factory Licence	0.31	1.58	0.89	0.27	1.60	0.38	0.62	0.32	0.28	0.37	0.40
Insurance	0.36	0.41	0.22	0.43	-	0.38	0.31	0.95	0.58	0.49	0.81
Interest	10.26	12.33	1.60	9.60	14.11	4.72	5.03	7.91	4.57	2.76	2.52
Depreciation	12.80	2.60	2.42	12.47	7.43	2.77	4.31	8.60	7.13	6.28	3.68
Others	2.06	3.00	0.83	4.32	1.29	0.44	1.51	2.42	3.83	0.77	2.66
Total	30.80	36.18	24.24	38.68	37.76	22.74	28.61	28.47	35.83	23.41	25.59
TOTAL	134.69	139.65	139.47	144.79	147.46	128.04	128.85	108.64	112.97	106.55	110.55

Source : Survey.

undertake some major repairs. If in a particular year when survey is conducted if per chance most of either the smaller or the bigger units incurred higher costs in this item, the conclusions are bound to be biased one way or the other.

Depreciation :- As different units come into existence at different points of time the capital investment involved varies. The rate of depreciation on different assets is as allowed by the Central Income Tax authority. The rates allowed differ not only from asset to asset, it differs from year to year. That is to say, a new asset will have higher depreciation allowed in the initial years than in the later years. Further, the individual units add to their assets at different periods. Due to this any relation between depreciation cost and the size of the unit shown by the factual data may not be actually true.

Interest Charges :- This item of cost has two components: interest charges on capital invested in fixed assets and the interest on working capital. The former component does not appear as soon as the asset is redeemed. When the units surveyed were established at different times it is possible that the interest charges item of cost for some may contain this component and may not for some other. Apart from this the interest charges for a firm depends upon the amount of borrowed capital in the total capital.

Wherever wide variation in scale costs feature among the surveyed units, it can be seen (Table 2.7.3) that this is due to the cost items (1) salaries paid to supervisory and managerial staff, (2) plant maintenance and repairs, (3) depreciation, and (4) interest charges. It need not be further stated that the scale costs as available from the Accounts Data could not be relied upon for any sophisticated analysis. A crude attempt to examine the scale economies, however, has been made.

Even this broad enquiry encountered some difficulties. Economies of scale are examined by comparing the units which employ the same method of production but differ only in their size. With a small sample as the present one a further distinguishing of the units according to the method of production was not a feasible proposition. Therefore and also because the enquiry is intended towards only some broad results, differences in the methods of production between the units have been ignored. It can be noted that scale costs are not influenced by location, hence units belonging to different places can be treated together for measuring the scale economies. For the present purpose all the units for which data are available irrespective of their location and method of production have been included to examine the economies of scale in the industry.

Production data set an additional hurdle. Output of units given in Table 2.7.1 are obtained from Accounts Data and are related to scale costs presented in Table 2.7.3. These output figures are not reliable indicators of capacity. Output in Table 2.7.1 is influenced by the number of hours worked per day and by the number of days worked during the year. In the roofing tile industry working days in a year could differ considerably between the units.

To estimate the economies of scale it is necessary to have reliable data relating to capacity and it is a pre-requisite that the units operate to full capacity. With the available data only the broad direction of scale costs with variation in size of output could be indicated. The same has been done with the help of Rank Correlation. The value of correlation coefficient was found to be low, i.e. rank = +0.3231, indicating that there is no close relationship between size of output and scale costs per unit of output.

2.7.4 Locationally Significant Costs

As said earlier the Engineering Data provided a better basis for comparing the locationally significant costs as compared with the Accounts Data. It was also stated that Engineering Data were found insufficient in the case of labour costs. Limitation of the Engineering

Data in this respect and the method of arriving at comparable estimates of labour costs at different centres have been discussed in detail. The three cost items—labour, clay and firewood—have been examined separately.

Labour :- In the first stage, labour costs were calculated by accounting for the number of persons employed at the various stages of manufacturing and the daily wages paid to them. The daily wages included dearness allowance. The minimum statutory benefits accruable to labour were added later. Labour costs per 1000 tiles calculated on the above basis are presented in Table 2.7.4.

The Engineering Method was adopted to overcome some of the difficulties which were found inevitable in the case of Accounts Data. The former was found necessary to separate labour costs due to two types of press in respect of those units which used hand press and revolver press simultaneously. The Engineering Method was adopted also to eliminate the influence of two extra locational factors, viz., extra-time wages and excess benefits to labour provided by some of the units. The Engineering Method has served its purpose from the above respect. However, it could be learnt that there are a few other extra locational factors than those stated. The actual labour costs based on the Engineering Data as presented in Table 2.7.4 could be influenced by these extra locational factors.

Table 2.7.4 : Labour Cost (Actual) Per 1000 Tiles :
Engineering Data, 1967 (in Rs.)

Centre	Unit	Type of Press and Mechanization *		
		Hand Press and Non- mechanized	Revolver Press and Non- mechanized	Revolver Press and Mechanized
CALICUT	A		52.24	
	B	59.50		
	C		50.74	
	D			51.52
	E			43.16
	Average	<u>59.50</u>	<u>51.49</u>	<u>47.34</u>
QUILON	A	42.57		
	B	49.82		
	Average	<u>46.20</u>		
TRICHUR	A		42.75	
	B		45.67	
	C		36.84	
	D		47.60	
	E		44.43	
	F			36.66
	Average		<u>43.40</u>	<u>36.66</u>
MANGALORE	A		50.75	
	B		46.81	
	C		52.25	
	E	53.12	50.17	
	F	58.34		
	G		49.28	
	H	59.74	55.90	
	I	57.12	54.03	
	J	53.98	51.21	
	Average	<u>56.46</u>	<u>51.30</u>	
COONDAPUR	A	38.60		
	B	39.06	36.63	
	C		33.81	
	D	38.97	36.05	
	E		39.18	
	Average	<u>38.88</u>	<u>36.42</u>	

* Means mechanization of the material shifting job.

Source: Survey.

In Table 2.7.4 labour costs in respect of any individual unit depended on (a) unit requirement of labour and (b) wage rates.

(a) Unit Requirement of Labour :- Number of persons required per unit of output depended on (i) efficiency of labour, (ii) type of press, (iii) plant lay-out, and (iv) work loads.

Differences in the efficiency of labour may be a factor particular to the individual units or may be a locational factor. By confining to the units located in the same centre, locational differences in the efficiency of labour can be eliminated. Then by comparing the units employing the same type of press and assuming away differences in the efficiency of labour between them, the influence of plant lay-out and work load on the unit requirement of labour can be inferred. Table 2.7.5 presents the relevant data. The Table presents in respect of individual units the number of persons required per 1000 tiles.¹ The

1 Table 2.7.1 presents in respect of individual units the output and the number of workers employed during the year 1965-66. Output per man-year calculated on the above basis (given in Appendix Table 1) was utilized for arriving at output per man-year for different centres presented in Table 2.4.1.

It should be noted that output per man-year in respect of individual units as can be obtained from Table 2.7.1 should not be related with number of workers per unit of output given in Table 2.7.5. The former is not a reliable indicator of labour productivity whereas the latter provides a sufficiently good basis for the same. Output per man-year in the former case could be influenced by number of hours worked on an average day and days worked in the year. A high output per man-year may not indicate high labour productivity.

Table 2.7.5 : Number of Workers Per 1000 Tiles :
Engineering Data, 1967

Centre	Unit	Type of Press and Mechanization *		
		Hand Press and Non- mechanized	Revolver Press and Non- mechanized	Revolver Press and Mechanized
CALICUT	A		10.91	
	B	13.68		
	C		10.42	
	D			10.07
	E			9.60
QUILON	A	8.91		
	B	11.67		
TRICHUR	A		9.23	
	B		11.53	
	C		7.23	
	D		11.85	
	E		10.38	
	F			8.33
MANGALORE	A		9.26	
	B		7.11	
	C		11.61	
	E	10.66	10.10	
	F	12.23		
	G		10.07	
	H	13.15	12.52	
	I	12.68	12.05	
	J	11.39	10.74	
	COONDAPUR	A	12.86	
B		11.57	11.09	
C			9.31	
D		11.70	11.18	
E			12.68	

* Means mechanization of the material shifting job.

Source : Survey.

same has been arrived at after calculating for each stage of production the number required per unit of output on an average day.

Influence of plant lay-out and varying work-loads can be best explained taking the case of Trichur. Units in this centre did not use two types of presses simultaneously and all of them used the same type of press, i.e., revolver press. It can be seen from Table 2.7.5 that unit requirement of labour differed to the extent of 4.62 workers per 1000 tiles. On the basis of wage rates prescribed for the centre statutorily, the average wage for the lowest category of workers could be estimated at Rs. 3.65 per day (see Table 2.7.8) for the year 1967. With the above wage rate and a difference of 4.62 workers in the unit requirement of labour, differences in the labour costs would be to the extent of Rs.16.86 per 1000 tiles.

Plant lay-out is an important factor influencing unit requirement of labour in any industry. Its importance is greater in the case of roofing tile industry. A substantial portion of the labour employed in any unit is engaged in shifting the materials, semi-finished product and final product. The type of press used and the plant lay-out are the main factors which decide the number of persons required per unit of output.

As regards work-load, Report of the Minimum Wages

Committee for Employment in Tile Industry in Kerala, 1958, states: "The work-loads vary from one centre to another and from one factory to another. But certain adjudication awards have fixed minimum work-loads also. But their minima themselves are different. ... in the Feroke area the output is governed by custom and substantially varies from one factory to another."¹ The same phenomenon was observed during the survey in 1967. In the case of centres in Mysore State too, i.e. in Mangalore and Coondapur, work-loads varied between the units. Varying work-loads to a certain extent are influenced by plant lay-out. 'Leads' between the stages of production many a times is the deciding factor in fixing the work-loads in a unit.

Apart from the factors stated earlier, unit requirement of labour could be influenced by two other factors. Some of the units employed a relatively larger number of workers for processing the clay. In the case of units which employed women, due to the lower efficiency of female labour, number of persons required per unit of output could be more.

There is a supplementary observation that can be made on the basis of Table 2.7.5 and is useful while calculating labour costs on the basis of the model plant.

¹ Report of the Minimum Wages Committee for Employment in Tile Industry, 1958, p. 16.

The observation concerns the efficiency of revolver press over the hand press. The same can be reliably inferred by taking the case of units which used both the types of presses e.g. 'E' in Mangalore.

(b) Wage Rates :- Wage rates differed between the units in the same centre for the same category of workers. In the case of Mangalore and Coondapur there was no statutory fixation of minimum wage rates. In Calicut, Quilon and Trichur, the centres in Kerala, minimum wages for different categories of workers were statutorily fixed. The statutory regulations, however, insisted upon continuance of prevailing wage rates if they were higher than the minimum prescribed. Thus, in any of the Kerala centres there could be units which paid wages higher than the minimum prescribed. Higher wages paid by the above units, is a phenomenon particular to the unit. The existence of the above type of units in a Kerala centre would increase the labour costs in respect of the centre. Such an increase is not acceptable for the present purpose as it is due to extra locational factors.

In all the centres some of the units employed female labour. Women are paid lower wages as compared with men, and generally have a lower work-load. Since work-loads are fixed by the individual units themselves, work-loads sometimes can be considerably high. Depending upon

relative wages paid to women and relative work-load given, in some cases employment of female labour may reduce the labour costs. Needless to say, lower labour costs because of employment of female labour by the units in the centre is not warranted for locational comparison.

At the beginning of the survey, it was known that unit requirement of labour could be influenced by the type of press used. Thus it was decided that labour costs at different centres should be compared in respect of the units using the same type of press. It has been seen that unit requirement of labour could be influenced by plant lay-out and varying work-loads. The influence of plant lay-out and varying work-loads, both of which are extra locational factors, alone should prevent a comparison of labour costs at two centres, even though the units chosen for comparison used the same type of press. Further, in the case of centres in Kerala, some of the units paid wages other than the prescribed minimum. Deviation from the prescribed rates is due to extra locational factors. Summing up it can be said that labour costs presented in Table 2.7.4 are not suitable to infer the locational advantage of different centres.

For comparing the locational advantage, labour costs for different centres have been calculated with respect to a single plant. This eliminates the influence of three

extra locational factors, viz., type of press used, plant lay-out and varying work-loads. It assumes away whatever differences in the efficiency of labour that exist between the centres. The same could not be helped.

The model plant chosen for hypothetical calculation is one from Mangalore. The unit is medium sized and employed revolver press for pressing the tiles. The lay-out of the plant chosen by no means is tested for its superiority over others. As yet nowhere in the industry plant lay-out is done on any scientific basis. The purpose behind making hypothetical calculations for the same plant at different centres was to eliminate the influence of plant lay-out which is an extra locational factor. The distribution of workers at the various stages of production in the model plant is given in Table 2.7.6.

As the first step towards calculating labour costs, the workers at various stages of production were classified by levels of skills. The classification adopted in the Report of the Minimum Wages Committee for Revision of Minimum Rates of Wages Fixed for Employment in Tile Industry, Kerala,¹ has been used for the purpose. The classification of labour skills made by the above authority with their

¹ Report of the Minimum Wages Committee for Revision of Minimum Rates of Wages Fixed for Employment in Tile Industry, Kerala, 1964, pp. 20-21.

**Table 2.7.6 : Distribution of Workers in the Model Plant
(Capacity 25,000 Tiles Per Day)**

Department	Number Employed	Department	Number Employed
1. <u>Clay Department</u>		4. <u>Kiln Department</u>	
Diggers	7	Passing Tiles inside the Kiln	6
Fillers	15	Setters	6
Carriers	30	Burners	3
Vast Trampers	3	Firing Helpers	6
	<u>55</u>	Drawers	6
2. <u>Pug Mill Department</u>		Flue Boys	2
Filling Baskets	5	Lifters	2
Filling Trolley	2	Counting Tiles	2
Trolley Turners	2	Passing Tiles from Racks	4
Clay Feeders	2	Removing Tiles from Belts	4
Slicer	1	Garblers	3
Block Carriers	3	Assistant Garblers	3
	<u>15</u>	Foremen	2
3. <u>Press Department</u> (For 5 Revolver Presses)			<u>49</u>
Slab Carriers	5	5. <u>Others</u>	
Slab Polishers	5	Firewood Cutters	12
Slab Placers	5	Firewood Carriers	8
Oilers	5		<u>20</u>
Tile Receivers	10		<u>276</u>
Trimmers	15	Grand Total	276
Spur Clay Removers	5		<u>-----</u>
Pattet Carriers	15		
Tile Carriers	15		
Tile Transferers to the Conveyers	5		
Tile Placers	5		
	<u>90</u>		

Source : Survey.

respective wages is given in Table 2.7.7. The Table provides wage rates only in respect of the centres studied.

Minimum rates fixed for class A workers were the highest. Class E workers earned the lowest wages. Labour skill was rated in descending order from Class A to Class E.

Class A workers do not appear in the model plant. Likewise only kiln foremen from class B appear in the model plant. The workers in class A and those excluded from class B are generally salaried persons in Mangalore. Many units do not have these categories in the regular staff; their services are bought when necessary. In the present study, the above categories of workers are included under scale costs.

Some of the categories of workers in class C, D and E also do not appear in the case of model plant. They are irrelevant to the method of production employed in the model plant.

By comparing Tables 2.7.6 and 2.7.7 it can be seen that much of the labour employed in each of the four broad departments in the model plant has to be classified under class E.1, i.e., Head-load workers or as workers engaged in sundry activities included in class E.6 i.e., Pugmill workers etc. Thus, a large chunk of the labour employed in clay, pugmill, press and kiln departments in the model plant come under category E and carry the lowest wage rate.

**Table 2.7.7 : Recommended Basic Wages for Men Workers,
Tile Industry, Kerala**

Category of Workers	Centres	
	Calicut and Quilon (Rs.)	Trichur (Rs.)
<u>Class A</u>		
1. Masons	2.05	1.75
2. Carpenters		
3. Blacksmiths		
4. Engine Drivers		
<u>Class B</u>		
1. Electricians	1.80	1.50
2. Fitters		
3. Mechanics		
4. Turners		
5. Planers		
6. Kiln Foremen		
7. Welders		
8. Moulders in Foundry		
9. Excavator Operators		
<u>Class C</u>		
1. Wheel Turners	1.55	1.25
2. Die Pullers or Slab Placers in a Revolving Press		
3. Trimmers in Quilon Area		
4. Kiln Setters and Drawers		
5. Burners who are responsi- ble for kiln firing		
6. Screw Ridges Press Operators		
7. Operators in Dust Flooring Press		

(continued)

Table 2.7.7 : (continued)

Category of Workers	Calicut and Quilon (Rs.)	Trichur (Rs.)		
<u>Class D</u>				
1. Garblers	}	}		
2. Trimmers in areas other than Quilon				
3. Slab Beaters or Polishers				
4. Tile Receivers				
5. Firewood Cutters				
6. Trolley Turners				
7. Winch Operators in Jetty			1.30	1.00
8. Drier Attenders in Humidity Drier				
9. Finger Car Operators				
10. Sawers				
11. Pottery Workers				
12. Crusted Ridges Workers				
13. Boiler Firemen				
<u>Class E</u>				
1. Headload Workers	}	}		
2. Tile Conveyers				
3. Slicers				
4. Firing Helpers			1.10	0.90
5. Helpers to Workers in Category A				
6. Pug Mill Workers, etc.				

N. B. : The basic wages of women workers of the D and E categories shall be 25 nP less than the corresponding wages of men workers in each area.

Source: Report of the Minimum Wages Committee for Revision of Minimum Rates of Wages Fixed for Employment in Tile Industry, Kerala, 1964, pp. 20-21.

The same was expected. As said earlier, much of the labour in a tile factory is engaged in shifting material, semi-finished product and final product, or in some unskilled work.

In Table 2.7.8 labour employed in the model plant has been recast according to categories given in Table 2.7.7. Wherever a particular category appearing in the model plant is not mentioned, such categories are included under class E.6, designating as workers engaged in sundry activities. They are termed as 'General Category'.

For computing the labour costs on the basis of the model plant, it is necessary to have wage rates for different categories at the various centres. In the case of centres in Kerala, Minimum Wages Committee for Revision of Minimum Rates of Wages Fixed for Employment in Tile Industry, revised the wage rates in 1963 (see Table 2.7.7). These wage rates came into effect in 1965 and the same rates prevailed in 1967. The above authority divided the wages into two components: basic wage and dearness allowance. The basic wage differed for different levels of skills. Also it differed for the same skill between the centres. The dearness allowance for all the categories of workers in a centre was same. It differed between the centres. The dearness allowance was tied up with the cost of living index of respective centres.¹ For the present study average

1 Ibid, pp. 21-22.

Table 2.7.8 : Labour Cost on the Basis of Model Plant: Labour Employed in Different Categories in the Model Plant, Respective Wage Rates for the Categories in Different Centres and Labour Cost Per 1000 Tiles in Different Centres, 1967

Category of Worker	No. in the category	Wage Rates inclusive of D.A. (Rs. per day)				
		Calicut	Quilon	Trichur	Mangalore	Coondapur
Clay						
General Category	55	4.07	3.76	3.65	4.35	2.76
Pug Mill						
Trolley Turners	2	4.27	3.96	3.75	4.58	2.92
Slicer	1	4.07	3.76	3.65	4.35	2.76
General Category	12	4.07	3.76	3.65	4.35	2.76
Press						
Slab Polisher	5	4.27	3.96	3.75	4.58	2.92
Slab Placer	5	4.52	4.21	4.00	4.98	3.14
Tile Receiver	10	4.27	3.96	3.75	4.58	2.92
Trimmers	15	4.27	4.21	3.75	4.58	2.92
Tile Conveyers	15	4.07	3.76	3.65	4.35	2.76
General Category	40	4.07	3.76	3.65	4.35	2.76
Kiln						
Kiln Setters and Drawers	12	4.52	4.21	4.00	4.98	3.14
Burners	3	4.52	4.21	4.00	4.98	3.14
Firing Helpers	6	4.07	3.76	3.65	4.35	2.76
Garblers	3	4.27	3.96	3.75	4.58	2.92
Foremen	2	4.77	4.46	4.25	5.37	3.50
General Category	23	4.07	3.76	3.65	4.35	2.76
Firewood Cutters	12	4.27	3.96	3.75	4.58	2.92
Firewood Carriers	8	4.07	3.76	3.65	4.35	2.76
Labour Cost/1000 Tiles (inclusive of 17.75 per cent of labourers' earnings as statutory benefits)		44.84	41.66	39.98	48.12	30.55

Source : Survey.

dearness allowance for the year 1967 has been utilized. The same was Rs. 2.97 per man per day for Calicut, Rs.2.66 for Quilon and Rs. 2.75 for Trichur.

In the case of Mangalore and Coondapur there was no statutory fixation of minimum wage rates. The following procedure has been adopted in respect of these centres. In each of the above centres, first, workers in individual units in the centre were classified according to levels of skill as given in Table 2.7.8; second, in respect of each unit minimum wage rate for a particular skill was noted; and finally, a simple average of the minimum rates for the particular skill in different units was taken to arrive at the representative minimum wage rate for the skill in the centre.

In the case of Coondapur, wages were not divided into basic wage and dearness allowance, whereas, the wages in Mangalore were divided into above two components. The dearness allowance in Mangalore was a multiple of the basic wage. The multiplier was agreed upon by the Employers Association¹ and labour unions in July 1964 and was to be in force till 31st December 1967. The basis of the multiplier was:

$$\frac{\text{(Working Class Cost of Living)} + 30 \text{ points} - 100 \text{ points}}{100}$$

¹ The Western India Tile Manufacturers Association, Mangalore.

The average multiplier for the year 1967 utilized in present study was 6.90.

Table 2.7.8 presents the wage rates for the different categories of workers in the model plant at different centres. It gives the number appearing under each category. Labour costs per 1000 tiles calculated on the above basis have also been given in the Table. Labour costs include statutory benefits accruable to labour. The same was 17.75 per cent (4.00 per cent bonus, 2.50 per cent contribution to the Employees State Insurance Fund, 6.25 per cent toward Employees Provident Fund and 5.00 per cent for leave with wages) of the total earnings of the labour.

It can be seen from Table 2.7.8 that among the established centres Trichur has the lowest labour costs and Mangalore the highest. Coondapur, centre emerging in South Kanara, has lower labour costs than Trichur.

Clay :- Table 2.7.9 presents (i) cost per unit of clay, and (ii) physical specification of clay per 1000 tiles and (iii) cost of clay per 1000 tiles. There are two observations possible on the basis of the Table.

Firstly, it can be seen that physical specification of clay and cost per unit of clay varied between the units in the same centre. However, it can be noted such variation is smaller as compared with that between units belonging to different centres.

Table 2.7.9 : Cost Per Cubic Yard of Clay, Physical Specification of Clay Per 1000 Tiles and Cost of Clay Per 1000 Tiles : Engineering Data, 1967

Centre	Unit	Cost per cubic yard of clay (Rs.)	Physical specification of clay per 1000 tiles in cubic yards	Cost of clay per 1000 tiles (Rs.)
CALICUT	A	8.00	2.75	22.00
	B	8.00	3.00	24.00
	C	8.16	3.00	24.48
	D	8.25	2.63	21.70
	E	8.00	2.50	20.00
	Average	<u>8.08</u>	<u>2.78</u>	<u>22.44</u>
QUILON	A	4.86	3.70	17.98
	B	4.73	3.70	17.50
	Average	<u>4.80</u>	<u>3.70</u>	<u>17.74</u>
TRICHUR	A	5.85	2.82	16.50
	B	5.32	2.82	15.00
	C	4.79	2.77	13.27
	D	4.79	3.52	16.86
	E	5.85	3.06	17.90
	F	5.32	3.06	16.28
	Average	<u>5.32</u>	<u>3.01</u>	<u>15.97</u>
MANGALORE	A	7.27	3.37	24.50
	B	7.27	3.37	24.50
	C	8.00	3.30	26.40
	E	8.45	3.23	27.29
	F	7.95	3.21	25.52
	G	8.76	3.37	29.52
	H	8.31	3.56	29.58
	I	7.79	3.32	25.86
	J	7.95	3.21	25.52
	Average	<u>7.97</u>	<u>3.33</u>	<u>26.52</u>
	COONDAPUR	A	4.05	5.33
B		3.58	5.33	19.08
C		3.66	5.33	19.51
D		3.94	5.33	21.00
E		4.03	5.33	21.48
Average		<u>3.85</u>	<u>5.33</u>	<u>20.53</u>

Source : Survey.

Secondly, physical specification of clay and cost per unit of clay varied between the centres. Differences in the quantity of clay used could be due to lack of knowledge on the part of the manufacturers, differences in the product, or differences in the quality of clay. Most of the centres have a long tenure and hence the differences in the physical specification of clay cannot be attributed to lack of knowledge on the part of the manufacturers. Feroke pattern tiles manufactured in Calicut are of a slightly larger size. Logically physical specification of clay should have been higher for Calicut. As can be seen from Table 2.7.9, the quantity of clay used per 1000 tiles was least for this centre. Thus, differences in the product design cannot explain the differences in the clay specifications between the centres. It is a known fact that quality of clay varies from place to place. It is commonly accepted that Calicut possesses the best quality clay. Differences in the physical specifications of clay between the centres as are evident in Table 2.7.9 are attributed to differences in the quality of clay.

Differences in the quality of clay available at different centres explain the differences in the quantity used. Granting this it can be accepted that cost of clay per 1000 tiles presented in Table 2.7.9 indicates locational advantage of different centres as regards the cost

item. Mangalore has the highest clay costs, Trichur has the lowest.

Firewood :- Table 2.7.10 presents (i) cost per unit of firewood, (ii) physical specification of firewood per 1000 tiles and (iii) firewood costs per 1000 tiles. Similar observations as were made regarding clay are possible in respect of firewood also. As was the case with clay, here too, differences in the physical specification of firewood between the centres for the same type of kiln, are attributed to quality differences.

There are three types of kilns. Referring to data relating to Mangalore in Table 2.7.10, it can be seen that firewood requirement in a continuous kiln is less than that in the case of an intermittent kiln. Relative efficiency of a semi-continuous kiln as compared with the other two types or vice versa cannot be inferred from Table 2.7.10. However, it is generally accepted that among the three types, continuous kiln is the most economical and intermittent kiln the least. Firewood cost per 1000 tiles in this study, thus, have been calculated with respect to continuous kiln.

Physical specification of fuel in a continuous kiln is known for Mangalore and Calicut. As regards Coondapur and Quilon, the following method has been used to arrive at the quantity of firewood required in a continuous kiln. In

Table 2.7.10 : Cost Per Tonne of Firewood, Physical Specification of Firewood Per 1000 Tiles and Cost of Firewood Per 1000 Tiles : Engineering Data, 1967

Centre	Unit	Cost per tonne of firewood in Rs.	Physical specification of firewood per 1000 tiles in Tonnes			Cost of firewood per 1000 tiles in Rs.		
			Type of kiln			Type of kiln		
			Inter-mittant	Semi-continuous	Continuous	Inter-mittant	Semi-continuous	Continuous
CALICUT	A	44.00			0.58		25.52	
	B	50.00			0.50		25.00	
	C	50.00			0.58		29.00	
	D	55.00			0.50		27.50	
	E	55.00			0.50		27.50	
	Average	<u>50.80</u>			<u>0.53</u>		<u>26.90</u>	
QUILON	A	45.00	0.70			31.50		
	B	46.00	0.70			32.20		
	Average	<u>45.50</u>	<u>0.70</u>		<u>0.52^E</u>	<u>31.85</u>	<u>23.66^E</u>	
TRICHUR	A	42.00		0.68		28.56		
	B	45.00		0.63		28.35		
	C	43.50		0.68		29.58		
	D	44.00		0.65		28.60		
	E	40.00		0.63		25.20		
	F	42.50		0.60		25.50		
	Average	<u>42.83</u>		<u>0.65</u>	<u>0.53^E</u>	<u>27.63</u>	<u>22.70^E</u>	
MANGALORE	A	56.00	0.58			32.48		
	B	54.00	0.60			32.40		
	C	52.00	0.55			28.60		
	E	52.00			0.43		22.36	
	F	56.00	0.55			30.80		
	G	54.00	0.58			31.32		
	H	52.00			0.40		20.80	
	I	48.00			0.45		21.60	
	J	51.00			0.40		20.40	
	Average	<u>52.73</u>	<u>0.57</u>		<u>0.42</u>	<u>30.08*</u>	<u>22.17*</u>	
	CCONDAPUR	A	35.00	0.63			22.05	
B		34.00	0.63			21.42		
C		32.00	0.63			20.16		
D		34.00	0.63			21.42		
E		36.00	0.63			22.68		
Average		<u>34.20</u>	<u>0.63</u>		<u>0.46^E</u>	<u>21.55</u>	<u>15.88^E</u>	

E = Estimated.

* Average has been arrived at by multiplying the average physical specification of firewood for the type of kiln with the average cost per tonne of firewood for the centre.

Source : Survey.

Mangalore, two types of kilns, i.e. intermittent and continuous, are available. It is possible to establish some relationship as regards physical specification of firewood in the two types of kilns in Mangalore. It is assumed that the same relationship holds good in other centres. Thus quantity of firewood required per 1000 tiles in a continuous kiln for Coondapur or Quilon would be :

$$\frac{\text{Firewood per 1000 tiles in Continuous kiln in Mangalore}}{\text{Firewood per 1000 tiles in Intermittant kiln in Mangalore}} \times \text{Firewood per 1000 tiles in Intermittant kiln in Coondapur or Quilon}$$

The above method could not be applied in the case of Trichur. In Trichur all the units employed semi-continuous kiln. In no other centre could be found the above type of kiln. Hence it was not possible to establish any relation between semi-continuous and continuous kilns as regards firewood consumption. For Trichur, firewood requirement in continuous kiln in the nearest centre, in Calicut has been utilized. The same may be objectionable as there could be quality differences in the firewood available to the two centres. There was, however, no alternative.

Table 2.7.10 presents firewood costs in respect of continuous kiln for Mangalore and Calicut; the Table also presents estimated firewood costs for continuous kiln in the case of the other three centres. Among the four

established centres, Calicut has the highest firewood costs, and Mangalore the least. Coondapur, which is emerging as a competitor for Mangalore, has, however, lower firewood costs than the latter.

In the preceding paragraphs the three locationally significant cost items viz., labour clay and firewood, were discussed separately. In each case an attempt was made to obtain costs at different centres that are reliable indicators of their locational advantage. The three costs thus obtained are presented together in Table 2.7.11.

Table 2.7.11 : Locationally Significant Cost Per 1000 Tiles: Engineering Data, 1967 (in Rs.)

	Labour*	Clay	Firewood	Total
Calicut	44.84	22.44	26.90	94.18
Quilon	41.66	17.74	23.66	83.06
Trichur	39.98	15.97	22.70	78.65
Mangalore	48.12	26.52	22.17	96.81
Coondapur	30.55	20.53	15.88	66.96

* Based on the model plant.

Locationally significant costs are a part of the cost of manufacturing. To arrive at the total cost, overheads which are assumed to be invariant with location, should be added to the locationally significant costs. An estimate of the overhead costs for the industry in Trichur

for the year 1965 is Rs. 18.43 per thousand tiles.¹ The same estimate has been utilized to arrive at the cost of manufacturing tiles in different centres.²

Table 2.7.12: Cost of Manufacturing Per 1000 Tiles:
Engineering Data, 1967 (in Rs.)

Calicut	Quilon	Trichur	Mangalore	Coondapur
112.61	101.49	97.08	115.24	85.39

It is a known fact among the industry's circle in Kerala, that of the three centres in the State, Trichur has the lowest costs and that manufacturers in Calicut bear the highest costs. The tile units in Mangalore (and Coondapur which also is located in South Kanara District in Mysore State) do not generally compete with those from Kerala. There has been as yet no study which compares the cost of manufacturing at the centres in the two States, viz., Mysore and Kerala.

Coondapur is a new emerging centre. Presently it has a cost advantage over its immediate rival in Mangalore.

1 R. Poornam, Director, Small Industries Service Institute, Trichur, "Survey of Ceramic Industries in India", Souvenir, All India Seminar on Ceramic Industries, Trichur, May 1966, Central Kerala Tile Manufacturers Association, Trichur, p. 101.

2 Overhead costs, or the scale costs as they are termed in the present study, are invariant with location. Their inclusion is synonymous with adding a constant to locationally significant costs in different centres. Their exclusion would not have mattered in any way the analysis in the succeeding section.

2.8 : Locational Advantage

The preceding section examined the cost of manufacturing tiles. The present section enquires into the locational advantage of different centres at the various markets.

The cost of manufacturing was computed, apart from the four established centres, in respect of Coondapur. As said earlier, the cost data was obtained in respect of Coondapur because in this study Mangalore was of special interest and the manufacturers from the centre expressed the fear of competition from Coondapur. It can be noted that in Kerala too, there are a few centres like Coondapur in Mysore. As the researcher did not obtain the cost data in the case of the smaller centres in Kerala, it was decided that Coondapur should be excluded from the main line of analysis in this section. Therefore, the locational advantage of the four established centres in the various markets has been discussed first in sub-section 2.8.1 and a comparison between Mangalore and Coondapur is done in sub-section 2.8.2.

2.8.1 Locational Advantage of the Four Established Centres, viz., Mangalore, Calicut, Quilon and Trichur, at the Important Markets

It was found that in the roofing tile industry the markets were 'attached' to one or the other centre over long periods. As said earlier, there are two types of tiles, i.e.,

the Mangalore pattern and the Feroke pattern, produced in the four centres studied here. It was observed that the cost of manufacture did not differ between the patterns and that manufacturers could easily shift from one pattern to the other. The 'attachment' of markets to particular centres was less due to the factor. Even if this improbable ease was true, once the preference of particular market for one of the either types is known, as the production centres can supply both, the product design cannot obstacle accessibility to any market. The differences in the quality of the product from different centres could not have lead to the 'attachment' of markets to particular centres. In every market there are groups of buyers who would opt tiles of different quality. Where the consumers' preference is not due to product design, nor due to differences in quality, this has no rational basis. The consumers in such cases can be educated and the markets can be made accessible to all the centres. Producers' lack of initiative was not a positive factor which lead to the 'attachment' of markets to a particular centre. It is assumed here, whatever be the reasons behind the 'attachment' of markets to individual centres, in future, all the markets are accessible to the four centres.

The locational advantage of the four production centres at the various markets is depicted in Table 2.8.1. The Table compares the manufacturing cost plus transport

Table 2.8.1 : Locational Advantage III : 'Manufacturing Cost + Transport Cost' Per 1000 Tiles*, 1967 (in Rs.)

Market	State in which the market is located	Calicut		Quilon		Trichur		Mangalore			Coondapur		
		(By Rail)	(By Coast upto Bombay, Rail thereafter)	(By Rail)	(By Coast upto Bombay, Rail thereafter)	(By Rail)	(By Coast upto Bombay, Rail thereafter)	(By Rail)	(By Coast upto Bombay, Rail thereafter)	(By Rail via New Mangalore-Hassen line)	(By Rail)	(By Coast upto Bombay, Rail thereafter)	(By Rail via New Mangalore-Hassen line)
Rail-head Markets													
<u>Local Markets of the four Centres</u>													
Calicut	Kerala	<u>112.61</u>		149.97		117.48		143.80				153.95	
Quilon	"	161.09		<u>101.49</u>		137.40		176.44				186.59	
Trichur	"	133.01		141.81		<u>97.08</u>		151.96				162.11	
Mangalore	Mysore	141.17		162.69		133.80		<u>115.24</u>				105.39	
<u>Other Rail-head Markets</u>													
Salem	Madras	149.81		165.73		<u>130.20</u>		167.08		171.88		177.23	182.03
Madurai	"	162.53		<u>133.41</u>		143.68		178.36		193.72		188.51	203.87
Tinnevely	"	171.65		<u>126.45</u>		152.52		186.28		202.60		196.43	212.75
Hyderabad	Andhra Pradesh	201.41	266.13	204.69	265.01	<u>183.48</u>	291.00	213.64	258.76	199.72		223.79	225.91 209.87
Poona	Maharashtra	217.25	227.01	219.81	225.89	<u>199.32</u>	251.88	229.24	219.64	203.32		239.39	186.79 213.47
Ujjain	Madhya Pradesh	245.33	262.77	238.29	261.65	<u>226.44</u>	287.64	251.08	255.40	247.48		261.23	222.55 257.63
<u>Coastal Markets (By Sea)</u>													
Penjim	Goa	164.61		163.49		189.48		<u>157.24</u>				124.39	
Ratnagiri	Maharashtra	172.61		171.49		197.48		<u>165.24</u>				132.39	
Bombay	"	180.61		179.49		205.48		<u>173.24</u>				140.39	
Broach	Gujarat	195.61		194.49		220.48		<u>188.24</u>				155.39	
Veraval	"	200.61		199.49		225.48		<u>193.24</u>				160.39	

* See Appendix Table 4 for Transport Costs.

Note : The lowest delivered price i.e., manufacturing cost + transport cost, in respect of each market has been underlined. The same has been done excluding Coondapur.

cost for the tiles manufactured in different centres at the various markets. It should be noted that Table 2.8.1 includes data for Coondapur also; however, no discussion of the centre is done in this sub-section. To facilitate the discussion Map No. 4 presents pictorially the locational advantages given in Table 2.8.1.

In their local markets the manufacturers from Mangalore, Calicut, Quilon and Trichur have an advantage over those from the other three centres. The manufacturers in Trichur have the highest advantage as compared with the advantage the manufacturers in other centres have in their respective local markets. Such advantage in their local markets is least for the manufacturers in Calicut.

In Salem, the tiles from Trichur are delivered at the lowest price (manufacturing cost plus transport cost). In this market the manufacturers from Calicut have an advantage over those from Mangalore and Quilon. The Madurai market can be supplied advantageously from Quilon. In respect of this market, the manufacturers from the centre have a relatively smaller advantage over those from Trichur; their advantage is significant when compared with the manufacturers in Mangalore and Calicut. In Tinnevely, the Quilon tiles have a delivered price (manufacturing cost plus transport cost) which is much lower than that of the tiles from the other three centres.

The manufacturers in Trichur are in the most happy position for supplying the three markets, Hyderabad, Poona and Ujjain. At present Poona market is supplied from Mangalore by the coastal route via Bombay port. The delivered price (cost of manufacture plus transport cost) of Mangalore tiles now is much higher than that of tiles from Trichur. It can be seen from Table 2.8.1 that when Poona market is supplied through the new Mangalore-Hassen railway link from Mangalore, the centre has only a marginal advantage as compared with Trichur.

In the coastal markets north of Mangalore, Mangalore is in an advantageous position as compared with the other three centres. The manufacturers in Calicut and Quilon are more or less in a similar position as regards these markets. Both these centres have a small disadvantage as compared with Mangalore. The industry in Trichur is in the least happy position for supplying the needs of coastal markets north of Mangalore.

The preceding paragraphs examined locational advantage of different centres by comparing manufacturing cost plus transport cost at the various markets. It may be appropriate to recall at this stage that in the 'non-attached' markets the tiles from different centres could sell at different rates. Thus a higher delivered price for its tiles need not always render a centre in a disadvantageous

position, for it is possible that the consumers are prepared to accept the product of the centre at a price higher than those of the others. In spite of the above qualification, indicators of locational advantage depicted in Table 2.8.1 seem acceptable. There has been no extensive survey of the markets for the roofing tile industry. Hence, there is no elaborate proof to support the contention. A few facts of the industry, however, are useful to drive the point home.

Recent facts pertaining to the industry reveal that price more than anything else has been the swaying influence. In the distant Central Indian markets where tiles are delivered at high prices, price advantage has been the main factor. Cheaper Trichur tiles meet the bulk of the needs; the high priced Calicut tiles reach only a fringe of the market. In the more proximate markets in Madras State, the consumers have a certain knowledge of the competing products. In these markets, the manufacturers in Calicut, whose tiles enjoyed a premium price over that of the others, have in recent years found that the price difference is a major constraint on their sales. As stated earlier a reputed firm from Calicut had conducted a survey of the markets in Madras State when the researcher was surveying the industry. An extract from the report of the said market survey helps to illustrate the unenviable position of Calicut tiles in the Madras markets. "All these markets

[Pudukkottai, Karaikudi, Shivaganga, Mettur, Madurai, Palani, Dindigal and Manaparai—all in interior Madras] are flooded with cheaper tiles from Ollur, Pudukkad and Keruvannur [Trichur area]. ... They [the selling agents] say that the quality of our [the said firm's] tiles is better as compared with other tiles but they pointed out that quality of other tiles has also improved. Since the consumers are after cheaper tiles they are not interested in dealing with our tiles. ... Consequently price and not quality that decides the market."¹

Perhaps it is only in the case of local markets that price may fail to be the prime factor. The tiles from the four centres have established themselves in their respective local markets. The local product in these markets may be able to retain the custom even when it has a minor price disadvantage.

There is historical evidence to show that, in the long run, it is the centres which supply cheaper tiles that stand to gain. The industry in Mangalore, Calicut and Quilon has remained stagnant during the last many years. This can be partly due to the existence of better opportunities for the investors. In the case of Calicut, however, the severe competition from the cheaper Trichur tiles could

¹ The report of the market survey is unpublished. As per the promise given by the researcher, the identity of the firm is not disclosed.

not have played a small role.

If the consumer is led by the price, that is, if he opts for the cheapest product available, then the locational advantage of different centres as can be learnt from Table 2.8.1 should be acceptable.

2.8.2 The Tile Industry in Mangalore and the Threat of Competition from Coondapur

Coondapur at present is an emerging centre. Like any other centre in its stage, Coondapur has lower manufacturing costs as compared with the other established centres. With this advantage the centre may be able to supply tiles to a number of markets at a price lower than that of the others. The manufacturing cost advantage of Coondapur is mainly due to its advantage in labour costs. Low wage rates in the centre are partly due to weaker bargaining power of the labour. Coondapur's manufacturing cost advantage would vanish to an extent as the labour gains strength. Thus when a comparison is made between Coondapur and an established centre, it is only when the centre has a significant advantage, can it be said, such an advantage would persist in future.

It can be seen from Table 2.8.1 that in Mangalore, Coondapur tiles have an advantage over the local product. However, as stated earlier, in the local markets of the four centres there can prevail a strong consumers' preference

in favour of the respective local product. Hence, there is little scope for Coondapur to make a headway in this case.

In the rail-head markets of Poona and Ujjain, Coondapur tiles can be delivered at a price lower than that of Mangalore. At present there are no exports from Coondapur to the Central Indian markets such as Ujjain. Small quantities are exported to Poona via the Bombay port. It can be seen from Table 2.8.1 that in the case of above two markets Coondapur has an advantage over Trichur. Such advantage, however, is negligible in the case of Ujjain market.

The coastal markets north of Mangalore are the traditional markets of Mangalore. The centre has an advantage over the three established centres in the above markets. However, as can be learnt from Table 2.8.1, Coondapur tiles can be delivered in these markets at a price significantly lower than that of Mangalore.

There is some truth behind the threat of competition from Coondapur tiles feared by the manufacturers in Mangalore. The tile units visited by the researcher in Coondapur reported that bulk of their produce is sold in the coastal market north of Mangalore. Table 2.8.2 depicts the market pattern for their tiles as reported by the surveyed units in Coondapur.¹

¹ In the case of Coondapur unlike in the case of established centres there was no secondary source giving the information regarding the market pattern of Coondapur tiles.

Table 2.8.2 : Market Pattern for the Tiles Manufactured by the Surveyed Units in Coondapur, 1967 (Quantity in Lakhs of Numbers)

Market	Tile Manufacturing Unit			
	B	C	D	E
Local Markets and Markets in Inland Mysore (catered by road)	4.63	1.58	4.95	9.84
<u>Coastal Markets</u>				
North Kanara and Karwar Ports	-	-	2.06	2.86
Goa Ports	-	-	0.82	1.00
Bombay Port	19.29*	4.02)	18.17	8.53
Other Maharashtra Ports	-	20.04)		8.49
Total	23.92	25.64	26.00	30.72

* Of this a quantity of 8 to 10 lakhs was destined to Poona market.

Source : Survey.

The production of tiles in Coondapur was reported to be around 2 crores in 1967. The production among the sample units formed nearly 50 per cent of this. Thus, from the market pattern for the surveyed units as depicted in Table 2.8.2, it can be granted that a good portion of the tiles manufactured in Coondapur is marketed in the coastal markets north of Mangalore. The tile industry in Coondapur

developed during 1950's. Hitherto the coastal markets mentioned above have remained a monopoly of Mangalore. It is also true that the industry in Mangalore relies heavily on these markets.

At present the production of tiles in Coondapur is small. (It is about 2 crores of tiles per year.) Thus it can be argued that in the near future the manufacturers in Mangalore may not face any severe competition from the manufacturers in Coondapur. Nevertheless it is probable, that a significant advantage in the coastal markets as depicted in Table 2.8.1 may induce a faster growth of production in Coondapur, if other factors do not impede. The manufacturers in Mangalore may face a situation similar to what the manufacturers in Calicut now face due to the rapid growth of the industry in Trichur since 1950. (With the exception of coastal markets that lie north of Mangalore, in the other markets, the tiles from Trichur can be delivered at a price lower than that of Calicut tiles.)

CHAPTER III

COFFEE CURING INDUSTRY

3.1 : Early Location History (Upto 1900)

3.1.1 Introduction

Coffee is a berry. It is processed before it is ready for consumption. Part of the processing is done in the coffee growing estates and part at the curing houses. There are two ways of preparing coffee in the estates, before it leaves for curing. One of them is termed as the 'wet method', the other as the 'dry method'. Coffee treated by the 'wet method' is known as Parchment coffee and that treated by the 'dry method' is known as Cherry.

There are two main species of coffee grown in India, viz., Coffee Arabica and Coffee Robusta. Both are amenable to either method of processing at the estates. There are, thus, four distinct types that reach the curing house for further processing. The four types are: Arabica Parchment, Arabica Cherry, Robusta Parchment and Robusta Cherry. Arabica Parchment is also known as 'Plantation' coffee. The latter name is more in usage.

The 'clean coffee content' in a given weight of fresh berries is 20 per cent. That is, a mill requires 500 kilograms of fresh coffee berries to obtain 100 kilograms of clean coffee.¹ The loss of weight, thus, is 80 per cent.

¹ Coffee in Latin America, Productivity Problems and Future Prospects: 1 Columbia and El Salvador, United Nations, New York, 1958, p. 144.

In India, as the fresh berries are not transported to curing houses, the entire weight loss does not take place at the curing house. Part of the weight loss takes place at the plantations, and part at the curing house. The loss of weight, at the plantations and at the curing house differs for the four types. 'Plantation' (i.e., Arabica Parchment) and Robusta Parchment undergo a greater amount of processing at the estate, than Arabica Cherry and Robusta Cherry. Hence, the loss of weight at the plantations is greater in the case of the former two. On the other hand, the loss of weight at the curing house is greater in the case of Arabica Cherry and Robusta Cherry.¹

3.1.2 Locational Factors (Upto 1900)

The existing method of curing in India uses coffee husk as fuel. Thus, fuel does not exert any influence on the location of curing houses. The curing process, as stated earlier, is of weight losing nature. To secure a tonne of cured coffee of the type, it requires 1.3156 and 1.2155 tonnes of uncured coffee in the case of 'Plantation'

1 (a) In the coffee trade, Arabica Cherry is often called "Cherry". In the present study, wherever not specified, the term Cherry is used to refer to the general category Cherry, i.e., both Arabica and Robusta Cherry.

(b) Robusta Parchment coffee is a small quantity at present. In the official statistics and in the trade, Robusta Parchment and Robusta Cherry are clubbed together and called "Robusta". Owing to the preponderant ratio of Cherry in Robusta, the term implies Robusta Cherry in trade circles.

and Robusta Parchment respectively. As regards the other two types, Arabica Cherry and Robusta Cherry, the quantum of uncured coffee required is 1.8965 and 1.9135 tonnes respectively (see Table 3.4.12). The basic material, uncured coffee, represents the major pull in the location of curing houses.

Geographical location of the coffee growing areas was the dominating factor that decided the location of curing houses. Demand factor could in certain cases draw the industry a little away from the plantations. Other factors like labour also played their role.

Geographical Location of Coffee Growing Areas :-

"Plantations were first started on an experimental basis in the plains in Malabar but regular coffee estates came to be opened only towards the end of the eighteenth century. From the plains the plant was taken to higher elevations. In 1820 and next few years coffee plantations were started on the Bababudans [Mysore State] where the local people had small plots under coffee."¹ Coffee plantations in the other coffee growing areas were started in the following chronological order (Table 3.1.1).

To facilitate the curing of coffee grown in the

¹ Report on the Marketing of Coffee in India and Burma, Government of India, New Delhi, 1940, p.15. Henceforth whenever the source is quoted, it will be referred to as Report.

Table 3.1.1 : The Year of Starting of Coffee Plantations
in the Various Coffee Growing Areas

Coffee growing area	The year when the coffee plantations were started
Bababudans	1820
Wynaad	1826
Shevroys	1830
Nilgiris	1839
Coorg	1840
Kannan Devan	1880
Nelliampathis	1860
Angamalais	1906

Source : Report on the Marketing of Coffee in India and Burma, 1940, p. 15.

Bababudans and its adjacent areas, curing houses were located in Mangalore (1848).¹ For the convenience of the planters in Coorg, curing industry was started in Telli-cherry (1876). A curing unit was located in Hunsur (1862). Hunsur is situated at a convenient distance from the North Coorg plantations. The Wynaad coffee necessitated the establishment of curing industry in Calicut (1862). The other coffee growing areas Nilgiris, Shevroys, Pulneys, Angamalais, Nelliampathis and Kannan Devans are small. The industry in Coimbatore (1862) owes its existence to the

¹ The figures in the brackets in this paragraph refer to the year in which the first curing unit was started in the respective centres.

supply of coffee from these areas. The curing centres that existed prior to 1900 and the coffee growing areas which necessitated their establishment are presented in Table 3.1.2.

Table 3.1.2 : Location of Curing Centres Prior to 1900

Coffee Growing Area	Curing centres, which cured the areas crop
Bababudans and the adjacent areas	Mangalore Hunsur
Coorg	Tellicherry Hunsur
Wynsad	Calicut
Nilgiris, Shevroys, Pulneys, Anxamalais, Nelliampathis, Kannan Devans	Coimbatore

Map No. 5 presents the coffee growing areas and curing centres up-to-date. From the Map can be located the curing centres existed before 1900.

Demand Factor :- Majority of the curing houses that were established prior to 1900 were located on the coast. Mangalore, Tellicherry and Calicut are port towns. There were two inland centres, viz., Coimbatore and Hunsur, before 1900. The growth of curing capacity on the coast and in the inland during the nineteenth century is depicted in Table 3.1.3.

Table 3.1.3 : Curing Capacity Upto 1900 (in Tonnes)

Year	West Coast	Inland	Total
1848	2,000	-	2,000
1862	5,200	4,860	10,060
1876	11,200	4,860	16,060
1900	11,200	4,860	16,060

Courtesy : Coffee Board.

It is said that nearly 96 per cent of Indian coffee was grown for export.¹ The location of curing houses and concentration of curing capacity on the coast have often been explained on the basis of export orientation of demand for Indian coffee.

The export demand and its influence on the location of curing houses needs elucidation.

The exports of coffee from India were not entirely in cured form. Cherry coffee was mostly exported in uncured form. "The whole fruit is simply dried and shipped as cherry mainly to the United Kingdom and France. Final treatment then takes place in the country of destination."²

1 D. R. Gadgil, The Industrial Evolution of India, Oxford University Press, Calcutta, 1948, p. 51.

2 Daniel H. Buchannan, The Development of Capitalistic Enterprise in India, The MacMillan Company, New York, 1934, p. 71.

Approximately, 8,500 tonnes of Parchment and 2,600 tonnes of Cherry (average for the years 1935-36 to 1938-39) only were cured even as late as the thirties of the present century.¹ According to the Report "About 60 per cent of the estimated actual production does not pass through the curer."² The observation refers to the period 1935-36 to 1938-39. The portion of Indian coffee that underwent curing during the past century must have been much less. Much of the exports were accounted for by uncured coffee.

The exports of uncured coffee has no relevance for the location of curing houses. In point of fact, the factor that could influence the location of curing houses on the coast is the extent to which cured coffee was exported. Unfortunately, curing statistics are available only for the period after 1940. Export statistics, though they date back to the past century, do not distinguish between exports of cured and uncured coffee. The required statistics are absent; however, it is possible to contend that much of the cured coffee was exported.

Table 3.1.4 presents data relating to production and exports of coffee during the period 1885 to 1900. As can be seen from the Table, for many years exports were

1 Report, p. 42.

2 Ibid.

**Table 3.1.4 : Production and Exports of Coffee, 1885-1900
(in Tonnes)**

Year	Production	Exports
1885	15,857	18,849
1886	14,223	18,820
1887	17,315	13,908
1888	12,034	18,558
1889	13,544	12,182
1890	10,025	11,860
1891	17,986	15,843
1892	15,449	15,073
1893	17,329	14,160
1894	15,996	14,290
1895	18,208	14,778
1896	11,834	10,709
1897	10,906	11,431
1898	10,755	13,719
1899	8,011	14,293
1900	9,790	12,519

Source : Agricultural Statistics of India for the Years 1901-02 to 1905-06, Vol. I, Department of Revenue and Agriculture, Government of India, Calcutta, 1907, p. 365.

greater than production. The figures of production above, were obtained from the owners and managers of coffee estates. Where such information was not provided, the production of those estates remained excluded.¹ Thus, the production figures in the Table could be gross under-estimates. In spite of the inconsistency of the data presented in Table 3.1.4 it can be broadly granted that production was mainly oriented towards exports.

Whether 96 per cent of Indian coffee was exported is debatable. However, it can be granted that a substantial part of the production was meant for exports. Thus, most of the coffee produced in India, whether cured or uncured, was exported. It seems more probable that a greater portion of cured coffee was exported as compared to that of uncured.

The early investment in the plantation industry was mainly European. The coffee they grew, was almost entirely meant for exports. In the early years these exports of coffee were in uncured form. In later years it must have been found that to export coffee in cured form was more economical. The latter saved on transport cost. Thus a part of the coffee was cured in India. The cured coffee was only a substitute for the uncured one. The market for cured coffee thus remained the export market.

¹ Agricultural Statistics of India for the Years 1901-02 to 1905-06, Vol. I, p. 364.

The export orientation of the demand for Indian coffee could influence the location of curing houses on the coast only in respect of some of the coffee growing areas. The coffee plantation of Bababudans and the adjacent areas, Coorg and Wynad, groom the Western Ghats where they line the coast. Due to the export bias of the demand for Indian coffee, curing houses for the above plantations were located on the coast in Mangalore, Tellicherry and Calicut. Near the Nilgiris, the Western Ghats turn to the east. Export demand, in this case, could not draw the curing capacity to the coast. Curing houses were located in Coimbatore situated inland at the foot of the Nilgiris.

Until 1900 (even long after that), much of the curing capacity was located on the coast (see Table 3.1.3). The concentration of the curing capacity on the coast was not solely due to the export orientation of the demand for coffee. It is more due to the geographical location of the growing areas which accounted for a greater share of Indian coffee.

'Mysore' and Coorg areas accounted for the greater share of Indian coffee. Reliable production statistics are wanting to prove the same. Though the quality of the data relating to acreage deserves much to be told, can be utilized for the broad analysis.¹ Table 3.1.5 provides the relevant data.

1 Report, p. 16.

Table 3.1.5 : Area Under Coffee, 1885-1900 (in Acres)

Year	Mysore	Coorg	Madras	Travan- core- Cochin	Others	Total
1885	105,021	63,150	62,228	7,049	46	237,494
1886	102,688	64,050	59,407	5,025	193	231,363
1887	113,116	63,393	59,612	8,751	147	245,019
1888	114,962	62,738	61,890	6,619	149	246,358
1889	122,330	63,207	71,003	5,539	137	262,216
1890	128,452	62,741	73,762	5,610	114	270,679
1891	125,747	62,230	68,911	5,867	92	262,847
1892	127,437	59,985	68,237	5,712	83	261,454
1893	132,520	63,783	64,270	6,242	68	266,883
1894	136,052	71,181	63,812	6,587	71	273,703
1895	138,670	73,828	64,065	6,955	78	283,596
1896	141,528	84,820	72,032	5,564	184	304,128
1897	125,876	86,155	68,853	7,624	216	288,724
1898	128,083	82,575	70,090	6,384	235	287,367
1899	128,010	72,296	66,793	7,069	227	274,395
1900	128,087	68,596	69,540	7,404	307	273,934

Source : Agricultural Statistics of India for the Years 1901-02 to 1905-06, Vol. I, Department of Revenue and Agriculture, Government of India, Calcutta, 1907, p. 365.

It can be seen from Table 3.1.5 that the then princely States of Mysore and Coorg accounted for a greater share of the acreage under coffee. The Bababudans and the adjacent areas accounted for the entire acreage under coffee in Mysore. Most of the coffee from Mysore and Coorg could be conveniently cured in Mangalore and Telli-cherry respectively. Part of the coffee grown in the erstwhile Madras State in the Wynaad areas also had to come to the coast at Calicut. Naturally, more coffee was available for the coastal centres due to the geographical location of the coffee growing areas which accounted for a greater share of India's coffee.

If the coffee growing areas in the Nilgiris, Shevroys and Pulneys (located in Madras State) had accounted for the greater share of India's crop, possibly, the curing capacity would have been concentrated inland. The export demand could hold the sway for coastal locations only in the case of coffee growing areas that are in close proximity to the coast viz., Bababudans (under Mysore), Coorg and Wynaad (included under Madras).

Labour :- There is another aspect of the location of the curing industry which has to be referred to. All the curing centres located prior to 1900 were on the plains. The first of the curing centres located amidst the plantation at higher elevations came in 1939.

The plantations at high elevations suffered from a labour shortage. The labour required for coffee plantations in India was supplied from the nearby plains.¹ The curing industry required a better skill than the plantation industry. Such labour would have been almost impossible to secure at the plantations. Thus, even up to this date, but for the exception of a few, most of the curing centres are located in the plains adjacent to the coffee growing hills.

In the case of Nilgiris, Shevroys and Pulneys, export demand could not draw the curing industry to the coast. The labour factor, however, required the curing industry to be located on the plains where labour was available. Coimbatore at the foot of the Nilgiris, centrally located from the other two areas and the areas in Travancore-Cochin, cured the coffee.

The coffee growing areas of 'Mysore', Coorg and Wynaad line the coast. From the point of view of availability of labour the choice was dual. Curing houses could be located in the plains in the interior or on the coast. The location of curing houses on the coast in Mangalore, Telli-cherry and Calicut in respect of the above areas can be explained thus. As a service industry to the planter,

¹ Report of the Plantation Inquiry Commission, 1956, Part II - Coffee, Government of India, Delhi, p. 83.

curing industry had to be conveniently located from the coffee growing areas. The coastal centres were not inconvenient from the planters' point of view as compared with the location in the plains in the inland. Further, the planter after getting his coffee cured had to arrange for its sales. The export dealers who were buyers of coffee would naturally be found on the coast. Thus, coastal locations were favourable to the planter from the point of view of marketing his coffee. The coastal locations were advantageous even from the curers' point of view. Unlike as it is at present, the curing industry then was not wholly a service industry. Curers themselves were planters, large buyers and exporters of coffee. Their being exporters of coffee added to the attraction of coastal locations. Finally, location of the curing industry facilitated the non-planter non-curer export dealers who were mainly concentrated on the coast.

3.1.3 Transport Costs in the Coffee Curing Industry

Curing houses in India are located not very much far removed from the plantations. Transport costs have been accorded consideration while locating the curing houses. However, a more subtle or detailed consideration of transport costs. Cherry coffee loses greater weight in curing than Parchment coffee. Curing houses located nearer the plantations give greater savings in the case of Cherry.

In India the curing houses which are located amidst the plantations do not specialize in curing Cherry. Also the planters do not choose to send their Cherry coffee to curing houses which are more conveniently located.

Cherry coffee loses a greater amount of weight in curing. But this will be a matter of concern, only if the curing centre is located at a long distance from the plantations. This may be due to the lesser importance of transport costs. It can be seen from Table 3.1.6 that transport costs do not form an important component in the cost of producing coffee to the consumer.

The importance of transport cost in any industry cannot be learnt from their present influence. Partly the low transport costs in the coffee curing industry in India are due to the prudent location of the curing houses in the past. The curing houses in India are not located very much removed from the plantations whose coffee they cure. From the demand point, at present, Indian coffee has two equally important components, viz., the export demand and the internal demand. The internal demand is confined to the States where coffee is grown and cured. There are convenient ports in these States for the exports. Hence the lesser significance of transport costs.

Purely from the point of view of transport costs, there is a certain distance beyond which curing houses may

Table 3.1.6 : Retail Price Structure of Coffee, 1967
(Rupees Per Tonne)

	'Plantation'-A		Robusta Cherry-AB	
Cost of producing coffee at the estate	4254.74	(71.3)	3192.78	(71.6)
Transport cost to curing houses	30.26	(0.5)	43.82	(1.0)
Curing costs	115.00	(1.9)	115.00	(2.6)
Pool expenses	165.00	(2.8)	165.00	(3.7)
Average freight	80.00	(1.3)	80.00	(1.8)
P.O.R. changes	98.80	(1.7)	98.80	(2.2)
Duties, Taxes and Profits to selling agencies	1224.40	(20.5)	764.60	(17.1)
Total	5968.20	(100.0)	4460.00	(100.0)

- Notes:**
- Among the comparable grades in the four types of coffee, 'Plantation' (Arabica Parchment) fetches the highest price, and Robusta Cherry the least. Transport costs are higher in the case of Cherry as compared with Parchment coffee. The two extreme cases have been selected to examine the importance of transport costs. The retail price structure for 'Plantation'-A given above refers to the price effective from 1-3-1967 provided in Coffee Statistics, 1964-65 to 1966-67, p. 133. Retail price of Robusta Cherry AB refers to the price on 31-3-1967 as given in Twenty-Seventh Annual Report, 1966-67, Coffee Board, p.108. Retail price structure for Robusta Cherry-AB is not available in the Coffee Board's publications; the same has been derived with the help of price structure given for 'Plantation'-A.
 - The retail price structure of coffee as presented in the Coffee Board's statistics has an item the Return to the Planter. This includes cost of producing coffee at the estate, cost of transporting uncured coffee to the curing houses and the curing costs. In the above Table they have been shown separately. The transport cost on uncured coffee have been estimated on the basis of information obtained during the survey (1967). Curing costs are those fixed by the Board for the season 1966-67.
 - The item Pool expenses in the Coffee Board's statistics includes the Excise Duty of Rs.2.50 per 50 kg. This has been included in 'Duties, Taxes and Profits to Selling Agencies'. The Pool expenses indicated above are exclusive of the Excise Duty.

not be drawn away from the coffee growing areas. Thus, even if the internal markets had spanned the entire country, curing industry could not have had a very wide dispersal. In other words, when the important markets are situated at long distance the curing industry cannot be located near them. If they are so located in that case transport costs are bound to attain importance.

It is due to the lesser importance of transport costs, as an extreme case even fresh berries are transported to the curing houses. In El Salvador "After picking, the fresh coffee berries are immediately taken to one of the country's 150 processing plants for conversion into green coffee ready for export. ... Most mills have their own lorries and there are cases in which the crop is carried from the coffee fields to mills not less than 70 kilometres away."¹

Under the existing tariff in India a distance of 70 kilometres from the plantations for the location of curing houses need not raise any exclamation. The curing houses are located at distances ranging from 25 to 120 kilometres from the coffee growing areas.

Transport costs have been treated with due respect in the other major coffee producing countries. In Columbia

¹ Coffee in Latin America Productivity Problems and Future Prospects: 1 Colombia and El Salvador, p. 130.

"a major share of ... output of coffee berries (rather more than 90 per cent) is processed on the farms upto the point at which the parchment coffee is fully dried, and some, on the other hand, only until the drying is sufficiently far advanced for the parchment coffee to be economically transported to the place where the drying is completed."¹ In Sao Paulo (the State which contributes the major portion of Brazil's coffee) coffee is dried in the farm first.² "A great deal of coffee is sold in the farm (dry pod coffee) before it is sent to a specialized mill for hulling and final grading."³

The location of early curing houses in India paid due respect to transport costs. The dispersal of the industry over time, as will be seen, was no doubt influenced by transport costs. A very meticulous care of this item, however, was not taken. This was possibly not thought necessary. The other factors received more attention.

1 Ibid, p. 63.

2 Coffee loses weight in drying. Transportation of undried fresh berries is uneconomical.

3 Coffee in Latin America: II. Brazil, State of Sao Paulo, Part I, The State and Prospects of Production, United Nations, Mexico, 1960, p. 41.

3.2 : Location History: Coffee Curing Industry (1900-1940)

3.2.1 Growth of Curing Centres 1900-40

The early curing centres in India were established to facilitate the curing of coffee grown in particular coffee growing areas. The curing centre in Mangalore was established to facilitate the curing of coffee from the coffee growing areas presently categorized as 'Bababudans' and 'Other Mysore'. Tellicherry cured the coffee from Coorg. A part of the Coorg coffee and a small quantity of 'Other Mysore' coffee were cured in Hunsur. For the convenience of growers in Wynaad, curing houses were started in Calicut. The smaller coffee growing areas viz., Nilgiris, Shevroys, Pulneys, Nilliampathis, Anjama-lais and Kennan Devan, sent their coffee to Coimbatore.

According to the Report, the distribution of 'major' and 'minor' curing yards during the late 1930's was as given in Table 3.2.1.

The Report elsewhere states that there were minor curing yards in Dindigul, Virudhunagar and Kannankurchi (i.e., present curing centre Salem) also.¹

During the year 1940, the highest number of curing yards were located in Mangalore. By the number of curing

1 Report, p. 149.

Table 3.2.1 : Distribution of Curing Yards in India, 1940

Curing Centre	Number of curing yards
Major Curing Yards	
Mangalore	4
Chikmagalur	1
Hunsur	1
Mysore (city)	1
Tellicherry	3
Calicut	1
Coimbatore	2
Minor Curing Yards	
Mettupalayam	3
Bangalore	1

Source : Report on the Marketing of Coffee in India and Burma, 1940, Appendix XXVI.

yards Tellicherry and Coimbatore ranked second and third respectively. The curing centres, Mangalore and Tellicherry are located on the coast, whereas Coimbatore is situated in the inland. It can be seen from Table 3.2.2 that all along the period 1900-40 the curing capacity on the coast was more than the curing capacity located in the inland.

Much of the curing capacity on the coast was concentrated in the two centres viz., Mangalore and Tellicherry. This is evidenced by Table 3.2.1. Table 3.2.3

Table 3.2.2 : Growth of Curing Capacity on the West Coast and in the Inland (1900-40)

Year	Cumulative curing capacity in Tonnes per year	
	West Coast	Inland
1900	11,200	4,860
1909	13,090	4,860
1914	17,090	4,860
1916	17,090	5,735
1917	17,090	8,135
1937	30,090	12,295
1938	30,090	15,415
1940	30,090	16,915

Courtesy : Coffee Board.

substantiates the fact further. It gives the employment in the curing industry in the different centres during the years 1915-37.

It can be seen from Table 3.2.3 that the curing industry employed more persons in Mangalore than in other centres. Tellicherry on the coast ranked second among all the centres by the employment it provided in the curing industry. The third coastal centre i.e., Calicut, compered less favourably either with Mangalore or Tellicherry by the employment it provided in the industry. It is now

clear that much of the coastal curing capacity was concentrated in the two centres, Mangalore and Tellicherry, and of the two the former by far was the more important.

Table 3.2.3 : Employment in Coffee Curing Industry,* 1915-37

Year	Mangalore	Tellicherry	Calicut	Coimbatore	Hunsur	Mysore City
1915	1,570	475	436	335	68	-
1917	2,070	940	640	320	N.A.	-
1919	2,012	983	564	407	100	-
1925	1,722	771	521	711	50	-
1931	2,375	706	434	538	49	-
1933	2,373	789	455	617	N.A.	-
1935	2,336	782	492	679	N.A.	33
1937	4,710 [‡]	682	N.A.	592	247	35

* The minor curing yards in Mettupalayam do not appear in the source.

‡ The employment figure is very high and seems inconsistent. There were some units in Mangalore which combined coffee curing and cashew decorticating. It seems the employment figure for 1937 includes those workers engaged in decorticating cashew also in such units.

N.A. = Not Available.

Source: Large Industrial Establishments in India.

It is noticeable from Table 3.2.3 that Coimbatore was the most important among the inland curing centres. By the employment it provided in the curing industry the

centre ranked third among all the centres after the year 1925.

The preceding paragraphs examined the development of curing industry in its various centres during the period 1900-40. The following paragraphs enquire into the factors which influenced the industry's growth.

3.2.2 Production of Coffee in the Different Coffee Growing Areas as a Factor Influencing the Growth of Industry in Its Various Centres

Curing centres are located with respect to a particular coffee growing area. There can be, however, more than one curing centre located with respect to a particular coffee growing area and depending upon the area's supplies of coffee. Each coffee growing area thus has a group of curing centres attached to it. In almost all the cases, curing centres depending on a particular coffee growing area are more conveniently located with reference to it. Thus, it is possible to treat individual coffee growing areas and the curing centres dependent on its supplies, separately. In such a situation the growth of a curing centre is influenced by two factors viz., (1) increase in the production of coffee in the area on which the centre depends and (2) the centre's competitiveness as compared with the other centres which depend on the same coffee growing area.

In the following paragraphs, firstly, curing centres which depended on different coffee growing areas are identified. Secondly, increase in the production of coffee in the various coffee growing areas is traced. From this it was possible to know the supply of coffee available to the different groups of curing centres each of which was dependent on a particular coffee growing area.

On the basis of the information provided in the Report, the curing centres which competed for the coffee grown in different areas can be tabulated as shown in Table 3.2.4.

Curing centres that competed for the coffee grown in different areas during the period 1900-40 have been identified. Now it remains to see, the extent of coffee made available by the various growing areas, to the centres that depended on them. Production statistics are inexhaustive even during the period 1900-40. 'Indian Coffee Statistics' which provides the data from the year 1919-20 does not include production of estates below 10 acres upto 1931-32; for the years 1932-33 onwards estates below 5 acres remain excluded in the source. The data, however, have been presented in Table 3.2.5.

The Report gives exhaustive estimates of production for the years 1932-33 to 1936-37. The same are presented in Table 3.2.6.

Table 3.2.4 : Coffee Growing Areas and the Curing Centres Dependent on Them, 1900-40 *

Coffee growing area	erstwhile State where the growing area is located	Curing centres which cured the areas crop
Bababudans and 'Other Mysore' (areas adjacent to Bababudans)	Mysore	Mangalore Hunsur
Coorg	Coorg	Hunsur Mysore City Tellicherry
Wynaad	Madras	Calicut
Shevroys, Anamalais	Madras	Coimbatore
Kilgiris	Madras	Coimbatore Mettupalayam
Biligiris	Mysore	Coimbatore
Kannan Devan	Travencore	Coimbatore
Nelliampathis	Cochin	Coimbatore Calicut

* A curing unit was located in 1939 in Chikmagalur to cure 'Mysore's' coffee. A curing unit was located in the year 1935 in Mysore city to cure the coffee from Coorg. The two centres could have offered little competition to the other curing centres which depended upon 'Mysore' and Coorg coffee plantations during the period 1900-40. Hence the two centres, Chikmagalur and Mysore^{city} do not feature in the Table.

Source: Report on the Marketing of Coffee in India and Burma, 1940, pp. 43-44 and 161-63.

Table 3.2.5 : Production of Coffee 1919-20 to 1939-40
(in Tonnes)

Year	Mysore	Coorg	Madras	Travan- core	Cochin	Total
1919-20	4,241	3,183	2,071	72	104	9,671
1920-21	4,464	3,261	2,243	86	129	10,183
1921-22	4,328	2,478	2,342	19	125	9,292
1922-23	-	-	-	-	-	11,348
1923-24	4,523	2,363	1,631	59	107	8,683
1924-25	5,320	3,850	4,385	78	188	13,821
1925-26	5,686	2,209	2,053	36	42	10,026
1926-27	7,349	4,808	3,135	93	162	15,547
1927-28	7,172	3,442	5,230	160	124	16,128
1928-29	6,783	3,496	2,190	80	45	12,593
1929-30	7,440	6,652	3,660	30	97	17,879
1930-31	-	-	-	-	-	14,954
1931-32	7,338	4,384	3,434	10	80	15,299
1932-33	7,635	4,087	3,065	80	116	14,983
1934-35	7,221	4,155	3,331	57	102	14,866
1935-36	7,705	4,752	5,841	87	290	18,675
1936-37	6,795	5,026	3,361	63	197	15,442
1937-38	7,539	3,457	4,043	50	113	15,202
1938-39	8,578	4,075	5,273	82	185	18,193
1939-40	7,744	3,528	4,375	29	157	15,794

Source : Indian Coffee Statistics 1927-28 to 1940-41,
Department of Commercial Intelligence and
Statistics, Government of India, Calcutta.

**Table 3.2.6 : Production of Coffee 1932-33 to 1936-37
(in Tonnes)**

Year	Mysore	Coorg	Madras	Travan- core	Cochin	Total
1932-33	12,445	6,671	4,526	877	354	24,873
1933-34	9,402	7,614	7,822	820	511	26,169
1934-35	15,054	9,380	6,092	718	339	31,583
1935-36	16,434	8,153	9,830	927	314	35,658
1936-37	13,572	7,502	7,136	932	296	29,438

Source : Report on the Marketing of Coffee in India and Burma, 1940, pp. 286-87.

It can be seen from Table 3.2.5 that the erstwhile State of Mysore accounted for nearly 45 per cent of India's crop in 1919-20. In 1939-40, its share was nearly 50 per cent of the total production. The absolute increase in the production of coffee was highest in the State. Coffee production in Coorg does not show any regular tendency. It has been fluctuating all through the period 1919-20 to 1939-40. Nevertheless, it can be seen from Table 3.2.5 that the production in Coorg has always been less than the production in the erstwhile State of Mysore. There has been a considerable increase in the coffee grown in the erstwhile Madras State. However, in absolute terms even in 1939-40 the production in the erstwhile Madras compared less favourably with that in erstwhile Mysore.

As stated earlier production estimates in Table 3.2.5 are inexhaustive. However, production estimates given in the Report presented in Table 3.2.6 lead to the same conclusion. Erstwhile Mysore State accounted for nearly half of India's coffee crop.

It was observed that not all the coffee that was produced was cured. Thus the production of coffee in different areas cannot be taken as reliable indicators of supply of coffee for curing to the centres which depended on them. The quantity made available for curing, however, is not a natural factor. It could depend on the discretion of the planter to send his coffee to the curing houses or get it estate-pounded. It could depend purely on the curers' efforts in convincing the planter of the gains of industrial processing of his coffee. If the greater proportion of some areas' crop made available for curing was due to planters' discretion, it can be treated as a locational advantage of the centres which depended on those coffee growing areas. On the other hand, if it was purely the result of curers' efforts, there is less to speak of any locational advantage, unless, it can be argued that the better efforts on the curers part in a particular centre is a reflection of entrepreneurial ability and hence a factor endowment of the location.

Whatever be the cause behind the quantity made available for curing from different areas, it is a fact

that a larger quantity was available in the erstwhile States of Mysore and Coorg. Table 3.2.7 evidences the fact. The Table gives the average quantity cured of the coffee grown in different areas during 1935-36 and 1936-37.

Table 3.2.7 : Quantity of Coffee Belonging to Different Growing Areas Cured (Average 1935-36 and 1936-37)

Coffee growing area	Erstwhile State where the growing area is located	Quantity cured (tonnes)
Mysore (Bababudans and 'Other Mysore')	Mysore	3,571
Coorg	Coorg	2,755
Wynaad	Madras	13
Nilgiri/Wynaad	"	585
Niligiris	"	150
Shevroys	"	600
Biligiris	Mysore	207
Anjammallais	Madras	433
Nelliampathis	Cochin	284
Kannan Devan	Travancore	63

Note : The data are given in terms of bushels. Conversion formulae used are:

95 bushels = 1 ton of cured coffee for parchment
140 bushels = 1 ton of cured coffee for cherry

as given in the Report, Appendix IX, p. 277.

Source: Report on the Marketing of Coffee in India and Burma, 1940, Appendix XIV, pp. 292-93.

It can be noticed from Table 3.2.7 that as compared with the other coffee growing areas, more coffee was made available for curing by 'Mysore' and Coorg areas. Thus as a group the curing centres which depended on the above areas enjoyed better supplies of coffee than the curing centres which depended on the other coffee growing areas. There were two curing centres viz., Mangalore and Hunsur, which were competing for the 'Mysore' coffee. The Coorg coffee was competed for by Tellicherry and Hunsur. As compared with Mangalore, Tellicherry and Hunsur the curing centres which depended on Wynaad, Niligiri/Wynaad, Niligiris, Biligiris, Shevroys, Anjmalais, Nelliampathis and Kannan Deven coffee growing areas, were as a group in a less favourable position as regards the supply of coffee. There were three curing centres viz., Calicut, Coimbatore and Mettupalayam, competing for the coffee grown in the last-mentioned plantations.

'Mysore' coffee growing areas accounted for more than 90 per cent of the production in the erstwhile State of Mysore. Biligiris which were also located in the State accounted for less than 10 per cent of the area. Coorg areas represent the entire plantations in the erstwhile Coorg. 'Mysore' and Coorg areas together accounted for nearly 70 per cent of India's production (see Table 3.2.6). There were three curing centres viz., Mangalore, Tellicherry and Hunsur, dependent on these plantations. Of the

three, curing industry in Mangalore experienced the fastest growth. The progress of the industry in Tellicherry was less commendable as compared with the industry in Mangalore. Relatively the growth of the industry was slowest in Hunsur; it can be said it was almost stagnant. According to the Report nearly 90 per cent of 'Mysore' coffee came to Mangalore for curing¹ and a large part of Coorg coffee went to Tellicherry.² Small quantity from Coorg and a negligible quantity from 'Mysore' came to Hunsur for curing.

The Wynaad areas in the erstwhile Madras State sent their coffee to Calicut for curing.³ There was no competitor for Calicut as regards this coffee. However, the quantity of coffee available for curing from these areas compared nowhere with the quantity made available by 'Mysore' and Coorg areas.

The coffee growing areas in the erstwhile Madras State excluding Wynaad and Pulneys sent their coffee to Coimbatore for curing. The entire crop from Anjmalais and Biligiris came to Coimbatore. Most of the Niligiri crop was cured in Coimbatore. Only a small portion went to Mettupalayam and Calicut. According to the Report only half of the Shevroy coffee came to Coimbatore for curing.

1 Report, p. 44.

2 Ibid, p. 163.

3 Ibid, p. 43.

Of the other half, possibly, a small quantity was cured in Salem (Kannankurchi). The curing unit in Salem was established in 1938. During the period 1900-38 the part of the Shevroy coffee that underwent curing must have entirely come to Coimbatore.¹ As a group the curing centres, Coimbatore and Mettupalayam, were in a less favourable position as compared with the centres which cured the 'Mysore' and Coorg coffee. However, as the curers in Coimbatore could secure a greater portion of the coffee grown in the areas in erstwhile Madras, Travancore and Cochin States, the industry here showed a better growth than in Calicut (see Table 3.2.3).

In the present sub-section, the locational advantage of different groups of curing centres dependent on different coffee growing areas was discussed from the point of supplies of coffee. It was found that the curing centres which depended on 'Mysore' coffee were in the most favourable position. The curing centres conveniently located from the Coorg plantations had the next best advantage. It could also be learnt that among the curing centres which depended on a particular coffee growing area, some one individual centre showed a better performance. The curing centre in Mangalore could secure almost the entire 'Mysore' coffee. The greater part of the Coorg coffee went to

1 Ibid, pp. 43-44.

Tellicherry. Most of the coffee growing areas in the erstwhile States of Madras, Travancore and Cochin sent their coffee to Coimbatore for curing. The next subsection enquires into the factors that acted favourably in the case of Mangalore, Tellicherry and Coimbatore when there were competing centres for the coffee they cured.

3.2.3 Institutional Factors which Acted Favourable to Mangalore, Tellicherry and Coimbatore 1900-40

Almost the entire coffee from 'Mysore' areas (Bababudans and the adjacent areas) came to Mangalore for curing. A good part of the Coorg coffee was cured in Tellicherry. There was another centre competing for the coffee grown in the above areas. The curing centre in Hunsur was established as early as 1862. Its location from the growing areas of 'Mysore' is not less advantageous as compared with Mangalore. It is as much conveniently located from the Coorg coffee growing areas as is Tellicherry. However, all through the past century and during the period 1900-40 the industry in Hunsur showed little growth; (there was no improvement thereafter). There were institutional factors which acted in favour of both Mangalore and Tellicherry and there was an economic factor which acted in favour of Mangalore.

Coimbatore cured most of the coffee grown in the erstwhile States of Madras, Travancore and Cochin. There were some minor curing yards in Mettupalayam which were

more conveniently located at least from the Nilgiris. Only a small quantity from the Nilgiris was cured in Mettupalayam. As will be seen, an explanation for the phenomenon has to be sought in the institutional factors.

The curers played a pivotal role in all the stages of coffee trade. About 50 per cent of the crop was handled by them. They combined the functions of the financier, curer, assembling agent and wholesale buyer.¹ But it is their acting as financier to planters that was of crucial importance. The curers were the biggest financiers of coffee estates in India. The planters always looked to them for the finances and also the necessary supplies of estate requisites. The curers, while advancing money, made it a condition that the coffee would be cured and sold by them. They, thus, acquired lein on the present as well as the future crops. The planter also stood to gain from the curer's finance. The rate of interest charged by the latter was less than that charged by some other agencies viz., commission agents and itinerant merchants. The curer's rate, however, was higher than the rate charged by the bankers from whom he borrowed at the first instance. The bankers usually did not lend the planters directly. The government loans to the planters also carried a lower rate than the curer's.²

1 Ibid, p. 161.

2 Ibid, pp. 168-70.

From the institutional factor point of view, as will be shown in the section 3.5, the curers in Mangalore, Tellicherry, Calicut and Coimbatore were in a stronger position. The institutional factor should explain the ability of the curers in Mangalore and Tellicherry to draw the coffee from 'Mysore' and Coorg areas to the coast. It is a natural corollary then, that the same factor should explain why the curing industry in Hunsur did not register any growth. In this institutional factor has to be found, in part, the explanation for the fact that only a small quantity of the Nilgiri coffee was cured in Mettupalayam, though Mettupalayam was more conveniently located for the coffee grown in the Nilgiris.

3.2.4 Development of an Organized Coffee Market in Mangalore and Coimbatore

The export orientation of demand during the nineteenth century led to the location of curing houses on the coast in the case of 'Mysore' and Coorg areas. Turning to the period 1900-40 exports showed signs of declining in the 1920's. The same can be noted by comparing the exports of the period given in Table 3.2.8 with quinquennial average of exports during the past century given in Table 3.2.9.

Coffee from 'Mysore' and Coorg areas continued to flow to the coast while the exports showed signs of

Table 3.2.8 : Exports of Coffee, 1900-01 to 1939-40
(in Tonnes)

Year	Quantity exported	Year	Quantity exported
1900-01	12,519	1920-21	11,859
1901-02	12,957	1921-22	11,942
1902-03	13,674	1922-23	8,593
1903-04	14,796	1923-24	11,089
1904-05	16,747	1924-25	12,303
1905-06	18,298	1925-26	10,431
1906-07	11,588	1926-27	7,609
1907-08	12,408	1927-28	14,055
1908-09	15,344	1928-29	10,040
1909-10	11,819	1929-30	9,359
1910-11	13,831	1930-31	14,879
1911-12	12,248	1931-32	7,905
1912-13	13,563	1932-33	8,798
1913-14	13,204	1933-34	9,449
1914-15	14,753	1934-35	7,161
1915-16	8,976	1935-36	10,971
1916-17	10,047	1936-37	10,702
1917-18	9,934	1937-38	6,865
1918-19	11,101	1938-39	9,389
1919-20	13,848	1939-40	8,536

Source : Statistical Abstract for British India.

Table 3.2.9 : Exports of Coffee 1865-66 to 1899-1900
(in Tonnes)

Years	Average quantity exported
1865-66 to 1869-70	15,368
1870-71 to 1874-75	18,909
1875-76 to 1879-80	17,065
1880-81 to 1884-85	18,226
1885-86 to 1889-90	16,627
1890-91 to 1894-95	14,333
1895-96 to 1899-1900	12,986

Source : Statistical Abstract for British India.

declining.¹ The institutional factors provide an explanation for the same. This apart, there is another reason. The planters themselves were not dealers in coffee. Their main object was to realize their coffee the earliest possible and secure a good price. Curing centres which provided a market for coffee attracted the planters' produce. One such centre was Mangalore. If the planters were also dealers in coffee those from 'Mysore' and Coorg

¹ As stated earlier exports could be both in cured and uncured form. Thus it may not be permissible to relate the trend in exports with the advantage of coastal centres, for it is possible the decline in the total quantity exported might not have affected the exports of cured coffee.

areas would have sent their coffee to Hunsur while the export market was losing its importance. Hunsur situated in the inland was more suitable for catering the internal market that were now relied upon more.

The reason, behind Mangalore's march over others, was the centre developing a highly organized market for coffee. An extract from a curer's diary about the years at the turn of the century says: "We relied for our business on native coffee supplies which came to Mangalore for sale, and stocks in the town at all times were large and competition keen."¹ The progress in these lines continued. By the twenties Mangalore was the nerve centre for coffee trade in India. "There was a marked change in dealing with crops after the end of the First World War and Mangalore was the centre and prime mover in this advance. A combination of energetic and enterprising managers who had done well out of the World War and who had established connections overseas, combined in creating an effective coffee market on the spot. ... The Mangalore bunder during the season became the scene of great activity with a large congregation of buyers from many parts of India. Naturally many planters preferred to realize their crops in this way,

¹ W. R. Langley (ed.). Century in Malabar: History of Peirce Leslie and Co., p. 35.

rather than risk the slower process and uncertainty in the London market. ..."¹

By the late thirties Mangalore was the biggest assembling and distributing centre of coffee in India and it was in Mangalore that the largest number of well-established and reputed curers were concentrated. About 40 to 50 per cent of the total coffee crop was assembled and marketed through the various distributing agencies in Mangalore and more than 75 per cent of the exports from India passed through this port.²

Unlike the present situation, before the inception of the Coffee Board (1940) the planter could dispose of his cured coffee wherever he chose. Since a competitive market for coffee developed in Mangalore, it attracted coffee both for curing and for sales. The planters now preferred to cure their coffee in Mangalore as they could dispose it of here easily and for better returns.

That the coffee sold in Mangalore market fetched a better price to the planter was taken for granted and is evident from the following remark. "Except in Mangalore and to a limited extent in Coimbatore, there has been no attempt to bring the buyers together in a particular place

1 Ibid, p. 35.

2 Report, p. 162.

so that competitive buying may help the producer to get the maximum price for his coffee."¹ Apart from the returns it brought to him, the planter felt secure in selling his produce in Mangalore. Nowhere were the auctions conducted in such secrecy in bidding as was the case in Mangalore. The Report observed "Unlike Mangalore the auctions held at Coimbatore are open and the buyers bid openly. It would appear that the chances of a ring being formed by buyers to depress the prices are greater in the case of open auctions."²

Mangalore's role as the chief coffee market is further established by the fact that cured coffee from the other old established centres on the coast, too, came here for sale. The curers in Tellicherry sent "about 75 per cent of the coffee cured by them to their branches in Mangalore for sale by auction or private negotiation."³ "In Calicut coffee lying unsold with the curer on the planters account is either sent to Mangalore or Coimbatore."⁴

Mangalore due to its possessing the most competitive market for coffee, also, set the pattern for coffee prices in India. The trend of prices in Mangalore very largely

1 Ibid, p. 163.

2 Ibid, p. 165.

3 Ibid, p. 206.

4 Ibid, p. 206.

depended on world prices. Mangalore occupied a unique place not only from the point of view of internal distribution but also as the chief exporting port. About 77 per cent of India's exports were shipped from Mangalore.¹ It was Arabica 'Plantation', the main export, that dictated the tempo of prices for 'Plantation' coffee in India and also indirectly the prices of other kinds. Any change in the world price for 'Plantation' was immediately reflected in Mangalore. The prices in Tellicherry and Calicut closely followed the trend in Mangalore.

In the internal market, in the case of Arabica Plantation, the general trend of prices in the distributing ^{centres} ~~areas~~ serving the Indian markets e.g., Coimbatore, Salem, Mettupalayam, was similar to Mangalore. The price of Arabica Cherry followed the same trend as 'Plantation' coffee in the internal markets. As Robusta Cherry was not generally exported the reaction of the world price was less pronounced here.²

Locationally Coimbatore is in an advantageous position for distributing to the internal markets. It is situated almost in the centre of main coffee consuming areas in India viz., the States of Madras, Mysore, Kerala and

1 Ibid, p. 46.

2 Ibid, p. 121.

Andhra Pradesh.¹ Next to Mangalore, Coimbatore was the important coffee market in India. It was the biggest assembling centre for the coffee produced in the erstwhile Madras Presidency and the States of Travancore and Cochin.² The role of Coimbatore as the chief distributor to internal markets is evidenced by the following Chart.

The Chart depicts the pattern of coffee trade between the main distributing centres and consuming centres by rail. The volume of coastal trade was comparatively small.³ The transport of coffee by inland waterways was confined to Travancore and Cochin States.⁴ Bulk of cured coffee was transported by rail.⁵ The total imports into chief distributing centres for the internal markets and the distribution by them to the internal markets by rail, during the thirties, on the basis of the Chart, is given in Table 3.2.10.

A part of the exports from Mangalore, Tellicherry and Calicut to Coimbatore was meant for storage. This was done every year, with the onset of monsoon in those centres. To the extent, part of its exports to Coimbatore

1 Ibid, Appendix XX.

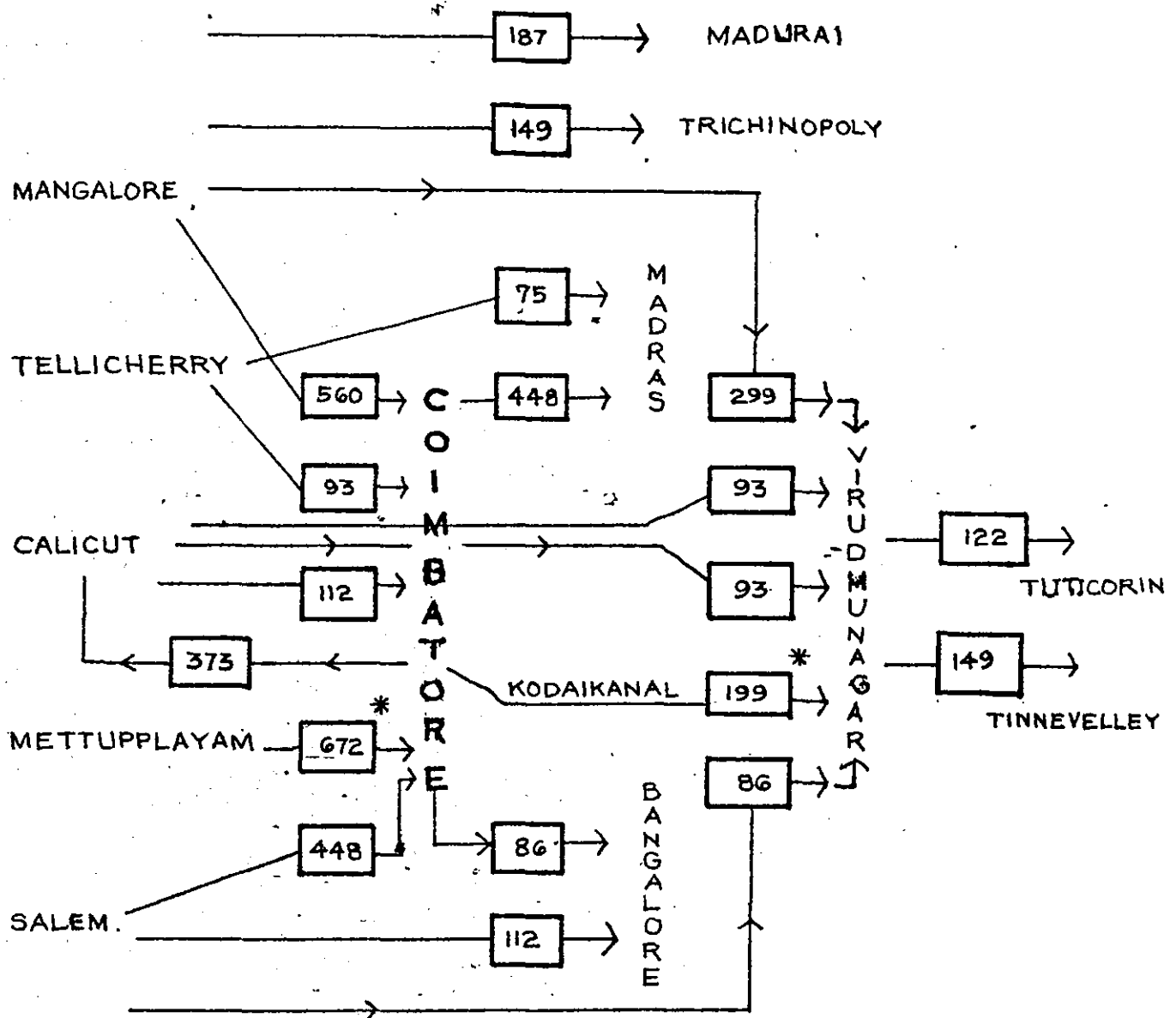
2 Ibid, p. 162.

3 Ibid, p. 211.

4 Ibid, p. 210.

5 Ibid, p. 209.

CHART NO. I : MOVEMENT OF CURED COFFEE BY RAIL BETWEEN IMPORTANT DISTRIBUTING AND CONSUMING CENTERES , 1937



* THESE QUANTITIES POSSIBLY REFER TO UNCURED COFFEE, SEE 'REPORT' P. 209.

BASIS: REPORT ON THE MARKETING OF COFFEE IN INDIA AND BURMA, 1940, P. 212.

Table 3.2.10 : Trade in Coffee by Rail in Some of the Important Distributing and Consuming Centres, 1940 (Quantity in Tonnes)

	Exports	Imports
Mangalore	1,195	-
Tellicherry	168	-
Calicut	205	373
Coimbatore	1,000	1,885
Mettupalayam	672	-
Salem	646	-
Virudhunagar	261	770
Kodaikanal	199	-
Madras	-	523
Bangalore	-	198
Trichinopoly	-	149
Madurai	-	187
Tinnevely	-	149
Tuticorin	-	112
Total	4,346	4,346

Note : 'Exports' and 'Imports' in the Table refer to inland trade.

Source : Report on the Marketing of Coffee in India and Burma, 1940, p. 212.

were necessitated due to the intervening monsoons, Mangalore's importance as supplier to chief distributors to internal market was reduced, from what is indicated by Table 3.2.10. However, apart from these exports to internal markets by rail, Mangalore had coastal exports to

some other Indian markets. (At present such exports are small.)

Mangalore as the chief exporter of coffee (to foreign markets) in India felt the impulse of world coffee price, at the first instance. The dealers here thus had the earliest opportunity to guess the trend of internal prices which depended on world prices. Initially if non-curer dealers were only local men, in later years Mangalore attracted dealers from outside. This influx further improved the competitive nature of the market. More planters now found Mangalore a better place for realizing their coffee. They naturally also preferred to cure their coffee here, for no other centre could boast such a chain of reputed curers as could Mangalore. These curers themselves were large buyers of coffee.¹ Unsold coffee from other curing centres too came here for sales. Large supplies of cured coffee meant for sales attracted dealers in coffee in greater number than ever. This in turn increased the competitiveness of the market, and the possibility of planters getting better returns. The close interaction between the planter, the curer and the dealer in coffee, held the sway for Mangalore over the other coastal and the inland curing centres.

1 Ibid, p. 162.

It is the location of Mangalore near the main coffee growing areas and the export orientation of the demand for coffee which led to the early growth of the curing industry here. So also is the case with Tellicherry and Calicut. In later years (1920's) when exports declined, some institutional factors acted in favour of coastal locations.

Among the coastal curing centres, Mangalore led the rest. This is due mainly to the greater increase in the production of coffee in the areas which traditionally sent their coffee to Mangalore for curing. Partly the faster growth of the curing industry in Mangalore may be due its developing an organized coffee market.

In the case of Nilgiri coffee Coimbatore continued to cure most of it in spite of the coming up of some minor curing yards in Kettupalayam. The institutional factors and the development of coffee market in Coimbatore acted in favour of the centre.

3.3 : The Establishment of Coffee Board in 1940 and Thereafter

3.3.1 The Situation After the Establishment of the Coffee Board

"In 1939 when World War II blocked the exports of coffee to the continent of Europe a coffee conference was called by the Government, the outcome of which was the establishment of the Coffee Board to deal with the marketing of coffee."¹ The central marketing agency, the Coffee Board, was established in India to regulate the marketing of coffee in 1940.

There are some changes that were effected with the establishment of the Coffee Board which are of interest here.² The planter now loses the choice of market for the sale of his coffee. The sale of coffee becomes a responsibility of the Board. The Board pools the coffee of all the growers and then markets the same. The growers are paid from the sale proceeds. With the inception of the Coffee Board, the individual investor in the curing industry loses his locational choice. He can now only propose the location for his curing unit. The final authority to give a licence lies with the Board. Also, the curer now is not free to

1 Report of the Plantation Inquiry Commission, 1956, Part II - Coffee, Government of India, p. 16.

2 Indian Coffee Statistics 1943-44 to 1947-48, Ministry of Agriculture, New Delhi, 1950, p. iv.

determine the curing charges. The curing charges are determined by the Board. The Board collects the expenses of curing his coffee from the planter and pays the curer for his services.

From the location aspect of the curing industry there is one more power that is given to the Board. It is statutorily empowered to allot the coffee meant for curing between the curing centres and units. This power, the Board has as yet not exercised.

After the inception of the Coffee Board some new coffee curing centres developed. There was an increase in the curing capacity among some of the centres that existed prior to 1940. The curing capacity at the various centres in 1965 is given in Table 3.3.1.

Since the establishment of the Coffee Board, two centres developed in Madras State. These are Salem and Patteeveerampatti. The former is located near the Shevroys, the latter at the foot of the Pulneys.

During 1950's a new curing centre came to be established in the coffee growing areas of Wynaad in Kerala. This centre

1 Data relating to growth of curing capacity at the various centres could not be obtained. The employment data as given in the Large Industrial Establishment in India could not be used as reliable indicators of the growth of the industry. As per the source employment in the curing industry in Mangalore during 1940-55 was almost one-fourth of the employment in 1930's. There was an increase in the curing capacity in Mangalore in 1952 and all through the period 1940 onwards there was a steady increase in the coffee cured at the centre.

Table 3.3.1 : Distribution of Installed Capacity of Coffee Curing Works, 1965

	Number of coffee curing works	Installed Capacity (tonnes per year)
<u>Mysore State</u>		
Mangalore	5	25,882
Hassan	3	9,550
Chikmagalur	3	7,470
Mysore (city)	2	6,560
Kushalanagar	1	4,500
Hunsur	1	3,328
<u>Kerala State</u>		
Tellicherry	1	6,000
Calicut	2	4,390
Kalpetta	2	1,800
<u>Madras State</u>		
Coimbatore	2	5,200
Salem	3	4,250
Patteeveerampetti	3	3,750
Mettupalayam	2	1,967
Total	30	84,647

Courtesy : Coffee Board.

is Kalpetta situated in North Wynaad.

In the Coorg coffee growing areas in Mysore State, a curing unit was located in Kushalanagar (North Coorg) in the year 1948. There has been no further increase in the curing capacity (4,500 tonnes) in the place thereafter. An increase in the curing capacity in Mysore State that is worthwhile noting appeared in 1960's. This was mainly due to the location of three curing units in Hassan. The entire present capacity in Hassan is a development during 1960's. The curing centre is located between the coffee growing areas Bababudans and 'Other Mysore' (i.e. 'Mysore' coffee growing areas excluding Bababudans) on one side and Coorg on the other. In Chikmagalur, situated amidst the plantations of 'Other Mysore' there was only a single curing unit before 1940. At present there are three in the place. There has been an increase in the capacity in this centre to the extent of 4,500 tonnes since 1940. In 1962 a curing unit was located in Mysore City. The enterprise was a co-operative venture; the locational choice was with respect to Coorg coffee growing areas. In 1952 there was a migration of a curing unit from Tellicherry (Kerala) to Mangalore (Mysore). Due to this the curing capacity in Mangalore increased by 4,992 tonnes.

Briefly the progress of the industry after 1940 was described. Customarily the next step would be to critically

examine the Board's role as the locationist. The Board's function as the locationist has two aspects viz., (i) licensing of new capacity and (ii) allocation of coffee meant for curing between the various curing centres; both are complementary. New capacity, it can be viewed should carry the directive to cure a prescribed quantity of coffee from particular coffee growing area(s) and the Board should take into account the market for which it would utilize the cured coffee. Allocation of coffee between the various centres for curing, should be done with the knowledge of the spatial pattern of demand.

The Board has not effected any allocation of coffee meant for curing between the centres. The old institutional patterns have continued to a considerable extent. Granting of licences for curing capacity at new locations or additional capacity at old centres was not coupled with a compliance to cure a fixed quantity from particular coffee growing area(s). New curing units were left to their ability to secure the necessary supplies of coffee.

Is it possible that the Board thought that the existing pattern of flow of coffee meant for curing as broadly rational and the location of new curing capacity as fairly judicious and hence confined its responsibility to discriminately utilizing the cured coffee between the various markets? It can be shown that even the latter was not

possible for there was (and is) a regrettable lacuna in the Board's knowledge of the spatial pattern of the internal demand for coffee.

It could be learnt from the discussions with the senior officials of the Board that there has been no conscious or active policy as regards the locational aspect of coffee curing. This complacency on the Board's part can be defended to a certain extent considering the magnitude of the task. In fact the interviews with the Board's officials revealed that they were aware of the difficulties arising from some of the quarters. Merely because it possessed this knowledge, the Board could not have excused itself from adopting a conscious policy. In fact, there has been no serious and continuous thinking on these lines.

There are three difficulties which beset a rational locational policy: (i) qualitative aspect of the export demand, (ii) lack of demand statistics, and (iii) institutional factors which influence the flow of coffee meant for curing. The first two are encountered in the formulation of a rational location plan. Of these the former is in the nature of the trade, the latter is a shortcoming of the authority. Both are discussed in this section. Institutional factors are discussed in section 3.5. For the present it can be anticipated in advance that to take charge of the institutional factors would have meant considerable

burden on the Board's part. This could have shrunk the central authority from any meticulous locational plan.

The Coffee Board was established in the year 1940. The decade following included the Second World War and the remnants of extraordinary economic situation. The demand pattern for coffee during the period 1940-50 could be deemed as abnormal. Detailed statistics regarding export demand which has to be taken into account for a conscious locational policy were available for the period after 1953. The discussion in this section thus relates to the years after 1953 and the conclusions arrived at are pertinent of this period.

3.3.2 Export Demand

It was said that in the early years coffee was produced in India mainly for exports. At present both the internal demand and exports are equally important. Table 3.3.2 presents the total receipts into the pool during the crop seasons 1940-41 to 1965-66 and the quantities utilized for the internal markets and exports thereof.

Inception of the Coffee Board was necessitated due to the sudden slump in the exports during the years of Second World War. A few years succeeding the War carried the remnants of the slump in spite of the establishment of the central marketing agency. These years can be viewed as abnormal and the short period as one of transition. During

Table 3.3.2 : Share of Internal Markets and Exports of Coffee by Types, 1940-41 to 1965-66 Crop Seasons (Quantity in Tonnes)

Crop Season	Plantation			Arabica Cherry			Robusta			Total - All Types		
	Internal Markets	Exports	Total Receipts into the pool	Internal Markets	Exports	Total Receipts into the pool	Internal Markets	Exports	Total Receipts into the pool	Internal Markets	Exports	Total Receipts into the pool
1940-41	-	-	-	-	-	-	-	-	-	11,492	2,658*	14,454*
1941-42	-	-	-	-	-	-	-	-	-	11,748	6,100*	10,389
1942-43	-	-	-	-	-	-	-	-	-	12,847 (79.24)	3,366 (20.76)	16,213 (100.00)
1943-44	-	-	-	-	-	-	-	-	-	15,457 (90.00)	1,719 (10.00)	17,176 (100.00)
1944-45	-	-	-	-	-	-	-	-	-	15,806 (92.51)	1,280 (7.49)	17,086 (100.00)
1945-46	-	-	-	-	-	-	-	-	-	19,975 (78.52)	5,463 (21.48)	25,438 (100.00)
1946-47	-	-	-	-	-	-	-	-	-	12,922 (85.05)	2,271 (14.95)	15,193 (100.00)
1947-48	4,205 (99.93)	3 (0.07)	4,208 (100.00)	2,432 (100.00)	-	2,432 (100.00)	8,705 (100.00)	-	8,705 (100.00)	15,342 (99.98)	3 (0.02)	15,345 (100.00)
1948-49	9,746 (82.18)	2,114 (17.82)	11,860 (100.00)	6,302 (91.64)	575 (8.36)	6,877 (100.00)	3,353 (100.00)	-	3,343 (100.00)	19,401 (87.83)	2,689 (12.17)	22,090 (100.00)
1949-50	6,246 (71.46)	2,494 (28.54)	8,740 (100.00)	3,318 (84.49)	609 (15.51)	3,927 (100.00)	6,440 (82.87)	1,331 (17.13)	7,771 (100.00)	16,004 (78.31)	4,434 (21.69)	20,438 (100.00)
1950-51	9,830 (96.99)	305 (3.01)	10,135 (100.00)	5,150 (100.00)	-	5,150 (100.00)	3,288 (100.00)	-	3,288 (100.00)	18,268 (96.36)	305 (1.64)	18,573 (100.00)
1951-52	8,268 (83.57)	1,625 (16.43)	9,893 (100.00)	4,213 (93.25)	305 (6.75)	4,518 (100.00)	6,541 (95.54)	305 (4.46)	6,846 (100.00)	19,022 (89.49)	2,235 (10.51)	21,257 (100.00)
1952-53	8,566 (95.53)	401 (4.47)	8,967 (100.00)	3,755 (100.00)	-	3,755 (100.00)	8,240 (75.69)	2,647 (24.31)	10,887 (100.00)	20,561 (87.09)	3,048 (12.91)	23,609 (100.00)
1953-54	10,339 (60.40)	5,715 (35.60)	16,054 (100.00)	3,852 (56.65)	2,948 (43.35)	6,800 (100.00)	5,691 (83.75)	1,104 (16.25)	6,795 (100.00)	19,882 (67.06)	9,767 (32.94)	29,649 (100.00)

(continued)

Table 3.3.2 : (continued)

Crop Season	Plantation			Arabica Cherry			Robusta			Total - All Types		
	Internal Markets	Exports	Total Receipts into the pool	Internal Markets	Exports	Total Receipts into the pool	Internal Markets	Exports	Total Receipts into the pool	Internal Markets	Exports	Total Receipts into the pool
1954-55	8,749 (83.11)	1,778 (16.89)	10,527 (100.00)	4,122 (72.67)	1,550 (27.33)	5,672 (100.00)	8,595 (97.02)	264 (2.98)	8,859 (100.00)	21,466 (85.67)	3,592 (14.33)	25,058 (100.00)
1955-56	11,150 (64.46)	6,147 (35.54)	17,297 (100.00)	4,038 (75.29)	1,325 (24.71)	5,363 (100.00)	11,318 (94.89)	610 (5.11)	11,928 (100.00)	26,506 (76.63)	8,082 (23.37)	34,588 (100.00)
1956-57	11,273 (50.53)	11,038 (49.47)	22,311 (100.00)	4,092 (55.17)	3,325 (44.83)	7,417 (100.00)	11,495 (91.19)	1,110 (8.81)	12,605 (100.00)	26,860 (63.45)	15,472 (36.55)	42,332 (100.00)
1957-58	11,934 (55.43)	9,595 (44.57)	21,529 (100.00)	4,796 (59.44)	3,273 (40.56)	8,069 (100.00)	13,194 (90.33)	1,413 (9.67)	14,607 (100.00)	29,924 (67.69)	14,281 (32.31)	44,205 (100.00)
1958-59	9,699 (54.28)	8,168 (45.72)	17,867 (100.00)	4,405 (58.66)	3,130 (41.54)	7,535 (100.00)	16,016 (75.84)	5,102 (24.16)	21,118 (100.00)	30,120 (64.75)	16,400 (35.25)	46,520 (100.00)
1959-60	14,036 (55.31)	11,343 (44.69)	25,379 (100.00)	4,036 (59.81)	2,712 (40.19)	6,478 (100.00)	13,254 (76.26)	4,125 (23.74)	17,379 (100.00)	31,326 (63.28)	18,180 (36.72)	49,506 (100.00)
1960-61	11,063 (38.17)	17,921 (61.83)	28,984 (100.00)	4,893 (48.76)	5,141 (51.24)	10,034 (100.00)	19,297 (67.69)	9,209 (32.31)	28,506 (100.00)	35,523 (52.40)	32,271 (47.60)	67,794 (100.00)
1961-62	11,202 (49.81)	11,286 (50.19)	22,488 (100.00)	3,113 (47.00)	3,511 (53.00)	6,624 (100.00)	11,598 (69.74)	5,032 (30.26)	16,633 (100.00)	25,913 (56.65)	19,829 (43.35)	45,742 (100.00)
1962-63	12,858 (52.54)	11,614 (47.46)	24,472 (100.00)	4,107 (44.23)	5,179 (55.77)	9,286 (100.00)	16,449 (74.54)	5,618 (25.46)	22,067 (100.00)	33,414 (59.85)	22,411 (40.15)	55,825 (100.00)
1963-64	11,350 (39.96)	17,050 (60.04)	28,400 (100.00)	4,879 (46.64)	5,591 (53.40)	10,470 (100.00)	19,688 (65.51)	10,364 (34.49)	30,052 (100.00)	35,917 (52.11)	33,005 (47.89)	68,922 (100.00)
1964-65	14,321 (45.90)	16,879 (54.10)	31,200 (100.00)	6,302 (57.71)	4,618 (42.29)	11,920 (100.00)	16,984 (91.86)	1,506 (8.14)	18,490 (100.00)	37,607 (61.16)	23,003 (37.95)	60,610 (100.00)
1965-66	9,571 (38.40)	15,354 (61.60)	24,925 (100.00)	7,493 (56.96)	5,662 (43.04)	13,155 (100.00)	17,538 (69.14)	7,827 (30.86)	25,365 (100.00)	34,602 (54.54)	28,843 (45.46)	63,445 (100.00)

Note : For 1940-41 to 1946-47 the breakdown was not available.

* Refers to financial year.

* Refers to production and not receipts into the pool.

Source: Coffee Board's Statistics: 1) Coffee Statistics Relating to India, 1954-55 to 1957-58;
 ii) Indian Coffee Statistics, 1958-59 to 1963-64;
 iii) Coffee Statistics, 1964-65 to 1966-67.

the early 1950's exports showed significant recovery; since 1955-56 there has been a more or less stable relationship between exports and total receipts into the pool. It can also be seen from Table 3.3.2 that exports formed a substantial portion of the total coffee available. This is true even when one takes into the account the types. Both in the case of 'Plantation' and Arabica Cherry exports formed more or less half of the total receipts of the crop for 1956-57 to 1965-66. Robusta (which though includes both Parchment and Cherry types mostly constitutes the latter) had small external demand. Recent years show substantial exports of Robusta.

Coffee after curing is graded (see Table 3.4.3). Examining the exports of coffee from the crops of 1953-54 to 1965-66, it was found that only certain grades in each type were exported. The percentage of different grades in the exports of each type from the crops of 1953-54 to 1965-66 is given in Table 3.3.3.

The export demand is biased towards certain grades. Thus only a part of the quantity cured in any place can be exported. There are other complications. Firstly the exportable grades are not a fixed proportion of the quantity cured; there can be some variations. Secondly as per the Board's officials mere superior grades need not satisfy the export specifications. The present practice as contended

Table 3.3.3 : Percentage Share of Different Grades in the Exports of Different Types of Coffee

Crop Season	Plantation					Arabica Cherry				Robusta Parchment				Robusta Cherry			
	PB	A	B	CT	Total	PB	Flats	CT	Total	PB	Flats	CT	Total	PB	Flats	CT	Total
1953-54	2	55	30	13	100.00	10	88	2	100.00	23	77	-	100.00	10	90	-	100.00
1954-55	2	68	17	13	100.00	9	89	2	100.00	34	66	-	100.00	7	93	-	100.00
1955-56	-	63	22	15	100.00	3	96	1	100.00	-	100	-	100.00	-	100	-	100.00
1956-57	-	70	20	10	100.00	8	91	1	100.00	-	100	-	100.00	-	100	-	100.00
1957-58	1	76	11	12	100.00	6	87	7	100.00	10	84	6	100.00	-	100	-	100.00
1958-59	-	72	14	14	100.00	1	95	4	100.00	-	86	14	100.00	-	97	3	100.00
1959-60	-	60	25	15	100.00	9	87	4	100.00	-	100	-	100.00	-	100	-	100.00
1960-61	-	71	12	17	100.00	11	89	-	100.00	24	76	-	100.00	-	100	-	100.00
1961-62	-	70	15	15	100.00	4	96	-	100.00	-	100	-	100.00	-	100	-	100.00
1962-63	-	67	14	19	100.00	2	98	-	100.00	-	100	-	100.00	-	100	-	100.00
1963-64	-	70	9	21	100.00	-	78	22	100.00	1	96	3	100.00	-	94	6	100.00
1964-65	-	65	16	19	100.00	-	74	26	100.00	-	98	2	100.00	-	94	6	100.00
1965-66	-	73	12	15	100.00	-	70	30	100.00	-	93	7	100.00	-	92	8	100.00
Average	-	68	17	15	100.00	5	87	8	100.00	7	90	3	100.00	1	97	2	100.00

Note: For the years 1960-61 to 1962-63 the source gives sales of only the important grades under each type. These quantities thus do not add up to the total exports of the type viz., 'Plantation', Arabica Cherry, Robusta Parchment and Robusta Cherry given by the same source. The percentages given above are based on the total for the grades for which the information is available.

Basis: Tables Relating to Export Sales in the Coffee Board's Statistics:

- i. Coffee Statistics Relating to India, 1954-55 to 1957-58;
- ii. Indian Coffee Statistics, 1958-59 to 1963-64;
- iii. Coffee Statistics 1964-65 to 1966-67.

by them is not only to choose the superior of the exportable grades available in any place for exports but also to choose the relatively better from the coffee available at different centres for the purpose.

There is an additional constraint which disallows any easy operation for complying the export demand. Export sales (for that matter sales of coffee) have to be so spaced over time as to secure a reasonable price for the producer. Also, it is necessary to see that exports of coffee from one crop season do not spill over the other by an unreasonable quantity.¹ It is possible that when required, the export quality coffee may not be available at the centre locationally best suited for supplying the export market, and relatively better coffee could be provided by a centre which is less convenient for the purpose.

The Board's officials opine that a rationalization scheme which allocates the coffee from different growing areas between the various curing centres with a view to utilize the cured coffee for specific markets may not be a feasible proposition. The reason being, they contend, due to its fastidious quality requirement it is difficult to estimate the exportable coffee that can be made available by any coffee growing area or by the curing centres which

1 This latter constraint is enforced more rigorously since India became a signatory to the International Coffee Agreement, 1963.

which cure its coffee. The following paragraphs try to examine the contention.

Individual curing centres cure the coffee from the same area(s) over time. That is to say coffee from any area is cured by the same centre or by the same group of centres over time (see Table 3.5.1). Areawise composition of coffee cured by a centre does not change over short periods. Thus to know the variation in export quality coffee in a given quantity of cured coffee one can examine the extent of export utilization from the coffee cured at different centres. In Table 3.3.4, quantity cured, exports and exports as percentage of the quantity cured have been presented for different centres for the seasons 1962-63 to 1965-66.¹

Before one gets into the analysis of export demand a few clarifications are necessary. Cured coffee deteriorates in quality when exposed to rainy weather. Thus every year unsold cured coffee on the coast is transported inland when the monsoon sets in. The relevant data are presented in Tables 3.3.5 and 3.3.6.

Centrewise breakdown of the exports from the coffee transported for monsoon storage could not be obtained from the Board. In the absence of required data, exports from the coastal centres need be related to their respective quantity cured minus the quantity transported inland for monsoon storage.

¹ Curing statistics relating to 1965-66 are provisional.

Table 3.3.4 : Quantity Cured, Exports and Exports as Percentage of Quantity Cured for Different Curing Centres, 1962-63 to 1965-66 Crop Seasons

	Quantity cured (tonnes)				Exports from the season's crop (tonnes)				Exports as percentage of quantity cured			
	1962-63	1963-64	1964-65	1965-66	1962-63	1963-64	1964-65	1965-66	1962-63	1963-64	1964-65	1965-66
Mangalore	14,909	18,604	14,227	16,631	4,270	6,510	4,340	6,220	28.64	34.99	30.51	37.40
Chikmagalur	3,994	4,855	5,705	4,435	1,615	3,418	3,112	2,782	40.44	70.40	54.55	62.73
Hasan	4,881	7,988	8,751	7,996	2,417	4,907	4,612	5,211	49.52	61.43	52.70	65.17
Kushalnagar	4,185	5,625	3,870	5,057	2,775	3,239	1,534	2,327	66.31	57.58	39.64	46.02
Hunsur	3,281	4,785	3,068	2,890	2,234	2,959	1,521	2,009	63.09	61.84	49.58	69.52
Mysore City	5,478	5,315	4,162	5,171	2,181	2,650	888	2,844	39.81	49.86	21.34	55.00
Tellicherry	3,373	4,442	3,028	3,665	585	1,560	795	1,100	17.34	35.12	26.25	30.01
Calicut	3,889	3,957	3,523	3,805	552	939	378	645	14.19	23.73	10.73	16.95
Kalpetta	2,319	3,376	2,931	3,281	262	72	-	30	11.30	2.13	-	0.91
Mettupalayam	735	1,002	1,458	1,069	739	1,207	860	753	100.54	120.46	58.98	70.44
Coimbatore	2,926	2,382	3,065	2,378	1,472	1,122	1,028	1,339	50.31	47.10	33.54	56.31
Salem	2,570	1,830	2,696	2,061	1,332	1,020	1,295	1,152	51.83	55.74	48.03	55.89
Patteeveerampatti	1,622	2,440	2,470	1,984	140	523	788	737	8.63	21.43	31.90	37.15
Karamadai					1,340	2,565	1,852	1,314				
Singanallur					-	-	-	380				
Tanjore					102	-	-	-				
Madras					395	314	-	-				
Total	54,162	66,601	58,954	60,423	22,411	33,005	23,003	28,843	41.38	49.56	39.02	47.74

Courtesy : Coffee Board.

Table 3.3.5 : Coffee Moved from the Coastal Centres for Monsoon Storage, 1962-63 and 1963-64 Crop Seasons (in Tonnes)

Curing Centre	Planta- tion	Arabica Cherry	Robusta	Total
<u>1962-63 Crop Season</u>				
Mangalore	2,253	1,778	588	4,619
Tellicherry	94	134	522	750
Calicut	20	219	487	726
Kalpetta	-	-	351	351
Total	2,367	2,131	1,948	6,446
<u>1963-64 Crop Season</u>				
Mangalore	2,193	1,733	1,202	5,128
Tellicherry	338	160	389	887
Calicut	-	137	400	537
Kalpetta	-	-	1,042	1,042
Total	2,531	2,030	3,033	7,594

Courtesy : Coffee Board.

Coffee transported for monsoon storage contains both exportable and unexportable grades. The former is moved to inland store houses in Madras State and also to Mettupalayam (curing centre in Madras State). Unexportable grades are sent to inland curing centres in Mysore State viz., Chikmagalur,

Table 3.3.6 : Quantity of Coffee Received at the Inland Centres and Store Houses for Monsoon Storage, 1962-63 and 1963-64 Crop Seasons (in Tonnes)

Store House	Planta- tion	Arabica Cherry	Robusta	Total
1962-63 Crop Season				
Karamadai	2,027	674	1,100	3,801
Mettupalayem	340	262	197	799
Tanjore	-	-	397	397
Madras	-	331	154	485
Bodinayakanur	-	-	100	100
Chikmagalur	-	690	-	690
Hassan	-	174	-	174
Total	2,367	2,131	1,948	6,446
1963-64 Crop Season				
Karamadai	2,531	1,168	1,032	4,731
Mettupalayem	-	28	1,331	1,354
Tanjore	-	-	-	-
Madras	-	-	470	470
Bodinayakanur	-	-	200	200
Chikmagalur	-	711	-	711
Hassan	-	123	-	123
Total	2,531	2,030	3,033	7,594

Courtesy : Coffee Board.

Hassan.¹ Exports from Mettupalayam should be related to the quantity cured by the centre plus the quantity received from the coast. In the case of Chikmagalur and Hassan, as only unexportable coffee is received by them, exports from these centres can be related to the quantity cured by them.

Table 3.3.7 takes account of the above-mentioned modifications. In Table 3.3.7, as regards the individual centres (and inland store houses) the quantity to which exports are related is termed as 'quantity available'. Data regarding the quantity moved from the individual coastal centres for monsoon storage could be obtained only for the seasons 1962-63 and 1963-64. For the seasons 1964-65 and 1965-66 curing centres Mangalore, Tellicherry, Calicut, Kalpetta, Mettupalayam and inland storage houses in Madras State are excluded.

Export quality is not defined in absolute terms. Though certain grades only are exported, quality gradations within the grade can be visualized. Assuming that the Board chooses, relatively the best of the coffee offered by various centres, it can be accepted that the quantity utilized from any centre is the maximum that could be utilized. Thus the variation in exports from a centre as

1 Annual Report of the Coffee Board, 1962-63, p. 124.

Table 3.3.7 : Exports as Percentage of Quantity Available for Different Curing Centres and Store Houses, 1962-63 to 1965-66 Crop Seasons

Curing Centre and Store House	Crop Season			
	1962-63	1963-64	1964-65	1965-66
<u>Curing Centre</u>				
Mangalore	41.50	48.31	N.A.	N.A.
Chikmagalur	40.44	70.40	54.55	62.73
Hassan	49.52	61.43	52.70	65.17
Kushalenagar	66.31	57.58	39.64	46.02
Hunsur	68.09	61.84	49.58	69.52
Mysore City	39.81	49.86	21.34	55.00
Tellicherry	22.30	43.88	N.A.	N.A.
Calicut	17.45	27.46	N.A.	N.A.
Kalpetta	13.31	3.08	N.A.	N.A.
Mettupalayam	48.17	51.12	N.A.	N.A.
Coimbatore	50.31	47.10	33.54	56.31
Salem	51.83	55.74	48.03	55.89
Patteeveerampatti	8.63	21.43	31.90	37.15
<u>Store House</u>				
Karamedai	35.25	54.22	N.A.	N.A.
Tanjore	25.69	-	N.A.	N.A.
Medras	81.44	66.81	N.A.	N.A.
Bodinayakanur	0.00	0.00	N.A.	N.A.

N. A. = Data Not Available.

percentage of the 'quantity available' i.e. $\frac{e_A}{q_A} \times 100$

{ i.e. $\frac{\text{exports from curing centre A}}{\text{quantity available in A}} \times 100$ } should indicate the variation in export quality coffee that could be found in the centre.

Variation in the percentage utilization for export from the coffee 'available' in any centre (i.e. variation in $\frac{e}{q} \times 100$) depends upon apart from the quality of coffee offered by other centres also on one other factor. The influence of the factor again emerges from the fact that there is no absolute quality specification for export though certain grades only are exported. Thus the quality composition of total exports may vary over time. For example, if the total exports increase while the total quantity available¹ remains the same, i.e.

$$\frac{E}{Q} \left\{ \begin{array}{l} \text{i.e. Total of Exports of All Types from All} \\ \text{Curing Centres and Store Houses} \\ \text{Total of Quantity Available of All} \\ \text{Types at All Centres and Store Houses} \end{array} \right\}$$

increases, slightly inferior coffee may be utilized.

¹ Due to monsoon transshipments 'quantity available' for exports differ from quantity cured in respect of some centres. However, the total quantity available for exports at all centres and store houses equal total quantity cured. To keep uniformity the term 'total quantity available' instead of total quantity cured has been used.

'Total quantity available' here, equals total quantity cured in Coffee Board's statistics. It can be noted that total quantity cured is less than total receipts into the pool (Table 3.3.2).

Alternatively, it can be thought, quality composition of exportable grades in the total quantity available itself changed so as to provide coffee of the same quality exported earlier. It is also possible that higher exports were of better quality because product composition in terms of quality enhanced relatively over time. In fact if relative quality of coffee (grown in different areas and) available at different centres changed, quality composition of the export would change even if $\frac{E}{Q}$ remains the same, also even when both E and Q remain the same.

During the four seasons for which the data are analysed here, the total exports varied substantially. The indices for the next three years taking the exports of 1962-63 as the base are 147.37, 102.64 and 128.70. Total exports as percentage of total quantity available (i.e. $\frac{E}{Q} \times 100$) varied thus: 41.38, 49.56, 39.02 and 47.74 during the four years 1962-63 to 1965-66 respectively. It is possible that a high $\frac{E}{Q}$ might have utilized slightly inferior coffee and at the other extreme a relatively low $\frac{E}{Q}$ might not have utilized coffee of a particular quality that was utilized under normal times. A deflator has been devised to account for the variation in $\frac{E}{Q}$. This enables one to understand the variations in $\frac{e}{q}$ of individual centres which are due to changes in relative qualities.

At this stage it would have been useful if the

breakdown of exports from the individual centres by types was available. For, a variation in total exports E, which includes exports of all types, due to a variation in the exports of 'Plantation' will have little influence on the exports from those curing centres which do not cure the type in substantial quantity. Similarly the case regarding the other types. Hence the analysis proceeds at an aggregative level; nevertheless the differences between the curing centres due to the types of coffee cured by them is given the possible consideration.

Total exports of the type as percentage of the total quantity available of the type has been calculated¹ for the three types 'Plantation', Arabica Cherry and Robusta (Parchment and Cherry inclusive) for the four seasons 1962-63 and 1965-66. Using 1962-63 as the base, index numbers for the next three years have been calculated. The same have been presented in Table 3.3.8. To combine the deflators computed for each type, the 'quantity available' of different types at the individual centres, have been utilized as the weights. Data presented in Table 3.3.9 and

1 For example, in the case of 'Plantation' :

$$\frac{E_p}{Q_p} \times 100 \left\{ \begin{array}{l} \text{i.e.} \\ \text{Total Exports of 'Plantation' from} \\ \text{All Curing Centres and Store Houses} \\ \text{Total Quantity Available of 'Plan-} \\ \text{tation' at All Curing Centres and} \\ \text{Store Houses} \end{array} \right\} \times 100$$

has been calculated.

Table 3.3.8 : Index Numbers of Total Exports of the Type as Percentage of Total Quantity Available of the Type, 1962-63 to 1965-66 Crop Seasons (Base : 1962-63)

Crop Season	'Plantation'		Arabica Cherry		Robusta (Parchment and Cherry)	
	1	2	1	2	1	2
1962-63	48.14	100.00	56.00	100.00	27.03	100.00
1963-64	60.52	125.71	54.62	97.54	36.77	136.03
1964-65	54.78	113.79	43.35	77.42	8.61	31.86
1965-66	62.05	128.90	44.85	80.10	34.02	125.89

$$1 = \frac{\text{Exports}}{\text{Quantity Available}} \times 100$$

2 = Index Number

Basis : Indian Coffee Statistics, Coffee Board.

the data given in Tables 3.3.5 and 3.3.6 have been utilized to arrive at the 'quantity available' of the type.¹ The method of combining the typewise deflators is illustrated taking the case of Mangalore for the crop season 1963-64.

¹ Monsoon transshipment data could not be obtained for the crops of 1964-65 and 1965-66. Therefore, in respect of the centres, Mangalore, Tellicherry, Calicut and Kalpetta whose coffee is moved and Mettupalayam and inland store houses in Madras which receive exportable grades 'quantity available' could not be calculated; hence their exclusion in the analysis for the two seasons 1964-65 and 1965-66. As stated earlier, Chikmagalur and Hassan receive unexportable grades; the exports in these two cases are related to quantity cured. The two centres are included for the seasons 1964-65 and 1965-66 also.

Table 3.3.9 : Coffee Cured by Different Centres according to Types, 1962-63 to 1965-66 Crop Seasons (Quantity in Tonnes)

Curing Centre	1962-63 Crop Season					1963-64 Crop Season				
	Plan-tation	Arabica Cherry	Robusta Parchment	Robusta Cherry	Total	Plan-tation	Arabica Cherry	Robusta Parchment	Robusta Cherry	Total
Mangalore	7,451	2,893	740	3,825	14,909	8,641	3,247	1,038	5,678	18,604
Chikmagalur	2,347	1,120	67	460	3,994	2,456	1,190	110	1,099	4,855
Hassan	2,970	1,173	152	586	4,881	4,889	1,441	335	1,323	7,988
Kushalenagar	1,911	673	251	1,350	4,185	2,612	1,028	409	1,576	5,625
Hunsur	1,615	478	-	1,138	3,281	2,243	633	389	1,520	4,785
Mysore City	844	1,440	22	3,172	5,478	852	1,149	67	3,247	5,315
Tellicherry	848	237	579	1,709	3,373	1,206	320	751	2,165	4,442
Calicut	599	266	67	2,957	3,389	318	229	87	3,323	3,957
Kalpetta	13	18	54	2,234	2,319	13	25	89	3,249	3,376
Mettupalsyam	583	56	-	96	735	598	111	29	264	1,002
Coimbatore	1,861	375	122	568	2,926	1,322	297	157	606	2,382
Salem	2,129	386	13	42	2,570	1,362	259	25	184	1,830
Patteveerampatti	955	134	48	485	1,622	1,662	308	33	437	2,440
Total	24,126	9,249	2,115	18,672	54,162	28,174	10,237	3,519	24,671	66,601

(continued)

Table 3.3.9 : (continued)

Curing Centre	1964-65 Crop Season					1965-66 Crop Season				
	Plan-tation	Arabica Cherry	Robusta Parchment	Robusta Cherry	Total	Plan-tation	Arabica Cherry	Robusta Parchment	Robusta Cherry	Total
Mangalore	8,472	3,018	373	2,364	14,227	8,094	3,859	411	4,267	16,631
Chikmagalur	3,187	1,950	29	539	5,705	2,090	1,521	28	796	4,435
Hassan	6,085	1,808	174	684	8,751	4,604	1,976	135	1,281	7,996
Kushalanagar	1,951	721	195	1,003	3,870	2,135	1,293	70	1,559	5,057
Hunsur	1,727	388	97	856	3,068	1,173	581	176	960	2,890
Mysore City	728	973	26	2,435	4,162	729	1,551	55	2,836	5,171
Tellicherry	1,064	316	505	1,143	3,028	776	480	408	2,001	3,665
Calicut	205	126	120	3,072	3,523	58	249	74	3,424	3,805
Kalpetts	30	40	98	2,763	2,931	27	46	63	3,145	3,281
Mettupalsyam	983	158	29	288	1,458	613	151	29	276	1,069
Coimbatore	2,146	509	114	296	3,065	1,524	431	161	262	2,378
Salem	2,307	268	-	121	2,696	1,688	275	6	92	2,061
Patteevee-rampatti	1,928	378	9	155	2,470	1,233	211	25	515	1,984
Total	30,813	10,653	1,769	15,719	58,954	24,744	12,624	1,641	21,414	60,423

Courtesy : Coffee Board.

1st Step

	<u>Quantity cured in tonnes</u>	<u>Monsoon transshipment in tonnes</u>	<u>Quantity available in tonnes i.e. 'Weights'</u>
'Plantation'	8,641	2,193	6,448
Arabica Cherry	3,247	1,733	1,514
Robusta	6,716	1,202	5,514

2nd Step

$$\frac{125.71 \times 6448 + 97.54 \times 1514 + 136.03 \times 5514}{6448 + 1514 + 5514} = 12677$$

The deflators arrived at for the individual centres have been presented in Table 3.3.10.

Utilizing the deflators in Table 3.3.10 percentages (i.e. $\frac{p}{q} \times 100$) presented in Table 3.3.7 have been recast. In other words, the percentages given in Table 3.3.7 have been divided by the respective deflators given in Table 3.3.10. The 'adjusted percentages' have been presented in Table 3.3.11.

As per the Board's officials only superior of the exportable grades are exported. This according to them necessitates utilization of quality coffee for export wherever it is available. Further, as the relative quality of coffee at different centres changes over time, export quality coffee is not a stable proportion of the quantity available at any individual centre. Assuming that in the

Table 3.3.10 : Deflators for $\frac{P}{Q} \times 100$ (Exports as Percentage of the Quantity Available) of Different Curing Centres and Store Houses, 1962-63 to 1964-65 Crop Seasons

Curing Centre and Store House	Crop Season			
	1962-63	1963-64	1964-65	1965-66
Mangalore	100.00	126.77	N.A.	N.A.
Chikmagalur	100.00	121.38	93.20	111.60
Hassan	100.00	122.77	98.24	116.31
Kushalanagar	100.00	124.20	81.65	115.45
Hunsur	100.00	126.10	83.74	117.91
Mysore City	100.00	126.05	56.84	112.58
Tellicherry	100.00	131.78	N.A.	N.A.
Calicut	100.00	134.04	N.A.	N.A.
Kalpetta	100.00	135.56	N.A.	N.A.
Mettupalayam	100.00	131.15	N.A.	N.A.
Coimbatore	100.00	125.50	96.79	119.52
Salem	100.00	122.90	106.50	122.25
Patteeveerampatti	100.00	124.14	102.78	122.89
<u>Store House</u>				
Karamadai	100.00	121.01	N.A.	N.A.
Tanjore	100.00	-	N.A.	N.A.
Madras	100.00	136.03	N.A.	N.A.
Bodinayakanur	100.00	136.03	N.A.	N.A.

N. A. = Data Not Available.

Table 3.3.11 : 'Adjusted Percentages' of Exports to 'Quantity Available' for Different Curing Centres and Store Houses, 1962-63 to 1965-66 Crop Seasons

Curing Centre and Store House	Crop Season			
	1962-63	1963-64	1964-65	1965-66
Mangalore	41.50	38.11	N.A.	N.A.
Chikmagalur	40.44	58.00	58.53	56.21
Hassan	49.52	50.04	53.64	56.03
Kushalanagar	66.31	46.36	48.55	39.86
Hunsur	68.09	49.04	59.21	58.96
Mysore City	39.81	39.56	37.53	48.85
Tellicherry	22.30	33.30	N.A.	N.A.
Calicut	17.45	20.49	N.A.	N.A.
Kalpetta	13.31	2.27	N.A.	N.A.
Mettupalayam	48.17	38.98	N.A.	N.A.
Coimbatore	50.31	37.53	34.65	47.11
Salem	51.83	45.35	45.10	45.72
Patteeveerempatti	8.63	17.26	31.04	30.23
Store House				
Karamadai	35.25	44.81	N.A.	N.A.
Tanjore	25.69	-	N.A.	N.A.
Madras	81.44	49.11	N.A.	N.A.
Bodinayakanur	0.00	0.00	N.A.	N.A.

Board's policy exports have a preference over the internal markets as far as the quality factor is concerned, it can be seen from Table 3.3.11 that there can be no argument as regards the first contention. The very fact that some coffee from all the centres is being utilized for exports proves the contention. As regards the second, assuming that relatively better coffee is exported wherever it is found, there is some truth in the Board's contention that export quality coffee in any centre is not a fixed proportion of the 'quantity available'.

Table 3.3.12 enables one to highlight the above conclusions. In the Table curing centres and store houses are identified by their 'quantity available' and the share of each type. (Average for the seasons 1962-63 to 1965-66 on the basis of Table 3.3.9 have been used as the indicators.) It also gives the extreme bounds of variation in 'adjusted percentage' of export quality coffee to the 'quantity available' during the four seasons 1962-63 to 1965-66. It can be seen from Table 3.3.12 that export quality coffee in a given quantity of cured coffee varied whatever be the type of curing centre.

There were two basic questions involved in the discussion in the preceding paragraphs. The 'extent' of variation and the 'level' of variation of export quality coffee in a given quantity of coffee. If the 'extent' of variation is large, the latter question does not arise.

Table 3.3.12 : Quantity Available, Share of Different Types (Average for the Crop Seasons 1963-63 to 1965-66) and Extreme Bounds of Variation in Adjusted Percentages of Exports to Quantity Available during 1962-63 to 1965-66 Crop Seasons for Different Curing Centres and Store Houses

Curing Centre and Store House	Average Quantity Available (Tonnes)	Percentage share of different types				Extreme bounds of variation in adjusted e/q x 100		
		Plan-tation	Arabica Cherry	Robusta	Total	Minimum	Maximum	Difference
Curing Centre								
Mangalore	11,883*	49.00	11.06	39.04	100.00	38.11	41.50	3.39
Chikamagalur	4,747	53.09	30.44	16.47	100.00	40.44	58.53	18.09
Hassen	7,404	62.63	21.60	15.77	100.00	49.52	56.03	6.51
Kushalanagar	4,684	45.94	19.83	34.23	100.00	39.86	66.31	26.45
Hunsur	3,506	48.19	14.83	36.98	100.00	49.04	68.09	19.05
Mysore City	5,032	15.67	25.40	58.93	100.00	37.53	48.85	11.32
Tellicherry	3,089*	26.25	4.26	69.49	100.00	22.30	33.30	11.00
Calicut	3,292*	13.63	2.11	84.26	100.00	17.45	20.49	3.04
Kelpetta	1,971*	0.66	1.09	98.25	100.00	2.27	13.31	11.04
Mettupalayam	1,948*	39.05	11.73	49.22	100.00	38.98	48.17	9.19
Coimbatore	2,688	63.75	14.99	21.26	100.00	34.65	50.31	15.66
Salem	2,289	81.75	12.97	5.28	100.00	45.10	51.83	6.73
Patteeveerampatti	2,129	67.85	12.11	20.04	100.00	8.63	30.23	21.60
Store House								
Karamadal	4,266*	53.42	21.59	24.99	100.00	35.25	44.81	9.56
Tanjore	397**	-	-	100.00	100.00	25.69	25.69	0.00
Madras	478*	-	34.66	65.34	100.00	49.11	81.44	32.33
Bodineyakanur	150*	-	-	100.00	100.00	0.00	0.00	0.00

* Data refer to two crop seasons 1962-63 and 1963-64.

** Of the two seasons 1962-63 and 1963-64 for which monsoon transshipment data could be obtained only during 1962-63 coffee was moved to Tanjore. Data in this case refer to only 1962-63 crop season.

It can be seen from Table 3.3.12 that the 'extent' of variation was as wide as 32 per cent in one case; the 'quantity available' in this case however was very small. The 'extent' was around 20 per cent in four cases. It was around 10 per cent in another five cases, and less than 5 per cent in five cases. It has to be granted that export quality coffee is not a fixed proportion of the 'quantity available' in any centre. It cannot, however, be deduced that the variation in the export quality coffee is wide and erratic. Firstly, data of four seasons may not be sufficient for such a conclusion. Secondly, to arrive at any definite conclusion to the effect, it is necessary to relate the exports of each type from the individual centre to the 'quantity available' of the type in the centre. As data regarding the former were not available the same was not possible. Any inference regarding the 'extent' of variation in export quality coffee thus has to be drawn from the existing data. In 10 out of the 15 cases, the 'extent' of variation was around 10 per cent or less than that. A 10 per cent range cannot be deemed as wide.

As regards the 'level' of variation in the exportable quality coffee, the average of the percentages given in Table 3.3.11 will be around 50 per cent in most cases. In other words, exportable quality coffee in a given quantity of cured coffee (i.e. 'quantity available') formed around

50 per cent; there could be wide variations sometimes. (The 'level' of variation in the export quality will not be the same for different types. Typewise analysis was not possible with the available data. However, some assumption to the effect was inevitable for the progress of the analysis in section 3.4. These have been made on the basis of Table 3.3.8.)

The fact that only 50 per cent of the coffee 'available' in any place could be utilized for export, the fact that in most cases 50 per cent of the coffee 'available' had to be utilized for export, and the fact that there could be some variation in the quantity of export quality coffee suggests the following. More coffee could be allocated to curing centres which are suitable for catering both the export market and (some) internal markets. Likewise the location of new curing capacity could be such that it facilitated the convenience of supplying both the markets. In other words, special locations which are suitable for either the internal market or the export market could have found less favour.

3.3.3 Lack of Demand Statistics

There are four channels through which the Board disposes of coffee meant for internal consumption. The disposal of each season's crop from 1963-64 to 1965-66 and the importance of different channels in internal distribution

can be learnt from Table 3.3.13.

Table 3.3.13 : Disposal of Each Season's Crop 1963-64 to 1965-66 (Quantity in Tonnes)

	1963-64	1964-65	1965-66
<u>Export Markets</u>			
Export Sales	33,005	23,003	28,843
<u>Internal Markets</u>			
Pool Sales	26,643	26,056	24,751
Local Sales	4,242	5,318	3,872
Allotments to Propaganda Department	3,081	3,391	3,210
Allotments to Co- operative Societies.	1,951	2,842	2,769
Total Internal Releases	35,917	37,607	34,602
Total Pool Receipts	68,922	60,610	63,445

Source : Coffee Statistics 1964-65 to 1966-67, Coffee Board, p. 75.

It can be seen from Table 3.3.13 that the Pool Sales are the chief channel for internal distribution. The Pool Sales are held at Mysore City, Coimbatore and Vijayawada. In the Pool Sales the samples drawn from the cured coffee available at different centres are presented. The dealers bid on the basis of these samples. The dealers who actually buy the coffee take delivery of the same ex-curing works where it is stored.

Of the four channels by which the Board releases the coffee for internal consumption, in respect of coffee released through Local Sales, Propaganda Department and through Co-operative Societies, it is possible to know where the coffee is utilized. The same, however, is not true of Pool Sales, which is the main channel for internal distribution.

In the Pool Sales dealers belonging to different States bid. It is not known where the dealer who lifts the coffee presented in a sale actually disposes it. The Board, however, makes an assumption to arrive at its crude spatial pattern of internal demand. It assumes that the dealer always sells the coffee in the State where he belongs to. The Coffee Board's statistics are based on the addresses of dealers who purchase coffee in the Pool Sales.

The Board's method casts a serious doubt over its estimates. In spite of this, the Statewise demand for coffee provided by the Board, it will be seen, is acceptable. The Board's estimate of demand for different types of coffee in the various States of India during 1964-65 is given in Table 3.3.14. According to the Board's estimates the States of Madras, Mysore, Kerala and Andhra Pradesh are the major consumers of coffee in India. Apart from the Board there is one other source which gives some clue to the spatial pattern of internal demand for coffee. The N. S. S. gives per capita consumption of coffee in the various States

**Table 3.3.14 : Statewise Demand for Coffee in India 1964-65
(July to June) (Quantity in Tonnes)**

State	Planta- tion	Arabica Cherry	Robusta	Total	Per capita release per kg.
Madras	7,408	1,600	11,621	20,629	0.612
Mysore	3,502	3,235	2,765	9,502	0.403
Andhra Pradesh	996	223	1,332	2,551	0.071
Kerala	455	167	1,840	2,462	0.146
Maharashtra	234	65	543	842	0.021
Delhi	132	5	87	224	0.084
West Bengal	111	-	77	188	0.005
Madhya Pradesh	17	-	16	33	0.001
Bihar	16	-	6	22	-
Uttar Pradesh	6	-	6	12	-
Orissa	6	-	3	9	0.001
Gujarat	8	-	1	9	-
Goa, Daman and Diu	3	-	-	3	0.005
Jammu and Kashmir	1	-	1	2	0.001
Other States	106	19	149	274	0.005

Total for coffee grow- ing States Mysore, Madras and Kerala	11,365	5,002	16,226	32,593	0.439

Total for non-coffee growing States	1,636	312	2,211	4,159	0.011

Total for all States	13,001	5,314	18,437	36,752	0.084

Courtesy : Coffee Board.

during the year 1957-58. The N.S.S. data presented in Table 3.3.15 supports the Board's estimates.

Table 3.3.15 : Quantity of Cash Purchase of Coffee Powder in Lbs. (in 2 places of decimal) Per Person for a Period of 30 Days, 1957-58

State	Rural	Urban
Madras	0.03	0.10
Mysore	0.04	0.07
Andhra Pradesh	0.01	0.06
Kerala	0.03	0.05
Bombay	0.001	0.01
Madhya Pradesh	0.0002	0.001
Orissa	-	0.02
West Bengal	-	0.004
Uttar Pradesh	-	0.001
Assam	-	-
Bihar	-	-
Jammu and Kashmir	-	-
Punjab	-	-
Rajasthan	-	-
All States	N.A.	0.03
Union Territories	-	-
All India	0.01	0.03

Source : The National Sample Survey, Thirteenth Round: September 1957—May 1958, Number 71, Consumer Expenditure by Levels of Household Expenditure, Government of India, Delhi 8, 1962.

The internal markets as indicated by Tables 3.3.14 and 3.3.15 are concentrated in the States of Madras, Mysore,

Kerala and Andhra Pradesh. Examining the rail and river-borne trade¹, it was found that trade through the channel mainly originates in the ports of Mysore (i.e., Mangalore) and Kerala (i.e., Tellicherry and Calicut) and is mostly destined to Madras State. The coastal trade statistics² showed small quantities exported from ports of Mysore and Kerala to Maharashtra. The trade by road cannot span wide areas due to high cost. The concentration of internal demand in four southern States as revealed by the Board's statistics seems acceptable.

The Statewise breakdown of demand is insufficient for the present purpose. If the internal demand had a wide spatial pattern the important cities in chief coffee consuming States could have been assumed as market points and an allocation scheme for the coffee grown in different areas between the curing centres can be drawn. The internal demand is confined to the States of Madras, Mysore, Kerala and Andhra Pradesh. Any rationalization of the existing allocation of coffee between the various centres, need take into consideration only the demand in these States. The procedure that would have been handy when the demand had a

1 Accounts Relating to^{the} Inland (Rail and Riverborne) Trade of India, 1962-63 to 1965-66.

2 Statistics of the Coasting Trade of India, 1960-61 to 1964-65.

wider span cannot be adopted in the case. A finer breakdown of the demand in the coffee consuming States indicating its spatial pattern at finite points is essential. Assuming that the per capita consumption remains the same throughout the State such a breakdown can be obtained. The N. S. S. data has already shown that consumption habits differ between the rural and urban areas. The use of Coffee Board's statistics which alone gives typewise demand needs a further assumption. It needs to be assumed that the consumption habits remain the same throughout the State in respect of the types also.

It would be more appropriate to conclude that a thorough market survey in the chief coffee consuming States may be useful for any rationalization scheme.

A conscious policy on the Board's part would have required a thorough knowledge of the spatial pattern of demand. There is a regrettable lacuna in this respect as regards the internal market. The Board has a broad picture of the spatial pattern of internal demand for coffee. For a meticulous care of the space factor the same is insufficient. Further, even the Board's method of arriving at its broad spatial pattern of internal demand has a questionable basis, though its statistics could be supported with information from other sources.

Summing Up

There has been no conscious policy as regards the

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Summing Up

There has been no conscious policy as regards the

the location aspect of the curing industry. The Board has not effected any reallocation of coffee meant for curing. This was not done not because the Board accepted the existing flows as rational. In fact to a certain extent the Board was not in a position to judge the rationality of existing flows. The same weakness applies to the Board's decisions regarding the location of new curing capacity. There is a regrettable lacuna in the Board's knowledge of spatial pattern of internal demand. This results in its inability to judge the rationality of flows of coffee meant for curing and economic justification of the location of new curing capacity.

The passive policy on the Board's part as regards the location aspect of the curing industry had diverse results. In some cases, perhaps incidentally, the location of new curing capacity has been economically advantageous.¹ The development of a new curing centre in Hessen near the 'Mysore' coffee growing areas, and the location of curing houses in Kushalanagar and Kalpetta near Coorg and Wynaad plantation respectively, fall in the category. Likewise the growth of centres, Salem near the Shevroys and Patteeveerampatti near the Pulneys. The Board's passive policy,

¹ Though the Board is supposed to critically evaluate the choice of location it more or less depends on the private initiative. Further after locating his curing unit the individual curer is left to his ability to secure the necessary supplies of coffee.

however, has its other side. In spite of the coming up of curing centres which are more conveniently located from the plantations, coastal centres have continued to flourish. As will be shown that apart from the fact that some of the coastal centres do not have any economic advantage, coastal centres as a category pose numerous operational problems. The concentration of curing capacity in Mangalore is a glaring instance in the case. The curing industry in Mangalore is discussed in Section 3.6.

3.4 : Cost Factors and Some Important Problems regarding Allocation of Coffee between Curing Centres

The Board's policy as regards the locational aspect of the curing industry has been passive. There were difficulties which beset the Board's responsibilities. Some of these were discussed in the last section. These difficulties persist and should be reckoned with. There are other factors which the Board may have to take into account for a conscious policy in the future. Such factors can be broadly divided into cost factors and institutional factors. The present section discusses the cost factors. The next examines the institutional factors. The institutional factors would have posed a hurdle in the implementation of any rationalization scheme in the past. They may do so in future also.

There are two sub-sections in the present section. The first discusses the cost factors, viz., curing costs and transport costs. The second sub-section examines broadly some important problems of the industry regarding allocation of coffee between the curing centres. The same is done taking into account the cost factors and the demand pattern for coffee.

3.4.1 Cost Factors

A : Curing Costs

Curing costs have two broad components, viz., scale

costs and those which are locationally significant. The information regarding curing costs (inclusive of scale and locationally significant costs) was obtained from different sources. The data made available by different sources differ in their nature and utility. The sources of data and form are discussed in the immediately succeeding paragraphs. Thereafter (a) scale costs and (b) locationally significant costs are discussed separately.

Locationally significant costs in any industry generally are raw material costs, fuel and power costs and labour costs, besides one can include packing material costs in the category. Coffee curing industry in India is a service industry. There are no raw material costs. As regards fuel, the industry uses coffee husk, which is otherwise a waste; sometimes a by-product. The industry at its present stage being not very much mechanized, does not use electric power extensively. The packing material used in the industry is gunny bags and hence is of minor importance. The most important locationally significant cost item is labour cost. Costs other than labour, fuel, power and packing are categorized as scale costs.

The curers in India, apart from their main function of curing coffee, act as agents to the Coffee Board. There are some cost items which are incurred both on the curing side and on the agency side, viz., labour costs and salaries to the supervisory and managerial personnel.

The cost information regarding the industry was collected from three different sources. The three sources are as follows:

1. Cost Accountant of India's Data¹: The information here relates to the crop season 1964-65. It includes both the locationally significant and the scale costs. Unfortunately this source combines labour costs which belongs to the first category with salaries paid to the supervisory and managerial personnel which belongs to the second. The source gives cost information separately for the curing aspect and the agency aspect of the industry.

2. Accounts Data : The cost information here was collected from the surveyed units during the first half of 1967. The data refer to the year 1965. It includes both the locationally significant costs and the scale costs. However, some of the cost items include the part incurred on the curing side and also that incurred on the agency side. They are not separable here.

3. Engineering Data : This cost information refers to the time of the survey, i.e., May 1967 to July 1967. It confines only to the locationally significant costs on the curing side. In the absence of raw material costs, and the fuel costs being negligible, the only locationally

¹ This data was made available by one of the curing units surveyed.

significant cost which is important is labour cost. The data refers to labour costs.

Cost data provided by the Cost Accountant of India refers to crop season 1964-65. The source provides data regarding the quantity of coffee cured for the units for which it gives the cost data. The quantities cured during 1964-65 crop season as indicated by the source differ from that reported by the Board for the same crop season. The survey conducted by the researcher obtained Accounts data for the year 1965 and Engineering data which refers to the time of the survey. Some of the units visited provided only the Engineering data. However, all the units visited reported the quantity cured by them during 1965.

Table 3.4.1 presents the quantities cured by the 30 major curing units from 1964-65 season's crop as reported by the Board. The Table also gives the quantities cured during 1964-65 season as indicated by the Cost Accountant of India for the units for which the source provides cost data. The quantity of coffee cured by them during 1965 as reported by the units surveyed by the researcher is also presented in Table 3.4.1.

The curing statistics as given by the Cost Accountant of India, and as reported by the curing units are used while analysing their respective cost data. Board's data are relied upon in all other discussions.

Table 3.4.1 : Quantity of Coffee Cured by the Major Curing Units

Centre	Unit	Source of Data		
		Coffee Board 1964-65 crop season	Cost Accountant of India 1964-65 crop season	Curing units 1965 calendar year
Mangalore	MG 1	641	637	594
	MG 2	1,532	1,723	N.A.
	MG 3	3,316	N.A.	N.A.
	MG 4	4,237	4,053	4,231
	MG 5	4,501	4,461	4,520
Chikmagalur	CH 1	1,360	1,330	N.A.
	CH 2	1,441	2,332	1,397
	CH 3	2,904	2,875	2,892
Hassan	HN 1	2,134	2,126	2,193
	HN 2	2,513	N.A.	2,559
	HN 3	4,104	3,559	4,124
Kushalenagar	KS	3,870	3,893	N.A.
Hunsur	HR	3,068	4,369	3,495
Mysore City	My 1	1,034	N.A.	1,048
	My 2	3,128	2,566	3,232
Tellicherry	TL	3,028	3,691	N.A.
Calicut	CL 1	1,369	1,257	1,430
	CL 2	2,154	N.A.	2,135
Kalpetta	KT 1	1,215	598	N.A.
	KT 2	1,716	N.A.	N.A.
Mettupalayam	MT 1	303	N.A.	N.A.
	MT 2	1,155	920	785
Coimbatore	CB 1	501	425	498
	CB 2	2,564	N.A.	2,577
Salem	SL 1	330	N.A.	N.A.
	SL 2	1,145	N.A.	1,126
	SL 3	1,221	1,080	1,170
Pattaveerampatti	PT 1	262	N.A.	N.A.
	PT 2	1,072	973	N.A.
	PT 3	1,136	1,054	N.A.

N. A. = Not Available.

Table 3.4.2 gives the coverage by different sources of cost data. The same is presented by taking into account the units covered in each centre and the coverage of the quantity cured in the centre. As regards the total quantity cured in the individual centres neither the Cost Accountant of India nor the survey data provides the information; the Board's data had to be relied upon for the purpose. Total quantity cured in the centre as given by the Board and the quantity cured by the units covered as reported by the different sources of cost data are not meaningfully comparable. The discussion in the preceding paragraphs provides the reasons. Thus, quantity cured by the units covered by different sources of cost data appearing in Table 3.4.2 are not based on the quantities cured by individual units given by the respective sources, but are based on the Board's data.

Scale Costs :- The curing centres which cure the coffee from different coffee growing areas are located near the individual growing areas. Thus, like the coffee growing areas curing capacity is scattered. Further, in many centres the curing capacity is shared by more than one unit. An examination of the scale economies can be started with a view to know whether coffee from different areas can be cured at a few large plants (larger than the existing ones) located at some central points. The same would, however, require consideration of plant sizes larger than those

Table 3.4.2 : Coverage by Different Sources of Cost Data

Curing Centre	Number of Units				Quantity of coffee cured 1964-65 *			
	Total	Cost Accountant of India	Accounts Data	Engineer- ing Data	Total	Cost Accountant of India	Accounts Data	Engineer- ing Data
Mangalore	5	4	2	3	14,227	10,911	4,878	9,379
Chikmagalur	3	3	1	2	5,705	5,705	1,441	4,345
Hassan	3	2	3	3	8,751	6,238	8,751	8,751
Kushalanagar	1	1	-	-	3,870	3,870	-	-
Hunsur	1	1	-	1	3,068	3,068	-	3,068
Mysore City	2	1	1	2	4,162	3,128	3,128	4,162
Tellicherry	1	1	-	-	3,028	3,028	-	-
Calicut	2	1	1	2	3,523	1,369	1,369	3,523
Kalpetta	2	1	-	-	2,931	1,215	-	-
Mettupalayam	2	1	1	1	1,458	1,155	1,155	1,155
Coimbatore	2	1	2	2	3,065	501	3,065	3,065
Salem	3	1	2	2	2,696	1,221	2,366	2,366
Patteeveeram- patti	3	2	-	-	2,470	2,208	-	-
Grand Total	30	20	13	17	58,954	43,625	26,169	39,190

* Quantities cured by the units given here refer to those provided by the Board for crop season 1964-65.

existing and also it would require a more detailed data regarding spatial pattern of internal demand than are available. As the required data are not available, analysis of the above type is not possible.

The question of scale economies can be examined only in respect of location of additional capacity. In this case, it may be sufficient if the existence of scale economies is examined in relation to plant sizes in operation. The Board in the above context can, depending upon the existence of scale economies, crop forecasts for different areas, location of coffee growing areas which require additional capacity, and the spatial pattern of demand, decide the plant size and the location. Though reliable crop forecasts for individual growing areas are not readily available, crude estimates of the same could have been arrived at. However, lack of knowledge regarding spatial pattern of internal demand would have been a hurdle.

In the absence of the required data what has been attempted here is only an enquiry into the existence of scale economies in the industry. No attempt has been made to relate the same to transport costs and hence no suggestions could be made regarding concentrating or dispersing the additional capacity.

The existence of scale economies in the industry has been enquired into with the help of factual data regarding

the existing units. The data have its shortcomings for the purpose (see Section 2.7). Further, to know the existence of scale economies, the plants compared should be using the same method of production but differ only in their size; it is also required that the plants operate at full capacity. There is no clear definition of capacity in the industry. The capacity of individual units as given by the Cost Accountant of India differed from that given by the Board. It is, however, known that some of the units whose data are used worked below their full capacity. As regards the condition that the plants compared should be using the same method of production, the same is met with. The following paragraphs describe the curing process and help to show that there are only minor differences in the methods employed.

In the curing works, pulp from the dried Cherry and Parchment husk from the Parchment coffee is removed mechanically. Then the first preliminary grading is also done by machines. Coffee is later given to labourers who do the final grading. The grading of coffee in India is as prescribed by the Coffee Board. How the different types of coffee are graded is given in Table 3.4.3.

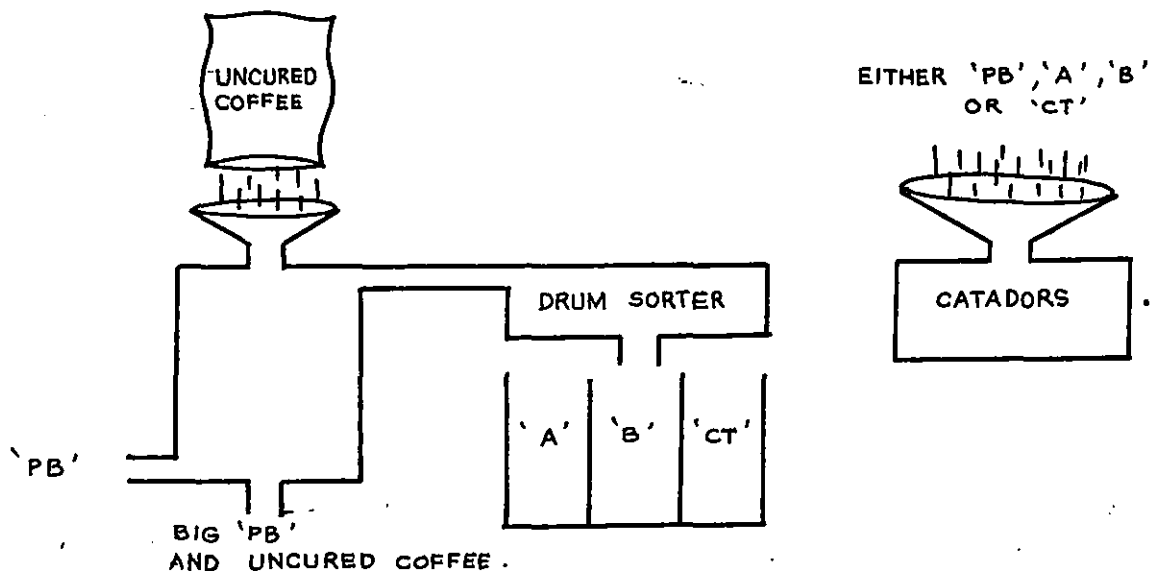
The mechanical part of the coffee processing is not complicated. Chart No. 2 depicts the mechanical part of the curing process. Coffee is hulled of its pulp in the

Table 3.4.3 : Grading of Different Types of Coffee in India

Plantation (Arabica Parchment)	Arabica Cherry		Robusta Parchment	Robusta Cherry
	Whole Crop Cherry (including gleanings)	Strippings		
PB	PB	PB	PB	PB
A	AB (Flats)	A	AB (Flats)	AB (Flats)
B	Bulk 5% Triage	Bulk 5% Triage	Bulk 5% Triage	Bulk 5% Triage
CT	CT	BCT/Blacks/ Browns/Bits	CT	CT
Blacks/Bits	Blacks/ Browns/ Bits		Blacks/ Browns/ Bits	Blacks/ Browns/ Bits

Source : Annual Report of the Coffee Board, 1964-65, p. 117.

CHART NO. 2. MECHANICAL PART OF COFFEE CURING PROCESS



case of Cherry and the parchment husk is removed in the case of Parchment coffee. This is done by adjustment of the blades. The sorter which is attached to the huller (or the parchment husk remover) separates the 'PB's. The uncured coffee and the big 'PB's are removed by a mechanical device before the 'PB's are separated by the sorter. The rest of the coffee which includes the grades 'A', 'B' and 'CT', are then fed into a drum sorter. Here coffee is graded into 'A', 'B' and 'CT' separately. The drum sorter has sieves of different diameters. The different sieves denote different grades. The diameter of the sieves is prescribed by the Coffee Board. Different grades are then polished separately and sent to the catadoors where the unshapely and the coloured beans get removed from the rest. There ends the mechanized part of curing. The coffee of different grades still contain discoloured and unshapely beans. Labourers do the final grading.

Technological difference in the process of curing employed in different curing works can occur only in the last stage of its mechanized part. The curing units can instead of the catadoors, use pneumatic graders, gravity graders or colour sorters. Most of the units during the time of the survey used the first mentioned. In only one of the units during the time of the survey 'mechanical table garbling' was employed. (This is noted while estimating the labour costs.)

Thus, there are no significant differences in the method of curing employed by the various curing units. Hence, it is possible, as pointed out earlier, to utilize the cost data obtained from these units of different sizes, for examining the existence of economies of scale in the industry.

The information regarding scale costs is available from two sources, viz., (i) the Cost Accountant of India and (ii) the Accounts Data collected during the survey. The cost data provided by the sources are presented in two separate Tables (Tables 3.4.4 and 3.4.5). The units are arranged in ascending order of their installed capacity in the case of the former. As regards the Accounts Data, they are arranged in ascending order of the quantity cured.

Preliminarily, scale costs were correlated with the size of unit with the help of rank correlation. As said earlier, in the case of Cost Accountant of India's data, salaries paid to the managerial and supervisory personnel which is an item of scale costs is coupled with wages paid to labourers which is a locationally significant item of cost. Since the latter accounts for a greater part of the expenditure of the item Salaries and Wages, the item Salaries and Wages has been excluded while computing the correlation. In the case of the item Power and Repairs the item Repairs only is an item of scale costs. However power costs in the industry being insignificant the item Power and

Table 3.4.4 : Cost of 'Curing' and 'Cost of Agency and Sales Services' for Different Curing Units, 1964-65 Crop Season (Rupees Per Tonne)

Name of the curing unit	Location	Curing								Agency and Sales					Curing Agency and Sales Total		
		Average capacity Tonnes Per Year	Salaries and wages	Power and repairs	Gunnies	Depreciation	Other costs	Less Credit	Net Total	Salaries and wages	Gunnies	Depreciation	Other costs	Less credit		Net Total	
CB 1	Coimbatore	1,500	59.3	7.4	1.2	12.7	8.3	1.6	87.3	63.1	1.3	5.0	9.9	26.1	53.1	140.4	
KT 1	Kalpetta	1,500	55.9	9.0	1.8	9.7	6.1	2.0	80.5	43.1	1.0	2.1	10.1	17.2	39.1	119.6	
PT 2	Patteveersampatti	1,500	57.2	21.3	6.4	14.7	5.8	3.7	101.7	38.1	6.3	4.9	11.6	6.7	56.2	157.9	
PT 3	"	1,500	159.1	14.6	5.2	14.1	14.7	15.8	191.9	35.5	5.2	4.9	11.6	0.9	56.3	248.2	
SL 3	Salem	1,500	46.5	14.6	3.5	29.1	12.1	0.6	105.2	18.5	7.1	-	8.1	9.7	29.6	134.8	
CL 1	Calicut	1,500	65.6	5.9	0.6	7.8	4.3	2.1	82.1	34.2	0.5	4.2	15.3	21.4	32.8	114.9	
MG 1	Mangalore	2,000	55.6	11.8	-	8.6	8.4	1.1	83.3	26.6	-	7.1	7.4	11.3	29.8	113.1	
MT 2	Mettupalayam	2,500	51.9	1.3	0.4	11.6	3.1	0.7	67.6	32.5	0.5	5.6	2.3	4.4	35.9	103.5	
CH 1	Chikmagalur	2,500	61.9	12.7	1.3	5.4	5.2	0.5	86.0	18.9	2.6	4.2	8.6	6.3	28.0	114.0	
MG 2	Mangalore	2,500	70.1	14.3	3.6	2.2	3.3	3.1	90.4	28.8	3.3	1.0	5.5	13.9	25.7	116.1	
CH 3	Chikmagalur	3,500	57.4	15.2	0.3	5.8	3.6	5.1	77.2	38.7	0.3	3.1	6.0	15.2	30.6	107.8	
HN 1	Hassen	4,500	51.3	8.8	2.9	11.0	16.2	2.7	87.5	17.9	4.3	0.1	14.2	-	41.4	128.9	
My 2	Mysore City	4,500	49.8	9.0	2.5	5.8	5.6	1.7	71.0	16.4	5.0	6.6	7.7	3.6	28.6	99.6	
HN 3	Hassen	4,500	53.6	10.0	2.3	15.5	7.1	0.6	87.9	23.2	4.6	5.0	6.7	4.4	38.4	126.3	
TL	Tellicherry	4,500	68.0	8.5	5.0	5.7	9.0	1.6	94.6	25.9	4.2	0.9	10.1	15.8	25.3	119.9	
KS	Kushalenager	5,500	85.2	13.6	1.4	6.3	6.1	15.1	99.5	47.7	1.3	4.9	9.0	32.1	30.2	129.7	
HR	Hunsur	5,500	58.9	4.8	1.9	0.8	10.6	4.7	72.3	15.0	1.6	4.3	5.0	11.6	10.1	82.4	
MG 4	Mangalore	6,500	41.9	11.2	1.1	15.1	9.8	3.3	75.8	40.0	1.1	2.4	8.6	12.3	39.8	115.6	
MG 5	"	7,000	67.4	9.8	2.3	8.8	6.0	1.9	92.4	26.3	2.3	3.4	8.2	15.3	24.9	117.3	
CH 2	Chikmagalur	7,500	42.2	4.5	1.8	9.5	6.2	6.0	58.2	21.6	3.4	8.3	7.2	20.1	18.7	76.9	
Weighted Average				58.4	10.4	2.0	10.2	6.6	2.6	85.0	32.4	2.6	4.0	8.8	14.0	33.8	118.8

Note : Installed capacity as given by the Cost Accountant of India differ from that given by the Coffee Board. So is the 'quantity cured' as indicated by the two sources. The difference in the latter is less wide.

Source : Cost Accountant of India.

Table 3.4.5 : Cost of 'Curing, Agency and Sales Services' for Different Curing Units, 1965 : Accounts Data (Rupees Per Tonne)

Curing Unit	Location of the Curing Unit	Quantity Cured 1965 (Tonnes)	Employment		Wages to Direct Labour	Salaries	Plant Maintenance	Power	Depreciation	Other Costs	Total
			Directly employed	Supervisory and clerical staff							
CB 1	Coimbatore	498	113	29	129.95	28.17	5.36	1.91	15.81	15.85	195.14
MG 1	Mangalore	594	115	12	70.32	47.25	13.20	0.77	14.70	31.33	177.57
MT 2	Mettupalayem	785	150	7	47.90	27.13	5.46	5.74	16.69	18.48	121.40
SL 2	Salem	1,126	204	18	36.74	30.74	2.62	*	49.94	15.43	135.47
SL 3	Salem	1,170	199	15	33.33	50.23	3.64	*	30.48	32.96	150.64
CH 2	Chikmagalur	1,397	263	36	42.33	27.32	3.71	8.92	10.12	11.03	103.41
CL 1	Calicut	1,430	153	5	51.74	5.17	14.57	2.51	15.77	14.30	104.06
HN 1	Hassen	2,193	271	13	47.48	19.58	8.23	4.63	34.35	10.58	124.85
HN 2	Hassen	2,559	312	46	30.64	24.82	7.91	5.07	41.75	26.30	136.49
CB 2	Coimbatore	2,577	236	17	59.84	30.79	2.29	1.62	6.29	27.29	128.12
My 2	Mysore City	3,232	268	25	24.41	16.96	17.02	3.62	19.41	15.47	96.89
HN 3	Hassen	4,124	167	31	22.86	32.18	6.03	3.80	24.03	20.63	109.53
MG 4	Mangalore	4,231	530	19	56.64	12.18	8.68	1.46	15.91	14.59	109.46

* Included under 'Other Costs'.

Source: Survey.

Repairs has been included. The items taken into account for computing the correlation in the case of Cost Accountant of India's data, thus, are Power and Repairs, Depreciation and Other Costs. In the case of the Accounts data the scale costs are Salaries, Plant Maintenance, Depreciation and Other Costs (which includes small expenditure on packing materials).

In the case of the Cost Accountant's data it became necessary to correlate scale costs with the size of the unit in two different ways; first, by defining the size by the installed capacity; second, by defining the size by the utilized capacity i.e., quantity cured (1964-65 crop season). In the case of the Accounts data the size was defined by quantity of coffee cured during the year 1965. The relevant rank correlations arrived at are presented in Table 3.4.6.

Table 3.4.6 : Rank Correlation between Scale Costs and Size of the Unit

	Definition of size	
	Installed capacity	Quantity cured
<u>a) Cost Accountant of India's Data</u>		
Curing Agency	-0.25150	-0.21358
Curing and Agency	-0.22970	-0.33684
	-0.33947	-0.26090
<u>b) Accounts Data</u>		
Curing and Agency	-	-0.20330

It can be seen from Table 3.4.6 that there is no significant correlation between the size of the unit and scale costs. To confirm the same linear regression equations were fitted between the size and scale costs (as defined earlier). In the case of the Cost Accountant of India's data the same has been done only in respect of scale costs on the curing side. Table 3.4.7 presents the results.

Table 3.4.7 : Linear Regression Equations between Scale Costs and Size of the Unit

	Definition of size	Constant Term	Coefficient of x i.e. 'b'	R ²
A) <u>Cost Accountant of India's Data</u>	i) Installed capacity	33.02	-0.00137 (0.00115)	0.12464
	ii) Quantity cured	28.10	-0.00152 (0.00172)	0.4235
B) <u>Accounts Data</u>	Quantity cured	84.23	-0.00414 (0.00510)	0.063819

The values of 'R²' as is obvious from Table 3.4.7 are very low; they were found to be non-significant at 5 per cent level. The coefficients of 'x' were also found to be non-significant at 5 per cent level.

Historical evidence also indicates that there are no significant scale economies in the industry. There are two firms which have their branches in more than one centre. Firm A in Table 3.4.8 has branches in Mangalore, Calicut and

Table 3.4.8 : Location of the Branches and Coffee Cured by Two Major Firms, 1964-65 Crop Season (Quantity in Tonnes)

	Branch and Name of the Curing Unit				
	Firm A			Firm B	
	Mangalore MG 5	Calicut CL 2	Coimbatore CB 2	Mangalore MG 3	Tellicherry TL
Bababudans	1,495	-	-	284	-
Other Mysore	1,686	-	-	2,927	317
Coorg	1,280	13	-	81	2,382
Biligiris	-	-	168	-	-
Nilgiris	-	-	379	-	-
Nilgiri/Wynaad	-	179	392	-	-
Malabar/Wynaad	-	1,938	-	-	315
Nelliampathis	-	-	414	-	-
Annamalais	-	-	908	-	-
Shevroys	-	-	236	-	-
Kannan Devans	-	9	57	-	-
Other	40	15	10	24	14
Total	4,501	2,154	2,564	3,316	3,028

Courtesy : Coffee Board.

Coimbatore, and firm B has its branches in Mangalore and Tellicherry. The two firms rank the first two in the industry by the quantity cured. The fact that these important firms

have dispersed their curing capacity leads one to infer that there are no significant scale economies in the industry which would compensate the higher transport costs due to long diversions.

Labour Costs (Locationally Significant Costs):- The Cost Accountant of India as a source of information coupled the wage costs with the salaries paid to the supervisory and clerical staff, though it distinguished between the curing and the agency sides of the industry's functions. In the Accounts data the two cost items are separately available. However, this source does not distinguish between the wage costs incurred on the agency and that on the curing side. What is required here is labour costs involved in curing the coffee alone. Though all the curers are also agents of the Board their agency function cannot be directly correlated with their curing activity. Hence the wage costs as available in the Accounts data may lead to incorrect conclusions. Due to these shortcomings of the above-mentioned data, the labour costs have been calculated on the basis of Engineering data.

In the coffee curing process, labour costs are involved in the following different stages: unloading the coffee, drying, hulling, garbling, bulking and despatch. Of these, hulling is a mechanical process. Labour cost involved here is insignificant. Garbling cost accounts for

more than 60 per cent of the labour costs. As regards the other operations, where labour factor is involved, these are influenced by extra locational forces. Due to the system of wage payment their influence could not be eliminated. Though the operations like unloading the coffee, drying, bulking and despatch are piece rated, in many cases the rates fixed included the payment for the transit of coffee from one stage to the other. It need not be said here, then, that these rates depended on the lead, between the stages. The layout of the factor mattered much. This factor, however, has no locational relevance. The labour cost taken into account here is only garbling cost.

Garbling refers to grading of cured coffee beans by human labour. As said earlier, a part of the grading initially is done by machines. The curers reported that at the end of mechanical grading the 'Blacks' and 'Bits' which are separated from other grades form about 2 per cent. These inferior grades are not put for garbling. Hence the cost of garbling labour need be calculated on 980 kgs. per tonne of cured coffee.

Garbling wages are piece rated. Eight of the fourteen units surveyed reported a flat work-load irrespective of the grade and type. The remaining six units had varying work-loads. Of these six, three are located in Mangalore, two in Calicut and one in Coimbatore. Three of these units,

one each in the above-mentioned centres, belonged to a pioneering firm. These had similar work-loads for different grades. The two other units, one each in Mangalore and Calicut, followed the pattern set by the above pioneering firm. The remaining unit in Mangalore stated that it varied the work-load depending upon the quality of the particular lot of coffee. Thus five out of the six units which had varying work-loads for different grades had similar work-loads for particular grades. These work-loads have been assumed for the remaining units also.¹

As said earlier, garbling labour is piece rated. The piece work which carried a particular remuneration is known by different terms in different centres; here it can be called as 'task'. Where a flat work-load was practised the labourers were required to garble 50 kgs. per 'task'. Work-load per 'task' for different grades in the case of the units which practised varying work-loads for different work-loads for different grades is given in Table 3.4.9.

In the case of the units which practised flat work-load it required 20 'tasks' to obtain a tonne of cured

1 Unlike the tile industry where varying work-loads was a factor particular to the individual units, here it is a locational factor. Work-loads differed between the centres and except in one case it did not differ between the units in the same centre. Further varying work-loads between the centres in this case are not comparable. Differences in 'tasks' is due to differences in the nature of work. Varying work-loads represent different systems of wage payment.

Table 3.4.9 : Work-loads for Different Grades and Number of 'Tasks' Per Tonne of Coffee for Units which Practised Varying Work-loads for Different Grades

Grade	Approximate percentage of the grade at the end of mechanical grading	Approximate quantity of the grade in kgs. per tonne of cured coffee	Work-load per 'Task' in kgs.	Number of 'Tasks' per grade per tonne of cured coffee
PB	10-15	130	31.8	4.09
A	57-65	610	31.8	19.18
B	13-18	160	25.4	6.30
CT	5-10	80	25.4	3.15
Bl/Br/Bts	1- 3	20		
Total Number of Tasks				32.72

coffee. On the basis of Table 3.4.9 it was around 33 'tasks' for the units which practised varying work-loads for different grades. It should, however, be noted that number of 'tasks' required per tonne of cured coffee in the case of two types of units are not comparable. Firstly, work-load per 'task' differed between them. Secondly, remuneration per 'task' also differed, (remuneration per 'task' was not necessarily equivalent to a normal day's wage).

With the data regarding wage per 'task' obtained from the individual units and the 'tasks' per tonne of

cured coffee given above, garbling labour costs have been calculated for different units. These have been presented in Table 3.4.10. The Table also gives the weighted garbling labour costs for different centres.

Labour costs are highest in Mangalore. Hassan has the lowest labour costs among the centres surveyed. The above estimates of garbling labour costs have been utilized in the succeeding sub-section while discussing the problem of allocation of coffee between the curing centres.

B : Transport Costs

Coffee curing is a weight losing process; the same necessitates consideration of transport cost on uncured coffee separately. There are, thus, two major components of transport costs: (i) transport cost on uncured coffee and (ii) transport cost on cured coffee. Coffee when it is cured can be classified to superior coffee which is exported, and the unexportable coffee which is utilized for internal consumption. Transport cost on cured coffee thus includes transport cost on exportable coffee to the port and transport cost on unexportable coffee to the internal markets.

Transport cost on uncured coffee depends upon :
quantity of uncured coffee required to secure a tonne of cured coffee, distance from the plantations to the curing centre and transport rates.

Table 3.4.10 : Garbling Labour Costs Per Tonne of Cured Coffee, 1967 (in Rs.)

Centre	Unit	Cost ¹	Weighted ² Average cost for the Centre
Mangalore	MG 1	34.98 *	37.36
	MG 4	36.92 *	
	MG 5	38.08 *	
Chikmagalur	CH 2	24.47	23.53
	CH 3	23.08	
Hassan	HN 1	27.00	23.51
	HN 2	23.08	
	HN 3	21.92 ³	
Hunsur	HR	30.00	30.00
Mysore City	MY 1	26.54	27.94
	MY 2	28.39	
Calicut	CL 1	31.86 *	35.59
	CL 2	38.08 *	
Mettupalayam	MT 2	34.62	34.62
Coimbatore	CB 1	39.24	37.13
	CB 2	36.72 *	
Salem	SL 2	28.84	27.90
	SL 3	27.00	

* Calculated on the basis of different work-loads for different grades.

1. Includes employers contribution to E.S.I., E.P.F. (8.75 per cent of earnings), leave with wages (5 per cent of earnings) and compulsory bonus (4 per cent of earnings).

2. Quantities cured during 1964-65 crop as reported by the units (Table 3.4.2) have been used as weights.

3 Unit HN 3 employed mechanical garbling side by side manual garbling. The former cost less and can be estimated at Rs.17.68 per tonne in 1967.

Transport cost on cured coffee depends upon (i) transport cost on exportable coffee which in turn depends upon quantity exported from a tonne of cured coffee, distance from the curing centre to the port, and transport rates; and (ii) transport cost on unexportable coffee to the internal markets which in turn depends upon quantity released for internal consumption from a tonne of cured coffee, distance from the curing centre to the internal markets, and transport rates.

To compute the transport costs there are, thus, three types of data required: (i) quantities moved, (ii) distances, and (iii) transport rates.

Quantities Moved :- Quantity of uncured coffee required per tonne of cured coffee depends upon the weight loss in curing; the same differs between types of coffee. The weight loss for each type used in the present study is based on the information provided to the Board by fifteen curers. The curers information refers to crop season 1964-65 and is given in Table 3.4.11. ¹

Not all types are taken into consideration while calculating the transport costs. At present, Robusta Parchment forms a negligible portion of the crop. Transport

¹ The findings here agree with the weight loss in different types of coffee observed by another study, viz., Coffee in Latin America : Productivity, Problems and Future Prospects, Colombia and El Salvador, United Nations, 1958, p. 144.

Table 3.4.11 : Loss of Weight in Curing Per Cent Per Tonne of Uncured Coffee 1964-65 Crop Season

Curing Unit	Plantation	Arabica Cherry	Robusta Parchment	Robusta Cherry
MG 1	20.01	50.33	-	49.85
MG 2	22.70	48.08	19.65	47.95
MG 3	22.17	48.56	18.91	47.40
MG 4	22.20	44.62	16.17	47.28
MG 5	21.66	47.93	18.82	50.80
HN 1	21.87	44.07	20.60	47.60
KS	24.38	61.70	15.98	48.25
TL	23.91	48.34	16.84	47.90
CL 1	33.46	47.12	14.62	46.23
CL 2	22.04	45.66	15.68	46.85
KT 1	26.04	47.87	16.07	46.38
KT 2	27.94	46.74	21.85	45.89
CB 2	23.59	42.33	17.57	45.73
SL 2	25.84	42.60	-	50.66
SL 3	22.06	43.12	-	47.36
Average	23.99	47.27	17.73	47.74
Quantity of uncured coffee required to produce a tonne of cured coffee (in tonne)	1.3156	1.8965	1.2155	1.9135

Source : Coffee Board provided the data regarding quantity of coffee received and the quantity outturned by the above curers. The weight loss in curing has been calculated on the basis of this data.

cost computations have been made only in respect of 'Plantation', Arabica Cherry and Robusta Cherry. Transport costs on uncured coffee assume that a quantity of 1.3156 tonnes of uncured coffee is transported to the curing house in the case of 'Plantation'; 1.8965 tonnes and 1.9135 tonnes respectively in the case of Arabica Cherry and Robusta Cherry.

As regards the quantity of exportable coffee (which is transported to the port) and unexportable coffee (which is transported to the internal markets) from a tonne of cured coffee, the same have been arrived at on the basis of Table 3.3.8. Table 3.3.8 presents in respect of each type of coffee, exports as percentage of the quantity cured for the crop seasons 1962-63 to 1965-66. It is assumed here that percentage exports in each type represent the exportable quality coffee. Average of the percentages for the crop seasons 1962-63 to 1965-66 has been used for calculating the transport costs.

It can be noted that in Table 3.3.8 Robusta Parchment and Robusta Cherry are clubbed together and appear as Robusta. As Robusta Parchment crop is small, data relating to Robusta in the Table has been assumed to be representative of Robusta Cherry for the present purpose. Further, in the case of Robusta Cherry the season 1964-65 has been treated as abnormal and the percentage for the year has

been omitted while taking the average.

On the basis of Table 3.3.8, it has been assumed that exportable quality coffee in a given quantity of cured coffee will be 56.3725 per cent in the case of 'Plantation', and 49.7050 per cent and 32.6066 per cent respectively in the case of Arabica Cherry and Robusta Cherry. With the help of the above percentages and the weight losses given in Table 3.4.11 it is possible to arrive at the relation between uncured coffee, coffee cured, and coffee released for export and internal markets, in the case of the three types of coffee. Table 3.4.12 presents the relevant relations.

Table 3.4.12 : Estimated Relation between Uncured Coffee, Coffee Cured, and Coffee Released for Export and Internal Markets (Quantity in Tonnes)

	Uncured	Cured	Export	Internal market
Plantation	1.3156	1.0000	0.5637	0.4363
Arabica Cherry	1.8965	1.0000	0.4971	0.5029
Robusta Cherry	1.9135	1.0000	0.3261	0.6739

To spell out the relations depicted in Table 3.4.12 take the case of 'Plantation'. To secure a tonne of cured coffee it is necessary to transport 1.3156 tonnes from the plantations to the curing centre; from the resulting one

tonne of cured coffee 0.5637 tonne of superior quality will be picked and exported through the convenient port; and the residual 0.4363 tonne of cured coffee will be available for internal consumption.

Percentage of exportable quality for any type may differ between coffee from different areas. Truly transport costs for curing the coffee from any area should be calculated taking into account the exportable and unexportable coffee supplied by the area. In the absence of the required data the same was not possible. Thus, national percentages for exportable and unexportable coffee utilized here provided only a rough basis. It is possible that national percentages are much near the relevant percentages in the case of some coffee growing areas and not so in the case of few others.

Distances :- Data relating to distances required here are: (i) distances from the various coffee growing areas to different curing centres, and (ii) distances from the individual curing centres to their respective convenient port for the exportable coffee and (iii) distances from the individual curing centres to internal markets. There are a few clarifications as regards all the three.

Coffee plantations as an economic activity is an extensive user of land. Thus, even the curing centres located amidst the plantations have to secure coffee from

a certain distance. Due to this fact, unlike the material based locations in some industries, locations in the curing industry have some assembling costs or transport cost on uncured coffee. The curers in Chikmagalur, situated in the coffee growing areas of 'Other Mysore', reported that the average distance which secures them enough supplies of coffee is around 15 miles.

There are some coffee growing areas in whose case there are curing centres located amidst the plantations. Whenever the advantage of different centres for curing the coffee from such areas is discussed, in respect of the curing centre located in the particular area, a distance of 15 miles has been taken into account for calculating the transport cost on uncured coffee.

When coffee is cured at the curing houses located at a distance from the growing areas, coffee from different estates is not assembled in the first instance and then transported to the curing house. "The produce from coffee estates is delivered by big growers to Pool Agents of their choice. ... The small grower delivers his coffee to the nearest Pool Depot or Pool Agents."¹ Pool Agents are none but the curers. Pool Depots are assembling points installed by the Board for the convenience of the small growers. The coffee assembled by the latter agency, however, as can be

¹ Report of the Plantation Inquiry Commission, 1956, Part II - Coffee, p. 90.

seen from Table 3.4.13 formed a small portion of the total crop. Most of the coffee reached the curer directly.

Table 3.4.13 : Total Receipts into the Pool and Coffee Received by Pool Depots, 1957-58 to 1965-66 Crop Seasons (Quantity in Tonnes)

Year	Total receipts of coffee into the Pool	Receipt of coffee at Pool Depots
1957-58	44,205	2,798
1958-59	46,520	2,071
1959-60	49,506	3,787
1960-61	67,794	3,436
1961-62	45,742	2,915
1962-63	55,825	1,981
1963-64	68,922	2,429
1964-65	60,610	2,632
1965-66	63,445	3,278

Source : Coffee Statistics 1964-65 to 1966-67, Coffee Board, Tables 30 and 35.

There is no intermediate stage of assembling the coffee at the coffee growing areas when it is to be transported to distant curing houses. The uncured coffee is transported directly to the curing houses irrespective of the location of the curing houses. Distances from the various growing areas to different curing centres, taken into account in the present study have been presented in

Table 3.4.17. The same was found necessary for the convenience of the discussion in the next sub-section.

Table 3.4.14 presents distances from the individual curing centres to their respective convenient ports. Some clarifications are necessary regarding the choice of port in the case of the two centres, Tellicherry and Mysore City.

Table 3.4.14 : Distance by Road from Curing Centres to Their Respective Convenient Port

Curing Centre	Convenient Port	Distance in Miles
Mangalore	Mangalore	0
Chikmagalur	"	95
Hassan	"	106
Kushalanagar	"	105
Hunsur	"	131
Mysore City	"	158
Tellicherry	Calicut	42
Calicut	"	0
Kalpetta	"	46
Mettupalayam	Cochin	145
Coimbatore	"	116
Salem	Madras	203
Patteeveerampatti	Cochin	160

Basis : Tourist Map of India based on Survey of India Maps, 1959.

The port of Tellicherry is a minor port. Foreign trade handled at the port is small. Import traffic by steamers was 1,705 tonnes in 1957-58. There were no such imports during the years 1962-63 to 1964-65. Export trade by steamers was 4,573 tonnes in 1957-58; in 1964-65 it was only 5,537 tonnes. In 1964-65 handling capacity of Tellicherry port was 180,000 tonnes, actual traffic in the year was 18,451 tonnes (10.25 per cent of the handling capacity). Even in 1975-76 the traffic through the port is expected to increase only to 37,400 tonnes.¹ As big ocean-going ships do not touch Tellicherry frequently, it has been assumed here that the exports from the centre will be effected through the port of Calicut.

As regards the curing centre in Mysore city, Calicut is nearer than Mangalore. The excess distance to Mangalore is small. Mangalore port is being developed into a major port. There would be more facilities at the port than would be available at Calicut port. It has been assumed here that exports of coffee from Mysore city will take place through Mangalore port.

For reasons that will be made clear in the next subsection the internal markets taken into account for discussing the broad locational problems of the curing industry

¹ Regional Traffic Survey of Kerala, NCAER, New Delhi, 1969, pp. 233-91.

are market points in Madras State. The curing centres in the State have been assumed to represent the market points. The distances from the individual centres to the market points (i.e., curing centres) in Madras State are given in Table 3.4.15.

Table 3.4.15 : Distance by Road from Curing Centres to Market Points in Madras State (Distance in Miles)

Curing Centre	Market points in Madras State			
	Mettu- palayam	Coimba- tore	Salem	Pattee- veerempatti
Mangalore	249	244	316	316
Chikmagalur	230	237	269	330
Hassan	191	198	230	291
Kushalanagar	163	179	211	272
Hunsur	137	153	185	246
Mysore City	119	126	158	219
Tellicherry	163	151	246	223
Calicut	138	109	208	181
Kalpetta	104	133	188	226
Mettupalayam	0	29	128	122
Coimbatore	29	0	99	93
Salem	128	99	0	117
Patteeveersampatti	122	93	117	0

Basis : Tourist Map of India based on Survey of India Maps, 1959.

Transport Rates :- Coffee in India is generally moved by road. This is true both of cured and uncured coffee. Data regarding transport cost was obtained from the curers and the transport agencies at the various centres. There is no statute regarding road tariff in India. Transport rates differed between centres and within the centres. Road tariff, as is well known, depends on many factors. Traffic on the particular route, availability of return load, topography of the region, to mention a few, may vitiate the possibility of any definite relation between rate and distance. Pooling all the scrappy information on transport cost gathered and utilizing the same was not attempted. In most cases, whether it were curers or transport agencies, the data related to short distances. Coffee production in India is concentrated in Mysore State and the curing industry is concentrated in Mangalore located on its coast. From a transport agency, which had its head office in Mangalore, transport cost in respect of coffee could be obtained for distances upto 250 miles. The firm's services were being utilized by the planters in 'Mysore' area and the curers located in centres other than Mangalore. Transport rates charged by this firm, given in Table 3.4.16, have been used here.

3.4.2 Some Important Problems regarding Allocation of Coffee between Centres in Relation to Cost Factors and Spatial Pattern of Demand

An optimum allocation scheme for coffee meant for

**Table 3.4.16 : Road Transport Cost for Coffee, 1967
(Rupees Per Tonne)**

Distance (Miles)	Cost (Rs.)	Distance (Miles)	Cost (Rs.)
Upto 10	9.00	101 - 120	31.00
11 - 20	12.00	121 - 140	35.00
21 - 30	14.00	141 - 160	39.00
31 - 40	16.00	161 - 190	44.00
41 - 60	19.00	191 - 220	50.00
61 - 80	23.00	221 - 250	56.00
81 - 100	27.00		

Source : United Stores, Bibi Halabi Road, P.B. No. 97,
Mangalore 1.

curing should take into consideration all the coffee growing areas, all the curing centres and all the markets simultaneously. In other words, coffee grown in different areas should be allocated between the various curing centres taking into account export demand and the important internal market points. An optimum allocation scheme could have been suggested only with the help of a programming model. The same could not be attempted here. Firstly, demand statistics of required precision are lacking. Secondly, the qualitative aspect of export demand would have precluded an easy programming model. Thus, only a few broad locational problems

of the industry have been examined here. The help of some facts of the industry and a few assumptions has been taken for the same.

Table 3.4.17 presents the existing allocation of coffee between the various coffee growing areas and curing centres. The data relate to the crop season 1964-65. The Table also presents distances from different growing areas to various curing centres.

Only Statewise demand pattern for coffee is available. Thus, curing centres in any State have been treated together. This, to a great extent, is justified, for, at present, coffee from particular growing areas is almost exclusively cured in one of the three States, Mysore, Kerala or Madras. Table 3.4.18 evidences the fact.

Coffee cured at the curing centres in the three States, Mysore, Kerala and Madras, can be divided into exportable and unexportable coffee. The former is exported, the latter utilized for internal consumption. The classification of coffee into exportable and unexportable coffee is possible only after curing. When a quantity of coffee is made available in cured form there is an export demand and a complementary internal demand which are simultaneously provided for. Interpreting the fact from the other side, which facilitates the discussion here, it can be said that for every internal demand there is a complementary export

Table 3.4.17 : Quantity Cured by Different Centres according to Growing Areas and Types, 1964-65 Crop Season, and Distances from Different Growing Areas to Different Curing Centres (Quantity in Tonnes and Distance in Miles)

Curing Centre	Coffee Growing Area											Typewise Total	Grand Total			
	Mysore		Biligiris	Coorg	Nilgiris	Nilgiri/Wynaad	Malabar/Wynaad	Nelliampathis	Annamalais	Shevroys	Pulneys			Kannan Devans	Others	
	Baba-budan	'Other Mysore'														
Mangalore	2,048 394 5 141 (115)	3,785 1,346 108 1,525 (75)	-	2,602 1,244 259 674 (86)	-	-	-	-	-	-	-	-	37 34 1 24	8,472 3,018 373 2,364	14,227	
Chikmagalur	2,700 1,493 24 153 (20)	482 449 5 386 (20)	-	-	-	-	-	-	-	-	-	-	5 8	3,187 1,950 29 539	5,705	
Hassan	2,246 372 24 43 (59)	2,440 964 105 491 (45)	-	1,324 453 45 143 (67)	27 4 - 6 (168)	42 10 - - (148)	-	-	-	-	-	-	6 5 - 1	6,085 1,808 174 684	8,751	
Kushalenager	-	-	-	1,943 719 195 1,003 (19)	-	-	-	-	-	-	-	-	8 2	1,951 721 195 1,003	3,870	
Hunsur	15 5	876 184	418 29	381 160 96 782 (45)	35 7	-	-	-	-	-	-	-	2 3 1 1	1,727 388 97 856	3,068	
Mysore City	5	94 95 1 5	-	627 858 25 2,163 (72)	-	1 - - - (76)	-	20 - - 261 (85)	-	-	-	-	-	1 - - 6	728 973 26 2,435	4,162
Tellicherry	-	246 24 35 13	-	773 258 468 882 (73)	-	-	-	40 31 - 244 (58)	-	-	-	-	5 3 2 4	1,064 316 505 1,143	3,028	

(continued)

Table 3.4.17 : (continued)

Curing Centre	Coffee Growing Area											Typewise Total	Grand Total		
	Mysore		Biligi- giris	Coorg	Nilgiris	Nilgiri/ Wynaad	Malabar/ Wynaad	Nelli- am- pathis	Anja- malais	Shevroys	Pulneys			Kannan Devans	Others
	Baba- budan	'Other Mysore'													
Calicut	-	-	-	-	151	46	-	-	-	-	-	-	8	205	
	-	-	-	4	9	108	-	-	-	-	-	-	5	126	
	-	-	-	-	8	111	-	-	-	-	-	-	1	120	
	(220)	(193)	-	8	52	3,003	-	-	(111)	(228)	(164)	-	9	3,072	3,523
				(115)	(117)	(88)	(46)								
Kalpetta	-	-	-	-	-	30	-	-	-	-	-	-	-	30	
	-	-	-	-	-	40	-	-	-	-	-	-	-	40	
	-	-	-	-	-	98	-	-	-	-	-	-	-	98	
	(184)	(157)	-	(85)	(81)	2,757	(20)	-	(157)	(208)	(208)	-	6	2,763	2,931
Mettupalayam	-	-	46	-	805	4	-	-	105	10	-	13	-	983	
	-	-	5	-	82	15	4	15	33	4	-	-	-	158	
	-	-	-	-	25	25	-	-	4	-	-	-	-	29	
	(250)	(236)	(104)	(182)	(23)	47	(104)	(110)	(62)	(148)	(105)	-	-	288	1,458
Coimbatore	-	-	293	-	330	313	-	278	622	241	-	57	12	2,146	
	-	-	21	-	76	73	-	161	135	20	1	16	6	509	
	-	-	-	-	33	-	-	11	70	-	-	-	-	114	
	(257)	(243)	(75)	(198)	(52)	9	(133)	(81)	(33)	(119)	(76)	-	1	296	3,065
Salem	201	-	-	-	-	-	-	10	-	2,085	-	-	11	2,307	
	57	-	-	-	-	-	-	1	-	207	-	-	3	268	
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	(289)	(275)	-	(230)	(151)	(180)	(188)	(180)	(132)	(20)	(124)	-	1	121	2,696
Patteeveerampatti	-	-	-	-	-	-	-	-	-	-	1,920	-	8	1,928	
	-	-	-	-	-	-	-	-	-	-	376	-	2	378	
	-	-	-	-	-	-	-	-	-	-	9	-	-	9	
	(350)	(336)	-	(291)	(145)	(175)	(226)	-	(99)	(137)	(17)	-	1	155	2,470
Typewise Total	7,215	7,923	757	7,650	1,197	511	116	248	727	2,336	1,920	70	103	30,813	
	2,321	3,062	55	3,696	169	107	203	177	168	231	377	16	71	10,653	
	53	254	-	1,088	33	33	209	11	74	-	9	-	5	1,769	
	354	2,493	-	5,655	76	108	6,312	359	154	-	154	-	54	15,719	
GRAND TOTAL	9,943	13,732	812	18,089	1,475	759	6,840	835	1,123	2,567	2,460	86	233	58,954	

Note : (a) There are four figures in each cell. These refer to quantities of 'Plantation', Arabica Cherry, Robusta Parchment and Robusta Cherry cured.

(b) Figures in brackets indicate distance in miles. Distances are as given in Tourist Map of India Based on the Survey of India Maps, 1959. Distances between some of the growing areas and curing centres were not available in the map; where these could be secured from the curers, they have been indicated.

Table 3.4.18 : Quantity (in Tonnes) Cured from Different Growing Areas and Percentage Share of Different Areas in the Total Quantity Cured, and Percentage Share of Different Curing Centres in the Quantity Cured from Different Areas, 1964-65 Crop Season

	Coffee Growing Area												
	Mysore		Biligiris	Coorg	Malabar/ Wynaad	Nilgiri/ Wynaad	Nilgiri	Nelliam- pathis	Anna- malais	Shevroys	Pulneys	Kannan Devans	Others
	Bababudan	'Other Mysore'											
Quantity cured from the area	9,943	13,732	812	18,089	6,840	759	1,475	835	1,123	2,567	2,460	86	233
Quantity cured from the area as percentage of the total quantity cured	16.87	23.29	1.38	30.68	11.60	1.29	2.50	1.42	1.90	4.35	4.17	0.15	0.40
State and Curing Centre													
MYSORE													
Mangalore	26.03	49.26	-	26.42	-	-	-	-	-	-	-	-	41.20
Chikmagalur	43.95	9.63	-	-	-	-	-	-	-	-	-	-	5.58
Hassan	27.00	29.13	-	10.86	-	6.85	2.51	-	-	-	-	-	5.15
Kushalanagar	-	-	-	21.34	-	-	-	-	-	-	-	-	4.29
Hunsur	0.20	8.25	55.05	7.84	-	-	2.85	-	-	-	-	-	3.00
Mysore City	0.05	1.42	-	20.31	4.10	0.13	-	-	-	-	-	-	3.00
Total	97.23	97.69	55.05	86.77	4.10	6.98	5.46	-	-	-	-	-	62.22
KERALA													
Tellicherry	-	2.31	-	13.16	4.61	-	-	-	-	-	-	-	6.01
Calicut	-	-	-	0.07	47.78	28.99	-	-	-	-	-	-	9.87
Kalpetta	-	-	-	-	42.76	-	-	-	-	-	-	-	2.58
Total	-	2.31	-	13.23	95.15	28.99	-	-	-	-	-	-	18.46
MADRAS													
Mettupalayam	-	-	-	-	0.75	11.99	61.49	21.32	13.62	0.54	-	15.12	-
Coimbatore	-	-	6.28	-	-	52.04	33.15	65.03	86.38	10.17	0.04	84.88	8.15
Salem	2.77	-	38.67	-	-	-	-	13.65	-	89.29	-	-	6.44
Patteeveerampatti	-	-	-	-	-	-	-	-	-	-	99.96	-	4.73
Total	2.77	-	44.95	-	0.75	64.03	94.64	100.00	100.00	100.00	100.00	100.00	19.32

Note : Percentages are based on the data provided by Coffee Board.

Courtesy: Coffee Board.

demand which is simultaneously provided for. (Complementarity stated above does not mean that one type of demand gives rise to the other. Complementarity has to be understood from the supply side.)

The internal demand for coffee is confined to the four Southern States, Mysore, Kerala, Madras and Andhra Pradesh (see Table 3.3.14). Thus, the three States which possess curing industry are also important consumers. As regards the internal demand (for unexportable coffee) in each of these States and the complementary export demand (for exportable coffee) which is necessarily supplied with the former, it has been assumed here that the coffee presently cured in the State have an advantage and hence should be preferred. The assumption can be supported by the following facts about the industry (see Map No.5).

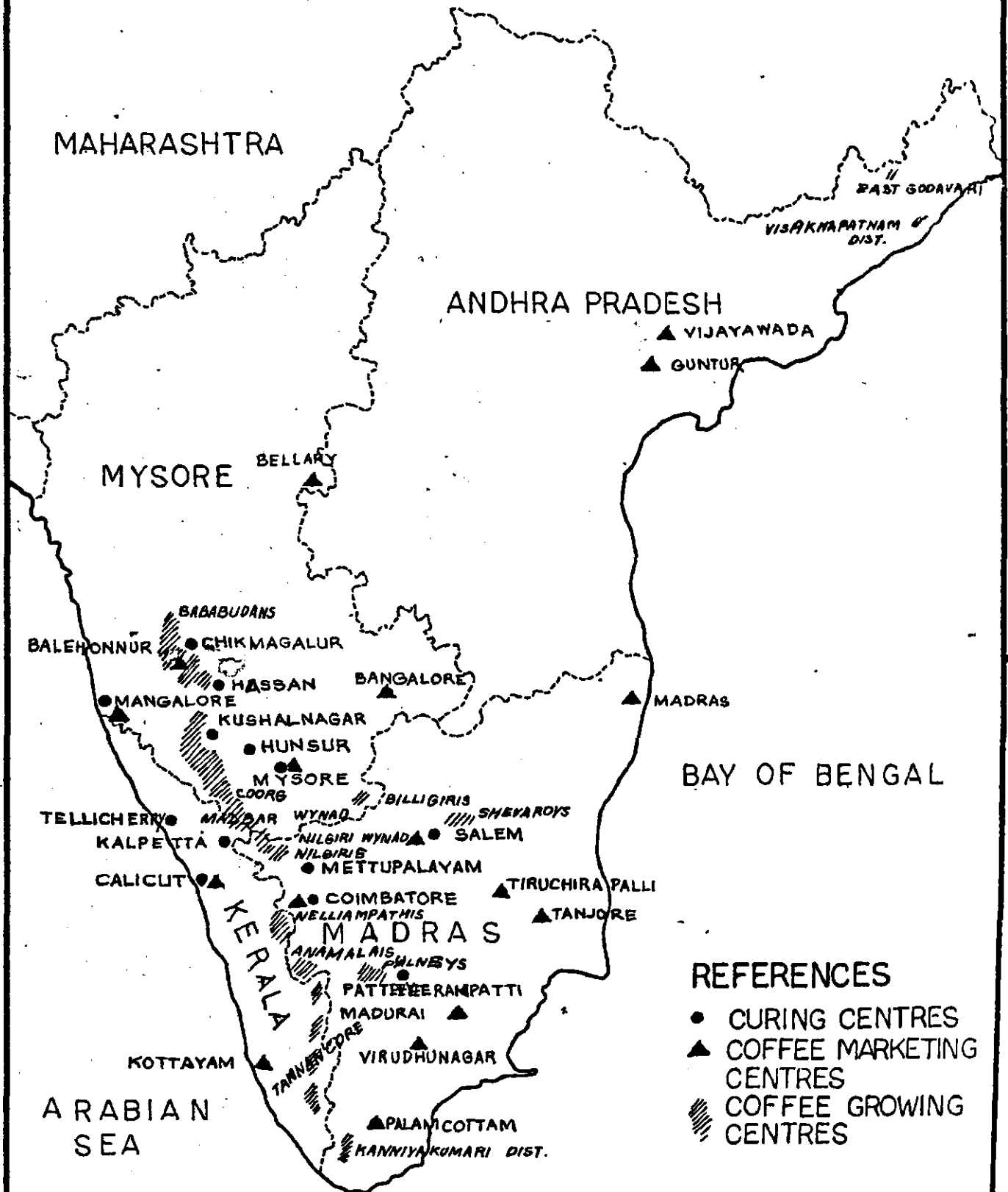
(i) The curing centres are located with respect to a particular growing area. Curing centres which cure an area's crop are more conveniently located from the area as compared with the others which have such advantage in respect of other areas.

(ii) The curing centres in any State have a distance advantage to the internal markets in the State as compared with the curing centres in the other two States.

(iii) There are convenient ports for the curing centres to supply the complementary export demand.

COFFEE MAP OF INDIA

MAP. 5.



NOTE: THE STATES OF MADRAS, MYSORE, KERALA AND ANDHRA PRADESH ARE THE CHIEF COFFEE CONSUMING STATES IN INDIA.

The curing centres in a State may be curing coffee from more than one area. It is possible that the internal demand in the State and the complementary export demand can be more advantageously supplied by one area or by particular areas.

Considering transport cost on uncured coffee and transport cost on cured coffee (unexportable coffee to the internal markets in the State and exportable coffee to the ports), there may need a reallocation. However, such reallocation will be within the curing centres which now account for any individual growing area's crop. As stated earlier, the curing centres which presently cure the coffee from any area belong to the same State. Thus, even after reallocation, the internal demand in the State and the complementary export demand will be supplied by the curing centres within the State.

Apart from the transport costs, there are curing costs, i.e., garbling labour costs, which are of locational significance. Even after taking into account the latter, the assumption stated earlier, may broadly hold good.

Table 3.4.19 presents the following data: (i) quantity cured in each of the three States, Mysore, Kerala and Madras and the estimated quantities of exportable and unexportable coffee in the quantity cured; (ii) internal demand and the estimated complementary export demand for each of

Table 3.4.19 : Quantity Cured and the Estimated Quantities of Unexportable and Exportable Coffee in the Quantity Cured for the States, Mysore, Kerala and Madras, 1964-65 Crop Season; and Internal Demand, the Estimated Complementary Export Demand and Estimated Quantity of Cured Coffee Required to Supply Both, for the States, Mysore, Kerala, Madras and Andhra Pradesh, 1964-65 Financial Year

(Quantity in Tonnes)

State	Type of coffee	Quantity cured *	Estimated unexportable coffee in the quantity cured	Estimated exportable coffee in the quantity cured	Internal demand * (unexportable coffee)	Estimated complementary export demand	Quantity of cured coffee required to supply internal demand and complementary export demand
Mysore	Plantation Arabica	22,150	9,664	12,486	3,502	4,525	8,027
	Cherry	8,858	4,455	4,403	3,235	3,198	6,433
	Robusta	8,775	5,913	2,862	2,765	1,338	4,103
Kerala	Plantation Arabica	1,299	567	732	455	588	1,043
	Cherry	482	242	240	167	165	332
	Robusta	7,701	5,190	2,511	1,840	890	2,730
Madras	Plantation Arabica	7,364	3,213	4,151	7,498	957	16,979
	Cherry	1,313	660	653	1,600	1,582	3,182
	Robusta	1,012	682	330	11,621	5,623	17,244
Andhra	Plantation Arabica	-	-	-	996	1,287	2,283
	Cherry	-	-	-	223	220	443
	Robusta	-	-	-	1,332	645	1,977

* Courtesy : Coffee Board.

the four chief coffee consuming States, Mysore, Kerala, Madras and Andhra Pradesh, and the estimated quantity of cured coffee necessary to supply the internal demand and the estimated complementary demand for each of the four States.

Exportable and unexportable coffee in the quantity cured in respect of the States Mysore, Kerala and Madras given in Table 3.4.19 are not actual quantities of exportable and unexportable grades. Nor does exportable coffee in any State represent the actual exports from the quantity cured in the State and hence unexportable coffee also does not represent the actual quantity cured less the exports. The relevant estimates are based on Table 3.4.12. Table 3.4.12 gives, based on the national percentages, the estimated quantities of exportable and unexportable coffee in a tonne of cured coffee. Likewise, for the given internal demand (for unexportable coffee) in each State, its complementary export demand and the quantity of cured coffee required to supply both have been estimated on the basis of Table 3.4.12.

Before making any observations on the basis of Table 3.4.19, it should be noted that the quantity cured given in the Table relates to crop season 1964-65, and the internal demand refers to the financial year 1964-65. Due to the above reason and also because exportable coffee is not actual exports but estimated quantity of exportable coffee, total quantity cured does not equal total internal

demand plus exportable coffee. As will be seen, the same is of little consequence for the analysis attempted here.

In Table 3.4.19 Robusta Parchment and Robusta Cherry do not appear separately; they are clubbed together under Robusta. Though curing statistics for Robusta Parchment and Robusta Cherry were available, the demand for the two types could not be obtained separately. At present Robusta Parchment type accounts for a small quantity. Thus, quantities appearing under Robusta mostly refer to Robusta Cherry.

Internal demand in Mysore and the complementary export demand can be conveniently met from the 'Mysore' and Coorg coffee, cured at the curing centres in the State. The same would require the curing centres in Mysore to cure 8,027 tonnes of 'Plantation', 6,433 tonnes of Arabica Cherry and 4,103 tonnes of Robusta. As against this, the curing centres in Mysore State now cure (mostly from 'Mysore' and Coorg areas) 22,150 tonnes of 'Plantation', 8,858 tonnes of Arabica Cherry, and 8,775 tonnes of Robusta. Thus, the curing centres in Mysore State cure from 'Mysore' and Coorg areas, a 'surplus' quantity as compared with what is warranted by the internal demand in the State. The 'surplus' is approximately 14,123 tonnes of 'Plantation', 2,425 tonnes of Arabica Cherry and 4,672 tonnes of Robusta. The 'surplus' coffee contains both exportable and unexportable coffee.

Whereas the exportable coffee is exported, unexportable coffee from the 'surplus' is demanded in the 'deficit' State of Madras and in other States which do not possess the curing industry. The question faced in the case of curing centres in Mysore State relates to the 'surplus' stated above. The 'surplus' in Mysore State is due to 'Mysore' and Coorg areas. The question faced is whether 'Mysore' and Coorg coffee should be cured in Mysore State when the unexportable coffee outturned is demanded in the 'deficit' State of Madras or in Andhra Pradesh and other States which do not possess the curing industry.

Whereas there is 'surplus' of all the types in Mysore, in Kerala, there is substantial 'surplus' only of Robusta. The 'surplus' of Robusta in Kerala is due to Malabar-Wyneed area. The question faced in this case is whether Robusta from Malabar-Wyneed should be cured at the curing centres in Kerala, when the unexportable coffee outturned is demanded in the 'deficit' State of Madras or in Andhra Pradesh and other States which do not possess the curing industry.

Madras is a 'deficit' State. In other words, the unexportable coffee realized from the quantity cured at the curing centres in the State is less than the internal demand in the State. Approximately, the 'deficit' is 4,195 tonnes of 'Plantation', 940 tonnes of Arabica Cherry and 10,939 tonnes of Robusta. At present, in all probability, this

'deficit' is met with from 'Mysore' and Coorg coffee cured in Mysore, and Malabar-Wynaad coffee cured in Kerala State. The question faced as regards Madras is only viewing of the questions raised in the case of Mysore and Kerala from another side. In a general form, the question to be examined is the advantage of different centres for curing the coffee from 'Mysore', Coorg and Malabar-Wynaad areas, when the unexportable coffee outturned is demanded in Madras State.

Andhra Pradesh, one of the four main coffee consuming States in India, does not possess the curing industry. The question that can be examined in this case is the advantage of alternative centres for curing the coffee grown in 'Mysore', Coorg and Malabar-Wynaad areas, when the unexportable coffee outturned is demanded in Andhra Pradesh.

There are four chief coffee consuming States—Mysore, Kerala, Madras and Andhra Pradesh. Of these, the first mentioned three possess the curing industry. The internal demand and the complementary export demand can be fully met with from the coffee presently cured at the curing centres in the respective States in the case of Mysore and Kerala; there is in these two cases a 'surplus' quantity cured than is warranted by the internal demand in these States. The State of Madras is a 'deficit' State. Internal demand in Andhra Pradesh and other States which do not possess curing industry is met from outside. The 'deficit' in Madras and

the demand in the States which do not possess the curing industry to a great extent is met with from 'surplus' States of Mysore and Kerala. 'Surplus' in Mysore is due to 'Mysore' and Coorg areas; in the case of Kerala, it is due to Malabar-Wynaad area. - The broad question examined here is the advantage of different curing centres for curing the coffee grown in 'Mysore', Coorg and Malabar-Wynaad areas when the unexportable coffee outturned is demanded in the 'deficit' State of Madras or in Andhra Pradesh and other States which do not possess the curing industry.

The practical significance of the problem examined can be realized from the following facts of the industry: 'Mysore' and Coorg areas account for 70 per cent of the cured coffee in India; of this 90 per cent is cured by the centres in Mysore State. In the case of Malabar-Wynaad area which is responsible for the 'surplus' of Robusta Cherry ('surplus' of Robusta in Kerala mainly refers to Cherry type) in Kerala accounts for 40 per cent of Robusta Cherry cured in India; of this more than 90 per cent is cured in Kerala.

(The 'surplus' and 'deficit' for the three States, Mysore, Kerala and Madras, arrived at earlier may not reflect the actual magnitudes. Contrary to the assumption made in this study, the unexportable coffee available in the State may not be shown a preference for meeting the internal demand

in the State. It is not known whether the coffee available in the 'deficit' State of Madras is also used for internal consumption in other States. In fact, how the coffee available at different curing centres is utilized between the various internal markets in India is not known. Whatever be the present pattern of utilizing the unexportable cured coffee between the internal markets, it does not reduce the practical significance of the problem examined.)

The relevant question to be examined is the advantage of alternative centres for curing the coffee grown in 'Mysore', Coorg and Malabar-Wynaad areas, when the unexportable coffee outturned is demanded in the 'deficit' State of Madras or in Andhra Pradesh and other States which do not possess the curing industry. The question can be better examined in the case of Madras which has the curing industry. The conclusions arrived at thereof are more or less representative of other States.

The advantage of different curing centres for supplying the internal demand in Madras State has to be discussed in relation to 'Mysore', Coorg and Malabar-Wynaad areas. However, as can be seen from Table 3.4.17, two of the four curing centres in Madras are more than 250 miles from the 'Mysore' growing areas. Transport cost for distances more than 250 miles could not be obtained. Thus, the problem of meeting the 'deficit' in Madras has been discussed only in relation to Coorg and Malabar-Wynaad areas. What is

inferred in respect of Coorg areas is applicable to 'Mysore' areas.

The curing centres in Madras State are so situated they can act as distributing centres for the State's demand. Transport costs have been calculated assuming the curing centres in Madras as market points.

As stated earlier quantities appearing under Robusta in Table 3.4.19 mainly refer to Robusta Cherry. On the same lines, 'surplus' of Robusta in Mysore and Kerala States refers to Robusta Cherry; so is the case with 'deficit' of Robusta in Madras. Transport costs have been computed in respect of meeting the 'deficit' of Robusta Cherry in Madras State.

The method of computing transport costs has been discussed in sub-section 4.1.

Advantage of Different Centres for Curing Coorg Coffee
When the Unexportable Coffee Outturned Is Demanded in Madras State :- Table 3.4.20 presents for different curing centres composite transport cost of supplying exportable coffee to the convenient port and unexportable coffee to the internal markets in Madras State, in respect of coffee from Coorg area. Transport costs in the Table assume that a part of the quantity cured is necessarily exported. The relevant quantities for different types were arrived at on the basis of national percentage of exports of the type to the quantity

Table 3.4.20 : Composite Transport Cost of Supplying Exportable Coffee to the Convenient Port and Unexportable Coffee to the Internal Markets in Madras State for Different Curing Centres in respect of Coffee from Coorg Area, 1967

Type of Coffee	(Rs. Per Tonne)											
	Plantation				Arabica Cherry				Robusta Cherry			
	Market Point in Madras State	Mettu-palayam	Coimba-tore	Salem	Pattee-veeram-patti	Mettu-palayam	Coimba-tore	Salem	Pattee-veeram-patti	Mettu-palayam	Coimba-tore	Salem
Curing Centre												
Mangalore	59.95	59.95	N.C.	N.C.	79.38	79.38	N.C.	N.C.	89.03	89.03	N.C.	N.C.
Chikmagalur	80.73	80.73	N.C.	N.C.	100.38	100.38	N.C.	N.C.	105.49	105.49	N.C.	N.C.
Hassan	69.55	69.55	72.17	N.C.	84.18	84.18	87.20	N.C.	87.82	87.82	91.49	N.C.
Kushalanager	<u>52.47</u>	<u>52.47</u>	<u>55.08</u>	N.C.	<u>60.30</u>	<u>60.30</u>	<u>63.32</u>	N.C.	<u>62.72</u>	<u>62.72</u>	<u>66.77</u>	N.C.
Hunsur	60.00	61.74	63.93	69.16	71.03	73.05	75.56	81.60	71.36	74.05	77.42	85.14
Mysore City	65.77	67.52	69.26	74.06	78.59	80.60	82.62	88.15	77.62	80.32	83.01	90.43
Tellicherry	60.17	57.98	65.40	65.40	75.19	72.68	81.23	81.23	79.86	76.49	87.58	87.58
Calicut	56.05	54.30	62.59	59.98	76.39	74.38	83.94	80.92	82.91	80.21	93.02	88.97
Kalpetta	59.75	61.50	65.43	70.66	76.24	78.25	82.78	88.82	78.75	81.45	87.51	95.23
Mettupalayam	79.88	85.99	95.15	95.15	102.83	109.87	120.43	120.43	96.91	106.35	120.50	120.50
Coimbatore	89.37	83.26	95.04	95.04	117.28	110.24	123.82	123.82	115.23	105.79	123.99	123.99
Salem	117.13	113.64	101.86	115.38	148.65	144.63	131.05	146.64	147.05	141.66	123.46	144.35
Patteeveerampatti	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.

N.C. = Not Calculated.

Note : The lowest transport cost in respect of each market has been underlined, except in the case of Patteeveerampatti. In the case of Patteeveerampatti transport cost could not be calculated for Kushalanager which in all probability has the advantage.

cured of the type. It can be noted that 'Mysore' and Coorg areas together accounted for 70 per cent of the total quantity cured and that the latter area alone accounted for 30 per cent. The national percentages thus to a great extent are influenced by the relevant percentages for the above two areas and hence the two cannot differ widely. In other words, the quantities of exportable and unexportable coffee that can be secured from a tonne cured of Coorg coffee will not be significantly different from those estimated on the basis of national percentages and utilized here for computing the transport costs.

In Table 3.4.20 transport cost calculations in respect of market points at Salem and Patteeveerampatti are incomplete. As regards the other two markets in Madras State, Kushalanagar located near the Coorg plantations is in an advantageous position. As can be seen from Table 3.4.20 such advantage of the centre is true of all the types of coffee. What has been inferred about Mettupalayem and Coimbatore can be extended to Salem and Patteeveersampatti. It can be said that, whatever be the market point in Madras, as regards the Coorg coffee Kushalanagar will have a transport cost advantage.

In Table 3.4.20 transport costs for 'Plantation', Arabica Cherry and Robusta Cherry are not comparable as the quantities involved differ. In the case of 'Plantation' and Arabica Cherry, roughly 50 per cent of the coffee cured

is exported; to a certain extent the two types are comparable. Weight loss in curing is greater in the case of Arabica Cherry as compared with 'Plantation'. It can be observed from the Table that transport cost disadvantage of market point locations in Madras as compared with the material based location in Mysore State, i.e., Kushalanagar, is greater in the case of Arabica Cherry.

Robusta Cherry loses slightly greater amount of weight in curing than Arabica Cherry. In spite of this, distant market point locations in Madras State have a lesser transport cost disadvantage in respect of Robusta Cherry as compared with Arabica Cherry. The curing centres in Madras are located in the interior and do not facilitate exports. The export component in Robusta Cherry being relatively small, transport costs tend to be lower even though a higher expense is incurred on uncured coffee.

It is noticeable from Table 3.4.20 that in respect of some markets in Madras, curing centres in Kerala, particularly Calicut, have lower transport costs as compared with the curing centres in Mysore State other than Kushalanagar. Such advantage for Calicut is evident in respect of 'Plantation' coffee where the weight loss in curing is relatively small and the type has a substantial export component. As exports from Calicut can be effected through its own port the centre does not have to incur transport cost on exportable coffee.

Garbling labour costs is the locationally significant item in curing costs. Data regarding cost of garbling labour could not be obtained in respect of Kushalanagar, Tellicherry, Kalpetta and Patteeveerampatti. Kushalanagar, like Chikmagalur and Hassan, is located amidst the plantations. Wages in these centres will be more or less alike. This will be so considering the similar level of urbanization of these places. Garbling labour costs calculated for the neighbouring centre, Hassan, has been adopted for Kushalanagar. On similar lines wage costs in respect of Calicut can be used for Tellicherry. No such imputations were possible for Kalpetta and Patteeveerampatti. Table 3.4.21 combines transport costs as presented in Table 3.4.20 and garbling costs for different centres given in Table 3.4.10.

Even after accounting for garbling labour costs Kushalanagar retains its advantage for curing the Coorg coffee when the unexportable coffee outturned is meant for the markets in Madras State. Wages in Calicut are higher as compared with the curing centres in Mysore State, except Mangalore. The centre's earlier advantage in respect of 'Plantation' coffee, purely from transport cost point of view, is to a great extent lost due to its high labour costs.

Transport cost calculations could not be provided for 'Mysore' coffee growing areas in Mysore State, as the required road tariff data was not available. As was the

Table 3.4.21 : Composite Cost (Transport Cost + Garbling Labour Cost) of Supplying Exportable Coffee to the Convenient Port and Unexportable Coffee to the Internal Markets in Madras State for Different Curing Centres in respect of Coffee from Coorg Area, 1967

(Rs. Per Tonne)													
Type of Coffee	Plantation				Arabica Cherry				Robusta Cherry				
	Market Point in Madras State	Mettu-palayam	Coimbatore	Salem	Pattee-veeram-patti	Mettu-palayam	Coimbatore	Salem	Pattee-veeram-patti	Mettu-palayam	Coimbatore	Salem	Pattee-veeram-patti
Curing Centre													
Mangalore	97.31	97.31	N.C.	N.C.	116.74	116.74	N.C.	N.C.	126.39	126.39	N.C.	N.C.	
Chikmagalur	104.26	104.26	N.C.	N.C.	123.91	123.91	N.C.	N.C.	129.02	129.02	N.C.	N.C.	
Hassan	93.06	93.06	95.68	N.C.	107.69	107.69	110.71	N.C.	111.33	111.33	115.00	N.C.	
Kushalanagar	<u>75.98</u>	<u>75.98</u>	<u>78.59</u>	N.C.	<u>83.81</u>	<u>83.81</u>	<u>86.83</u>	N.C.	<u>86.23</u>	<u>86.23</u>	<u>90.28</u>	N.C.	
Hunsur	90.00	91.74	93.93	99.16	101.03	103.05	105.56	111.60	101.36	104.05	107.42	115.14	
Mysore City	93.71	95.46	97.20	102.00	106.53	108.54	110.56	116.09	105.56	108.26	110.95	118.37	
Tellicherry	95.76	93.57	100.99	100.99	110.78	108.27	116.82	116.82	115.45	112.08	123.17	123.17	
Calicut	91.64	89.89	98.18	95.57	111.98	109.97	119.53	116.51	118.50	115.80	128.61	124.56	
Kalpetta	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	
Mettupalayam	114.50	120.61	129.77	129.77	137.45	144.49	155.05	155.05	131.53	140.97	155.12	155.12	
Coimbatore	126.50	120.39	132.17	132.17	154.41	147.37	160.95	160.95	152.36	142.92	161.12	161.12	
Salem	145.03	141.54	129.76	143.28	176.55	172.53	158.95	174.54	174.95	169.56	151.36	172.25	
Patteeveeram-patti	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	

N. C. = Not Calculated

Note : The lowest cost in respect of each market has been underlined, except in the case of Patteeveeram-patti. In the case of Patteeveeram-patti cost could not be computed for Kushalanagar which in all probability has the advantage.

case with Coorg areas, curing centres near 'Mysore' areas, viz., Chikmagalur and Hassen, would have an advantage in the case.

Coffee drinking is more an urban habit. City of Madras may represent a concentration of demand. Being a port, it also facilitates exports. Transport costs can be calculated in respect of Coorg areas assuming that the unexportable coffee will be consumed at Madras city. It would suffice for the present purpose if the transport costs in respect of the material based location, viz., Kushalanagar, are compared with those for the market point location, i.e., Madras city.

Table 3.4.22 : Composite Transport Cost of Supplying Exportable Coffee to the Convenient Port and Unexportable Coffee to Internal Market Point at Madras City from the Coffee Grown in Coorg Area, 1967 (Rs. Per Tonne)

Place of curing	Type of Coffee		
	Plantation	Arabica Cherry	Robusta Cherry
Kushalanagar	53.84	62.09	68.64
Madras City	84.99	122.51	123.61

There is no cost advantage in curing Coorg coffee in Madras city when the unexportable coffee is demanded in Madras city. This is in spite of the fact that the place facilitates exports also.

Apart from its transport cost disadvantage, curing costs in Madras will be higher as compared with the curing costs in Kushalanagar. Due to its significantly lower degree of urbanization labour costs in the latter will be considerably lower as compared with those in Madras city.

Advantage of Different Centres for Curing Robusta Cherry from Malabar-Wynaad Area When the Unexportable Coffee Outturned Is Demanded in Madras State :- Table 3.4.23

presents for different centres composite transport cost of supplying exportable Robusta Cherry to the convenient port and unexportable Robusta Cherry to the internal markets in Madras State in respect of Robusta Cherry from Malabar-Wynaad area.

As per Table 3.4.23 there is certain advantage in curing the Robusta Cherry from Malabar-Wynaad area, in Kalpetta located near the plantations even when the unexportable coffee outturned is demanded in Madras State. This is true of three of the four market points considered in Madras State. As regards Patteeveerampetti, Calicut offers slightly lower transport costs as compared with Kalpetta. Advantage of Calicut is due to transport cost on exportable coffee. Both Kalpetta and Calicut are situated in Kerala and at present cure the coffee from Malabar-Wynaad. Thus, it can be said that coffee from the above area presently cured in Kerala should be continued to be cured

Table 3.4.23 : Composite Transport Cost of Supplying Exportable Robusta Cherry to the Convenient Port and Unexportable Robusta Cherry to the Internal Markets in Madras State for Different Curing Centres in respect of Robusta Cherry from Malabar-Wynad Area, 1967 (Rs. Per Tonne)

Curing Centre	Market Point in Madras State			
	Mettupalayam	Coimbatore	Salem	Patteeveerampatti
Mangalore	112.00	112.00	N.C.	N.C.
Chikmagalur	130.36	130.36	N.C.	N.C.
Hassan	110.78	110.78	114.45	N.C.
Kushalanagar	83.77	83.77	87.82	N.C.
Hunsur	79.01	81.70	85.07	92.79
Mysore City	85.27	87.97	90.66	98.08
Tellicherry	72.21	68.84	79.93	79.93
Calicut	59.95	57.25	70.06	<u>66.01</u>
Kalpetta	<u>50.05</u>	<u>52.75</u>	<u>58.81</u>	66.53
Mettupalayam	72.04	81.48	95.63	95.63
Coimbatore	86.52	77.08	95.28	95.28
Salem	124.08	118.69	100.49	121.38
Patteeveerampatti	143.47	138.08	140.77	119.88

N. C. = Not Calculated.

Note : The lowest transport cost in respect of each market has been underlined.

in the State even when the unexportable coffee is demanded in Madras State.

Calculations in Table 3.4.23 assume that a certain percentage of the quantity cured will necessarily have to be exported. The same may not be essential in the case of Robusta Cherry from Malabar-Wynaad area. It can be learnt by referring to Table 3.3.11 that exports from Calicut and Kalpetta which cure Malabar-Wynaad coffee have been low. Thus it may be possible to earmark a certain quantity of Robusta Cherry from Malabar-Wynaad for internal consumption and utilize the entire quantity for the purpose without exporting any part of it. With the changed assumptions transport costs will be as given in Table 3.4.24.

It can be noted from Table 3.4.24 that Kalpetta is in an advantageous position to supply Robusta Cherry from Malabar-Wynaad area to market points in Madras State.

Curing centres near the plantations are rural or semi-rural in character and generally have low wage rates as was found in the case of Chikmagalur and Hassan. Consideration of garbling labour costs should increase the advantage for Kalpetta. There is, however, no evidence to show the same.

Summing Up

With the assumption that the coffee presently cured in the three States, Mysore, Kerala and Madras, can be

Table 3.4.24 : Transport Cost for Supplying One Tonne of Robusta Cherry to Internal Markets in Madras State from the Coffee Grown in Malabar-Wynaad, 1967 (in Rs.)

Curing Centre	Market Point in Madras State			
	Mettu- palayam	Coimbatore	Salem	Pattee- veerampatti
Mangalore	130.30	130.30	N.C.	N.C.
Chikmagalur	139.82	139.82	N.C.	N.C.
Hassen	116.68	116.68	122.68	N.C.
Kushalanagar	87.82	87.82	93.82	N.C.
Hunsur	78.82	82.82	87.82	99.82
Mysore City	82.44	86.44	90.44	101.44
Tellicherry	80.20	75.20	92.20	92.20
Calicut	71.20	67.20	66.20	80.20
Kalpetta	<u>53.86</u>	<u>57.86</u>	<u>66.86</u>	<u>78.86</u>
Mettupalayam	59.06	73.06	94.06	94.06
Coimbatore	80.68	66.68	93.68	93.68
Salem	118.82	110.82	83.82	114.82
Patteeveerampatti	141.68	133.68	137.68	106.68

N. C. = Not Calculated.

Note : The lowest transport cost in respect of each market has been underlined.

advantageously utilized for supplying their respective internal demand and its complementary export demand, it was found that there is 'surplus' quantity cured in Mysore and Kerala and there is a 'deficit' in Madras. The 'surplus' in Mysore State is due to 'Mysore' and Coorg areas and in Kerala it is due to Malabar-Wynaad area. At present the

'deficit' in Madras and the demand for coffee in States which do not possess the curing industry is met with from 'Mysore' and Coorg coffee cured in Mysore State and Malabar-Wynaad coffee cured in Kerala. Cost computations presented in this sub-section revealed that there is no advantage in curing 'Mysore' and Coorg coffee in Madras State even when the unexportable coffee outturned is demanded in Madras State. Similar observation could be made as regards Malabar-Wynaad coffee now cured in Kerala. It was found that the curing centres near the coffee growing areas of 'Mysore', Coorg and Malabar-Wynaad are in an advantageous position to supply the 'deficit' in Madras. In the case of 'Mysore' areas the centres are Chikmagalur and Hassan; it is Kushalanagar in the case of Coorg coffee. As regards Malabar-Wynaad, Kalpetta has the advantage. Thus, as it is at present, 'Mysore' and Coorg coffee should be cured in Mysore State and Malabar-Wynaad coffee should be cured in Kerala even when the unexportable coffee outturned is demanded in the 'deficit' State of Madras. What is true of supplying the 'deficit' in Madras is more or less representative of supplying the demand in the States which do not possess the curing industry. The broad conclusion that emerges from the discussion in this sub-section, therefore, is that there need not any inter-State reallocation of the coffee presently cured in the three States, Mysore, Kerala and Madras.

Transport costs and curing costs do not form a significant component in the price of coffee. The preceding analysis was prompted by the following reasons. Among the major coffee consuming States, Madras is a 'deficit State' and Andhra Pradesh does not possess the curing industry. There is 'surplus' in Mysore and Kerala. It was of interest to know whether there is any cost advantage in curing the coffee presently cured in Mysore and Kerala in the States where (the unexportable) coffee is demanded. It could be learnt there exists no cost advantage. However, the cost advantage of market point locations is of doubtful importance.

Relatively transport costs are more important in the case of Robusta Cherry. Under the assumption that the residual inferior coffee will be consumed in Madras city, transport costs for curing Robusta Cherry from Coorg were Rs. 123.61 and Rs. 68.64 respectively for Madras city and Kushalanagar located near the plantations. The cost disadvantage of the market point location is Rs.54.97 in the above case. This formed only 1.23 per cent of the price of a tonne of Robusta Cherry (Rs.4,460.00 see Table 3.1.7). If costs are not a matter of great consequence, it is for the Board to choose between the alternatives. There may be some operational facility gained in curing the coffee presently cured in Mysore and Kerala, at the demanding States when these are locations which facilitate exports also. Of the two States which have substantial (excess) demand, Andhra

Pradesh does not have any curing centres. The existing centres in Madras are located in the interior and have no special advantage as regards the exportable coffee.

The problem of allocation of coffee was discussed in relation to two cost factors, viz., transport costs and curing costs (garbling labour costs). It should be noted at present the curing charges are fixed uniformly for all the centres. Though there is a provision by which the individual centres are allowed to plead for higher remuneration, curing charges have remained the same. It need not be further stated the implementation of any reallocation plan, stated earlier, would require taking advantage of the lower labour costs prevailing in some centres. In other words, it will necessitate a departure from the present practice of uniform curing charges.

A few words regarding the labour factor may be in place here. It was stated the location of early curing houses on the plains a little removed from the coffee growing areas was partly due to non-availability of required skilled labour near the plantations. The curing industry does not require labour in large number. Plantation areas have by now sufficiently developed to provide the required skill and number.

The discussion in this sub-section revealed that purely from the cost point of view there need not be any

reallocation of the coffee presently cured in the States of Mysore, Kerala and Madras. There can, however, be re-allocation of coffee for curing between the centres within a State. The same would require detailed data relating to spatial pattern of demand within the States. Thus no suggestions could be made as regards the allocation of coffee meant for curing between the centres within a State. The State of Mysore, nevertheless, partly gets discussed in the last section. It was possible in this case to make some assumptions regarding the spatial pattern of the State's internal demand. In fact location problem of the curing industry comes into being or largely hinges upon the curing industry in Mysore State. The two coffee growing areas 'Mysore' and Coorg which account for more than 70 per cent of India's crop are situated in the State. Ninety per cent of the coffee from the above areas is cured by the curing centres within Mysore State. Further, it is only in the case of Mysore and Coorg areas there is the choice of alternative curing centres. Lastly, here was a clear-cut case where the absence of a conscious policy has led to a perpetuation of the old institutional pattern, aggravating some of the persistent problems of the industry.

3.5 : Institutional Factors and Their Role

For an active policy on the Board's part, allocation of coffee between the various curing centres is inevitable. Discussing the problem of warehousing coffee, the Plantation Inquiry Commission, 1956, voiced the same opinion. "Curing and storage should be at the same place though the institutions for performing the two functions should be separated. In order that curing and warehousing services may be economically performed and the curer and warehouse may get the necessary volume of business, specified coffee growing areas should be assigned for each curing establishment and warehouse."¹

The Board is statutorily empowered to direct the planter to send his coffee to a particular curer. But by forcing the planter to get his coffee cured at a place of the Board's choice, probably the Board may be inflicting some hardship on the former. Hitherto the planter depended upon the curer, apart from his services as a curer, for finance and supply of estate requisites. It is these other services rendered by the curer that in many cases influenced the planter's choice of curer. The Board for a just policy should provide an efficient substitute for

¹ Report of the Plantation Inquiry Commission, 1956, Part II - Coffee, p. 113.

the curer's services. In the following paragraphs whether and how the institutional factors influence the planter's choice of curer for his coffee, and consequently the flow pattern of coffee meant for curing is discussed.

3.5.1 The Factors That Lost Their Influence on the Planter in Choosing the Curer for His Coffee After 1940

Both economic and institutional factors could have influenced the planter's choice of curer for his coffee prior to the establishment of the Board in 1940. The economic factors could be cost factors and price or demand factor. The cost factors that could have influenced the planter's decision are (i) transport cost on uncured coffee, (ii) curing cost and (iii) transport on cured coffee. A few of the economic factors mentioned above lost their place after the establishment of the Board. To emphasize the role of institutional factors after 1940 it will be useful if the factors which lost their influence since 1940 are delineated.

The coastal centre in Mangalore, it was observed, was the first curing centre in India to develop a competitive market for coffee. The planter who then had the choice of place for selling his coffee, chose Mangalore, for, it is here that he could realize his coffee the best. This also induced him to get his coffee cured in the same place. More coffee thus came to Mangalore for curing. After the

establishment of the Board it is the Board which chooses the price and place for every sale of coffee. The estate identity is lost once the coffee is cured and graded. Like grades of coffee from different estates are put together before presenting for sale. The planter is paid the minimum price fixed by the Board as soon as the coffee is delivered. Any premium over this is paid on the basis of return in the year's sales. The return to the planter now depended upon the composition of different grades in the outturn of his coffee and the average price secured by any particular type and grade at Board's sales (which include coffee sold for home consumption and exports). As the planter is now deprived of the privilege of selling his coffee, marketing facilities provided by a curing centre could not have attracted his coffee to the centre. Thus becomes redundant the price factor as far as the planter is concerned.

Turning to the cost factors, only one of them could have retained its influence after 1940. With the inception of the Coffee Board the planter loses the choice of place and price for the sale of his coffee. The third of the cost factors, i.e. transport on cured coffee, now has no influence on the planter. He now does not bear transport cost exclusively on his produce but shares the Pool's expenses on the item. After 1940 the curing charges are uniform irrespective of the curer the planter chooses. Thus

becomes redundant the second of the cost factors. There remains only one cost factor that should ideally influence the planter's choice for curing his coffee in a particular place after 1940. This is transport cost on uncured coffee.

The price factor and two of the cost factors fail to influence the planter's choice of curer for his coffee since 1940. There is only one economic factor i.e. transport cost on uncured coffee that could have had a say over the planter's decision.

3.5.2 Institutional Factors and Their Influence on the Planter in Choosing the Curer for His Coffee

There was only one economic factor i.e. transport cost on uncured coffee that could have influenced the planter in choosing the curer for his coffee after 1940. Ideally the planter should now have shown a preference for curing houses which are conveniently located from his estates. If this tendency were true it should have fostered a curing industry near the plantations.

Though curers have located their units at places convenient from the planter's point of view there have been cases where the individual investors have chosen locations removed from the plantations. The latter still could secure supplies of coffee in spite of their inconvenient location from the planter's point of view. Also there are

instances where the old centres continue to cure the coffee from a particular area when more convenient curing houses near the plantations have been established. Probably an explanation of these seeming anomalies can be found in the institutional factors.

The role of institutional factors can be better portrayed by confining the discussion to the coffee growing areas in Mysore State (i.e., Bababudans, 'Other Mysore' and Coorg).

For the coffee grown in Bababudans and 'Other Mysore', Chikmagalur located amidst the 'Other Mysore' plantations is the most convenient centre from the planter's point of view. In respect of Coorg coffee Kushalanagar has such advantage. The curing centre in Chikmagalur is as old as the Coffee Board. A curing unit was located in Kushalanagar in 1952, there has been no progress since then. As compared to Chikmagalur in respect of Bababudans and 'Other Mysore' and Kushalanagar in respect of Coorg, Mangalore is less conveniently situated from these areas from the planter's point of view. Even when such more convenient curing centres exist, the curing centre in Mangalore accounted for a substantial portion of the crop from these areas. Table 3.5.1 provides the relevant data.

There can be many reasons why the curing industry in Chikmagalur and Kushalanagar did not show a growth faster

Table 3.5.1 : Coffee Cured by Different Centres according to Area of Growth 1962-63 to 1965-66 Crop Seasons (Quantity in Tonnes)

Curing Centre	Coffee Growing Area												Total	
	Baba- budan	Other Mysore	Billi- giris	Coorg	Nilgiris	Nilgiri/ Wynad	Malabar/ Wynad	Nelli- am- pathis	Anna- malais	Shevroys	Pulneys	Kannan Devens		Other
1962-63 Crop Season														
Mangalore	2,228	7,422	-	5,117	-	-	-	-	-	-	-	-	142	14,909
Chikmagalur	2,746	1,233	-	6	-	-	-	-	-	-	-	-	9	3,994
Hessen	1,099	2,528	-	1,142	-	106	-	-	-	-	-	-	6	4,881
Kushalanagar	-	-	-	4,145	-	-	-	-	-	-	-	-	40	4,185
Hunsur	12	921	199	2,119	29	-	-	-	-	-	-	-	1	3,281
Mysore City	55	1,432	39	3,608	-	-	331	-	-	-	-	-	13	5,478
Tellicherry	-	204	-	2,655	-	-	497	-	-	-	-	-	17	3,373
Calicut	-	-	-	48	-	924	2,888	-	-	-	-	-	29	3,889
Kalpetta	-	-	-	-	-	-	2,302	-	-	-	-	-	17	2,319
Mettupalayam	-	-	-	-	690	-	45	-	-	-	-	-	-	735
Coimbatore	-	-	597	-	664	2	-	504	740	329	1	53	36	2,926
Salem	163	-	-	77	-	-	-	29	-	2,266	-	-	35	2,570
Patteeveerampatti	-	-	-	-	-	-	-	-	-	-	1,617	-	5	1,622
Total	6,303	13,740	835	18,917	1,383	1,032	6,063	533	740	2,595	1,618	53	350	54,162
1963-64 Crop Season														
Mangalore	2,454	9,616	-	6,429	-	-	-	-	-	-	-	-	105	18,604
Chikmagalur	3,111	1,735	-	-	-	-	-	-	-	-	-	-	9	4,855
Hessen	1,416	4,541	-	1,979	-	41	-	-	-	-	-	-	11	7,988
Kushalanagar	-	-	-	5,613	-	-	-	-	-	-	-	-	12	5,625
Hunsur	10	1,535	315	2,834	61	-	-	-	-	-	-	-	30	4,785
Mysore City	67	1,104	-	3,986	-	-	143	-	-	-	-	-	15	5,315
Tellicherry	-	434	-	3,369	-	-	618	-	-	-	-	-	21	4,442
Calicut	-	-	-	43	-	530	3,349	11	-	-	-	-	24	3,957
Kalpetta	-	-	-	-	-	-	3,370	-	-	-	-	-	6	3,376
Mettupalayam	-	-	9	93	717	102	35	18	21	-	-	7	-	1,002
Coimbatore	-	-	323	-	449	34	-	494	872	130	5	43	32	2,382
Salem	107	-	-	207	-	-	-	165	-	1,323	-	-	28	1,830
Patteeveerampatti	-	-	-	-	-	-	-	-	-	-	2,433	-	7	2,440
Total	7,165	18,965	647	24,553	1,227	707	7,515	688	893	1,453	2,438	50	300	66,601

(continued)

Table 3.5.1 : (continued)

Curing Centre	Coffee Growing Area												Total	
	Baba- budan	Other Mysore	Bili- giris	Coorg	Nilgiris	Nilgiri/ Wynaad	Malabar/ Wynaad	Nelliam- pathis	Anja- malais	Shevroys	Pulneys	Kannan Devans		Other
1964-65 Crop Season														
Mangalore	2,588	6,764	-	4,779	-	-	-	-	-	-	-	-	96	14,227
Chikmagalur	4,370	1,322	-	-	-	-	-	-	-	-	-	-	13	5,705
Hassan	2,685	4,000	-	1,965	37	52	-	-	-	-	-	-	12	8,751
Kushalanagar	-	-	-	3,860	-	-	-	-	-	-	-	-	10	3,870
Hunsur	20	1,133	447	1,419	42	-	-	-	-	-	-	-	7	3,068
Mysore City	5	195	-	3,679	-	1	281	-	-	-	-	-	7	4,162
Tellicherry	-	318	-	2,381	-	-	315	-	-	-	-	-	14	3,028
Calicut	-	-	-	12	-	220	3,268	-	-	-	-	-	23	3,523
Kalpetta	-	-	-	-	-	-	2,925	-	-	-	-	-	6	2,931
Mettupalayam	-	-	51	-	907	91	51	178	153	14	-	13	-	1,458
Coimbatore	-	-	314	-	489	395	-	543	970	261	1	73	19	3,065
Salem	275	-	-	-	-	-	-	114	-	2,292	-	-	15	2,696
Patteeveerampatti	-	-	-	-	-	-	-	-	-	-	2,459	-	11	2,470
Total	9,943	13,732	812	18,069	1,475	759	6,840	835	1,123	2,567	2,460	86	233	58,954
1965-66 Crop Season														
Mangalore	2,298	8,417	-	5,791	-	-	-	-	-	-	-	-	125	16,631
Chikmagalur	2,938	1,457	-	-	-	-	-	-	-	-	-	-	40	4,435
Hassan	1,244	4,567	-	1,974	99	47	-	-	-	-	-	-	65	7,996
Kushalanagar	-	-	-	5,038	-	-	-	-	-	-	-	-	19	5,057
Hunsur	18	1,018	277	1,502	75	-	-	-	-	-	-	-	-	2,890
Mysore City	-	189	-	4,563	-	-	415	-	-	-	-	-	4	5,171
Tellicherry	-	207	-	2,861	-	-	575	-	-	-	-	-	22	3,665
Calicut	-	1	-	46	-	136	3,600	-	-	-	-	-	22	3,805
Kalpetta	-	-	-	-	-	-	3,278	-	-	-	-	-	3	3,281
Mettupalayam	-	-	109	-	438	120	105	88	70	126	-	13	-	1,069
Coimbatore	-	-	321	-	320	632	-	268	480	306	2	26	23	2,378
Salem	125	21	-	6	12	-	-	64	22	1,799	-	-	12	2,061
Patteeveerampatti	-	-	-	-	-	-	-	-	-	-	1,971	-	13	1,984
Total	6,623	15,877	707	21,781	944	935	7,973	420	572	2,231	1,973	39	348	60,423

Courtesy : Coffee Board.

than is registered. One reason, however, is that the curing centre in Mangalore held steadfast its clientele. Also of the increased crop from these areas, more coffee came to Mangalore for curing. The curers in Chikmagalur and Kushalanagar compete with Mangalore with respect to 'Mysore' (Bababudans and 'Other Mysore') and Coorg coffee growing areas respectively. If the flow of coffee meant for curing had obeyed the ordinary laws of distance, more coffee should have been available to the curers in Chikmagalur and Kushalanagar. This alone should have fostered the curing industry in these places. In contrast to this observation the fact is that the industry in Chikmagalur is operating at under-capacity.

The fact that the curers in Mangalore were able to secure more coffee for curing even after 1940, when there were curing houses located conveniently from the planters' point of view, cannot be explained by the economic factors. An attempt is made below to explain the above-mentioned fact with the help of institutional factors in the curing industry.

Before the establishment of the central marketing agency, the Coffee Board, curers played a pivotal role in the coffee trade. Their position improved after the establishment of the Board. "At present all the coffee produced has to pass through them only, and with the production having been stepped up it has given them more business in

regard to curing, storage, financing and supplies. It has enabled them to enlarge their business of granting loans on coffee because formerly their loans were not so well secured as the borrower was not bound in law to give all his produce to the custody of the curer. Likewise in the matter of supplies of manures and estate requirements they have been able to expand their business. ... The consequence, therefore, of the curing houses who previously concentrated in their hands coffee business in curing and marketing, being appointed as agents of the Coffee Board for various services, was that, concentration in the coffee industry regarding certain services increased both in depth and width."¹

Thus, there are two important functions by which the curer held the planter under obligation to send the coffee to him. First, by providing the planter his necessary finances. Second, supplying him the necessary estate requirements e.g., fertilizer mixes. The two functions are discussed separately. There is a subsidiary aspect of the curing industry, by which the curer may be able to attract the planter's crops. The same is discussed at the end.

(a) Curer as Financier to Coffee Plantation Industry:-

The sources from which the financial needs of the coffee

¹ Report of the Plantation Inquiry Commission, 1956, Part II - Coffee, p. 102.

plantation industry are met are "the resources of the companies or individuals themselves, and loans from managing agents, banks (including co-operative banks), coffee curers and private moneylenders."¹ The advances made by curers, banks and other agencies to growers are generally against hypothecation of the crop. The growers executing lien documents in favour of their creditors on the amounts payable to them by the Board, repay the loans through the Board. Thus, the amounts disbursed by the Board to various financing agencies out of sale proceeds of growers, present a rough picture of volume of finance availed of by growers from the various agencies. The data relating to amounts disbursed by the Board to various agencies on growers' account is available for the period 1951-52 to 1953-54; the same have been presented in Table 3.5.2.

As per Table 3.5.2 curers and banks were the most important financiers to coffee plantation industry. However, it may be hazardous to infer the relative importance of various financing agencies exclusively on the basis of the Table. The amount disbursed by the Board to a financing agency on growers' account does not represent the entire loans advanced by the agency. As regards the curers, in whose case (alone) data are available, the extent of finance

1 Ibid, p. 92.

Table 3.5.2 : Amounts Disbursed by Coffee Board to Various Financing Agencies on Growers' Account during the Period 1951-52 to 1953-54 (Amounts in Thousand Rupees)

Year	Banks		Curers		Private Moneylenders		Total	
	A	B	A	B	A	B	A	B
Big Growers								
1951-52	109	3,313 (37.5)	152	5,501 (62.3)	4	16 (0.2)	265	8,830 (100.0)
1952-53	95	860 (16.1)	139	4,317 (80.6)	18	176 (3.3)	252	5,353 (100.0)
1953-54	106	4,901 (79.5)	39	1,036 (16.8)	15	229 (3.7)	160	6,166 (100.0)
Small Growers								
1951-52	3	26 (36.6)	-	-	7	45 (63.4)	10	71 (100.0)
1952-53	3	14 (28.6)	-	-	19	35 (71.4)	22	49 (100.0)
1953-54	5	17 (15.6)	-	-	48	92 (84.4)	53	109 (100.0)

Note : 'Banks' include co-operative banks and 'Private Moneylenders' include indigenous bankers.

A = Number of Growers Taking Loans. B = Amount Taken.

Figures in brackets indicate percentages.

Source: Report of the Plantation Inquiry Commission, 1956, Part II - Coffee, Annexure XVI:

was far above from what can be understood from Table 3.5.2. Table 3.5.3 evidences the fact.

The Plantation Inquiry Commission, 1956, which provides data relating to the actual loans advanced by the curer for the period 1951-52 to 1953-54 does not provide similar information regarding other agencies. The relative importance of various agencies in financing coffee plantation industry during 1950's cannot be directly learnt from the above source. The Commission, however, is of the opinion that during the period, curers constituted a very important source of finance for the coffee industry;¹ commercial banks formed another important source;² and indigenous banks and private moneylenders played an important role in the provision of finance to small growers.³ It can be noted that the small growers, (holding less than 100 acres), who depended on indigenous banks and private moneylenders accounted for only 30.69 per cent in the 1953-54 season's crop. Big growers, (holding 100 and more acres), who depended either on curers or banks accounted for the rest 69.31 per cent of the crop.⁴

Up-to-date data regarding the extent and the share of different agencies in financing the coffee plantation

1 Ibid, p. 95.

2 Ibid.

3 Ibid, p. 97.

4 Coffee Statistics Relating to India, 1954-55, Coffee Board.

Table 3.5.3 : Loans Advanced (Amount in Thousand Rupees) by Coffee Curers and the Quantity (in Tonnes) of Coffee Handled by them according to the Nationality of Curers during the Period 1951-52 to 1953-54

Year	Nationality of curers	Number of Growers taking loans and Amounts taken								Quantity of coffee handled in tonnes
		25 acres and below		Above 25 acres and below 100 acres		100 acres and above		Total		
		A	B	A	B	A	B	A	B	
1951-52	Non-Indian	798	609	153	1,539	126	5,516	1,077	7,664	13,221
	Indian	1,026	955	311	928	92	2,091	1,429	3,974	6,366
	Total	1,824	1,564	464	2,467	218	7,607	2,506	11,638	19,587
1952-53	Non-Indian	825	838	177	1,814	136	7,595	1,138	10,247	14,133
	Indian	770	961	226	839	96	2,344	1,092	4,144	5,159
	Total	1,595	1,799	403	2,653	232	9,939	2,230	14,391	19,292
1953-54	Non-Indian	880	1,080	191	2,317	151	9,671	1,222	13,077	20,183
	Indian	1,031	976	74	591	88	2,975	1,193	4,542	8,365
	Total	1,911	2,065	265	2,908	239	12,646	2,415	17,619	28,538

Note : A = Number of Growers Taking Loans. B = Amount Taken.

Source: Report of the Plantation Inquiry Commission, 1956, Part II - Coffee, Annexures XVII and XX.

industry, again, are not available. There are some data regarding the total requirement of the industry and the extent of finance from commercial banks relating to first half of 1960's. With the above data it is possible to infer broadly the curer's role as financier to the plantation industry during the period. Rough estimate of the credit requirement of the industry around 1963 is put at "Rs. 12 crores of short term finance and about Rs. 28 crores of long term finance for replanting".¹ Long term financial needs given above, it can be noted, is a minimum estimate of the same.² Thus, the total requirement of the industry could be more than that stated above. As against the above requirement, advances from the commercial banks was as following. Advances on security of coffee was Rs. 9.71 crores in February 1961, it declined to Rs. 6.88 crores in May 1963.³ Purposewise break-up of advances of banks showed that the amount advanced for agricultural purposes to coffee, tea, jute, tobacco, cotton and oilseed stood at Rs. 2.33 crores as on October 28, 1960 and Rs.4.55 crores as on October 27, 1961.⁴ The gap between the requirement

1 "Financing of Coffee Industry", Reserve Bank of India Bulletin, February 1964, p. 152.

2 Ibid, p.152 It is based on the lower estimates of cost of replanting one acre during the period 1951-54, given in the Report of the Plantation Inquiry Commission, 1956, Part II - Coffee.

3 Reserve Bank of India Bulletin, February 1964, p.151.

4 Ibid.

of the industry and the credit financed by commercial banks is wide. It is likely that entire credit requirement of the industry is not fully met with. However, most of the short term needs and a part of the long term needs would have been necessarily financed. The other agencies which could have extended the credit facilities apart from the commercial banks are curers, indigenous banks and private moneylenders. Co-operatives do not feature important in financing coffee industry.¹ A part of the credit requirement could have been met with from growers' own resources. Viewing the relatively small amounts advanced by indigenous bankers and private moneylenders during 1950's (Table 3.5.2) and the natural tendency of the planters to go to organized agencies with the passage of time, it seems probable, that besides the commercial banks, as was the case earlier, curer still remains an important source of finance to the industry even now.

The relative importance of various agencies in financing coffee industry could not be clearly understood. The same to a certain extent may be immaterial. The banker and the moneylender when they advance loans to the planter do not influence his choice of curer for curing his coffee; whereas, the curer when he does so, makes it obligatory on

1 Ibid.

the part of the planter to send the coffee to him. "Arising out of the relationship created of being borrower, is the obligation on the part of the grower to deliver his coffee to the curer from whom he borrows and to buy all his requirements such as manures and other estate requisites from him. The loan itself is sometimes partly in cash and partly as supplies."¹ (The fact that the curers finance was also in kind reveals that his role as financier was greater than reflected in the preceding discussion.)

The extent of finance from other agencies and also its concentration in any particular area has not much relevance here. The concentration of curers finance in any particular coffee growing area, however, is of utmost importance. Where the curer financed, the coffee from the area is mostly cured by him. The immediate concern here is to examine the role of curers in Mangalore as financiers to growers in the areas on which the centre depended. Again relevant data for recent years are absent; data relating to 1950's had to be relied upon. An attempt has been made in the following paragraphs to show that during 1950's the major share of curers' finance was concentrated in the 'Mysore' and Coorg coffee growing areas and that these finances originated from Mangalore. This should partly

¹ Report of the Plantation Inquiry Commission, 1956, Part II - Coffee, p. 95.

explain the fact that Mangalore continued to account for a major share of 'Mysore' and Coorg coffee even after 1940.

It can be seen from Table 3.5.3 that Non-Indian curing companies financed the planter to a greater extent than the Indian owned companies. Also it is clear that the Non-Indian companies favoured the bigger grower to the smaller growers in advancing loans. The Non-Indian companies have other investments in India other than that in the curing industry and hence have large funds at their disposal. Due to their financial ability and also particularly financing the bigger growers, the Non-Indian curers have been able to attract more coffee for curing than the Indian owned companies. This also is evidenced by Table 3.5.3.

The distribution of curing capacity owned by Non-Indian companies during 1952-54 is given in Table 3.5.4.

Table 3.5.4 : Distribution of Curing Capacity Owned by Non-Indian Companies, 1952-54 (Tonnes)

Curing Centre	Mangalore	Tellicherry	Calicut	Coimbatore	Total
Capacity in Tonnes	21,992	6,000	2,860	5,200	36,052

Courtesy : Coffee Board.

The major share of curing capacity owned by Non-Indian companies was located in Mangalore. Thus, a good part of

the advances made by Non-Indian companies originated here. These advances naturally went to 'Mysore' and Coorg growing areas on which areas Mangalore depended for its supplies of coffee. The curing centres Chikmagalur and Kushalanagar depended for their supplies on 'Mysore' and Coorg areas respectively. Due to their better financial ability the curers in Mangalore, (the Non-Indian curing units were three out of the five units then in existence) could compete better and could continue to get increased quantities of coffee. This naturally was at the cost of curing centres in Chikmagalur and Kushalanagar (and also other centres which depended on these areas).

(b) Curer as Supplier of Planter's Estate Requisites:-

The other function by which the curer binds the planter to send his coffee to him, is supplying the latter with necessary estate requisites viz., fertilizers, pesticides and insecticides. Though production of chemical fertilizer and its large scale use is a development of recent past, the planters always depended upon the curer for manure like bonemeal. Since chemical fertilizers are used, the manuring costs form a high proportion of the costs of rearing coffee.

A recent study¹ makes some interesting observations as regards curer's role as supplier of estate requisites.

1 P. P. Madappa, "Location and Role of Coffee Curing Works in Relation to Coffee Plantations", Artha Vikas, Vol. 4, No. 2, July 1968.

**Table 3.5.5 : Cost of Production Per Tonne of Coffee, 1953
(in Rs.)**

	Arabica	Robusta
I. Cultivation:		
General field work	41.75	65.96
Manuring	48.80	31.38 (14.14%)
Spraying and dusting	29.92	
Other	16.04	4.88
Total	136.51	102.22
II. Gathering and Processing		
	38.20	28.01
III. General Expenses		
	107.93	91.63
Grand Total	282.64	221.86

Source : Report of the Plantation Inquiry Commission, 1956, Part II - Coffee, Annexures XI and XII.

They are interesting here as they involve some locational implications. They are of immediate relevance here as the study relates to planters in Chikmagalur district, the district which accounts for the major part of the crop from 'Mysore' coffee growing areas. As per the study the planters in Chikmagalur preferred to buy their estate requisites from Mangalore which is situated 85 miles distant instead of buying the same from Chikmagalur which is around 15 miles from their estates. Nearly 63 per cent of the fertilizer requirements were met from Mangalore. According

to the study the planters sent their coffee to the curer who supplied the manures. Nearly 79 per cent of the crop from the sample estates went to Mangalore for curing. A supplementary observation of the study was that it is the bigger growers who required large quantities of fertilizer that depended most on the curers in Mangalore.

The reasons cited for the planters' choice of Mangalore for their estate requisites are as following:

(1) Planters need timely help and in large quantities. The newly sprung curing units in Chikmagalur neither had the ability to stock large quantities of manure nor were they able to make prompt deliveries.

(2) A finding of the study was that the average yield in the case of the estates which got their supplies from Mangalore was greater than the average yield for the estates, which got their supplies from Chikmagalur. Thus, the quality of fertilizer mixes becomes another reason why the planters preferred the distant curer in Mangalore.

The coastal curers particularly the Non-Indian ones due to their better financial position were able to stock large quantities of estate requisites. They only could provide the planters' requirements promptly and in large quantities. The big growers require fertilizers in large quantities; they were almost forced to go to the coastal curers for their requirements. This, however, proved

beneficial to the latter. He got large quantities of coffee for curing.

As regards the second reason cited for the planters' preference to get their estate requisites from Mangalore, this too can be found to have some basis. The pool agents who are manufacturers of fertilizers like steamed bonemeal and potash and agents of the Coffee Board for the distribution of other fertilizers "have their own patent fertilizer mixtures."¹ Possibly the curers in Mangalore who have nearly a century's experience more than any inland curing centre in Mysore State except Hunsur, are able to provide more effective fertilizer mixes. This may be a genuine reason for the planters in Chikmagalur to prefer fertilizer mixes from Mangalore.

According to the above-mentioned study the planters in Chikmagalur in getting their supplies of fertilizers from Mangalore and in sending their coffee to Mangalore for curing incur a higher cost of transportation. There is no doubt as regards the latter. As regards the transport cost on fertilizers the same may not be acceptable. At present the only fertilizer plant in Mysore State is able to meet a small part of the demand in the growing areas of 'Mysore' and Coorg. A good portion of the supplies have to be imported.

¹ Report of the Plantation Inquiry Commission, 1956, Part II - Coffee, p. 102.

Mangalore has been the port of entry all throughout until the manufacturing of fertilizers was started in Cochin. In the latter case they could be transported by rail and distributed through Bangalore. As far as the fertilizers are imported through Mangalore, the centre's locational advantage in this respect cannot be denied. A fertilizer plant is being installed in Mangalore. When the production of fertilizer will commence here, its locational advantage as regards supplying the fertilizer to growing areas in 'Mysore' and Coorg will be enhanced.

As stated earlier there is a subsidiary aspect of the curing industry by which the curer may be able to attract the planter's coffee. The curer in the present set-up is to a certain extent able to determine the return for his customer's produce. The return to the planter depends on the average price secured in the Board's sales and on the outturn of different grades from his coffee. The outturn of different grades basically and honestly should depend on the planter himself; on the quality of his coffee which depends upon the quality of rearing. While there is scope for abuses in curer's practice, he is able to manipulate better outturns for a wavering customer.¹ The curer's ability to influence the planter's return is true of all the centres. However, the coastal curer in Mangalore being able

1 Ibid, p. 211.

to acquire more coffee due to his advantageous position from the institutional factors point of view, perhaps has a greater flexibility in the practice.

Whatever be the reasons behind the planters' preference to send their coffee to their old curers in Mangalore and the other centres on the coast, the fact remains that they do so. The curer to a certain extent is able to retain his clientele in the face of new competition. His location vis-a-vis that of the competitors may not be crucial factor if the former is in an advantageous position from the institutional factors point of view. A curer is able to retain his old clientele even when he changes his location. Recent relocation of a curing unit from Telli-cherry to Mangalore illustrates this fact.

From Table 3.5.6 it can be seen that most of the curers in Mangalore depended on 'Mysore' areas for their supplies and those in Tellicherry (now only one) on Coorg.

The curing houses 'MG₃' and 'TL' are branches of the same concern. While the former cures almost exclusively coffee from 'Mysore', the latter cures only a small quantity originating from 'Mysore'. It gets its supplies from Coorg.

The curing house 'MG₄' which was initially in Telli-cherry until the early 1940's has been slowly shifting its business to Mangalore. The curing works, however, was shifted in 1952. At present it cures a quantity comparable

Table 3.5.6 : Quantity of Coffee Cured by Different Curers in Mangalore and Tellicherry, 1964-65 Crop Season (in Tonnes)

Centre/ Unit	Coffee Growing Area					Total
	Baba- budans	Other Mysore	Coorg	Malabar Wynaad	Other	
<u>Mangalore</u>						
MG ₁	281	304	51	-	5	641
MG ₂	389	1,080	54	-	9	1,532
MG ₃	284	2,927	81	-	24	3,316
MG ₄	139	767	3,313	-	18	4,237
MG ₅	1,495	1,686	1,280	-	40	4,501
Total	2,588	6,764	4,779	-	96	14,227
<u>Tellicherry</u>						
TL	-	318	2,381	315	14	3,028

Courtesy : Coffee Board.

to any of the other three big units in Mangalore. While in Tellicherry most of the coffee it cured came from Coorg. It can be seen from the Table even at present the unit relies for a major portion of its supplies on Coorg. If its clientele were not so much attached to it, the said unit should have now got its supplies from 'Mysore'.

The institutional factors played a major role in the sharing of coffee grown in Mysore State (Bababudans, 'Other Mysore' and Coorg growing areas). The coastal curer who

had better financial ability was able to extend the planter more advances and make prompt supplies of necessary estate requirements. Hence, he was able to secure the coffee which traditionally came to him for curing. He also got a better share of the increased crop. This, however, was at the cost of newly sprung units near the plantations and also others which depended upon the same coffee growing areas for their supplies.

There is, however, another side of the same coin. The preference of planters in 'Mysore' areas the less conveniently located curers on the coast can be viewed at from another point. It was observed that transport costs do not form an important component in the cost of producing coffee for the market. For the planter their importance further declined since 1940. He now bore only the transport cost on his coffee from the plantations to the curing house. The other cost factor, i.e. curing cost, which possibly could influence his choice of curing unit for his coffee has now become redundant. Curing costs for the planter are uniform irrespective of the curer he chose. (The price factor has become redundant after the Board was vested with the responsibility of selling the planter's coffee.) Thus in opting for a curing house like Mangalore a bit distantly situated than the curing houses in Chikmagalur and Kushalnagar, the planters in Bababudans and 'Other Mysore' and

Coorg had to lose very little. The extra transport cost the planters bore in getting their coffee cured in Mangalore can be put around Rs. 20 to Rs. 30 per tonne during the year 1967. In the same year the minimum return for the planter's coffee was Rs. 4,400 per tonne in the case of Plantation coffee and Rs. 3,352 in the case of Robusta Cherry (AB).

The planters' choice of Mangalore (or their failure to develop new arrangements) for curing their coffee was perhaps inevitable owing to institutional factors. For, what they lost by doing so was a negligible percent of the return for their coffee.

The planter, however, has not shown utter disrespect for transport costs. The growers in 'Mysore' and Coorg did not send their coffee to Coimbatore or Salem. Nor did those from Nilgiris and Shevroys get their coffee cured in Mangalore or Tellicherry.

Summing Up

Under the circumstances existing after 1940 curing centres near the plantations should have prospered. It could be seen that in the case of Chikmagalur amidst 'Mysore' growing areas and Kushalanagar in Coorg, the industry did not show any commendable growth. The coastal curers in Mangalore continue to cure a substantial part of the coffee from the above areas in spite of their less

convenient location. Location of his unit to a certain extent may be immaterial for a curer to get the necessary supplies of coffee if he is in an advantageous position from the institutional factors point of view.

A change in the situation is now visible. As regards 'Mysore' and Coorg areas, though a new curing unit is also located in the distant inland centre in Mysore city, three curing units have been located in Hassan and one in Chikmagalur. Rapid growth of the industry in Hassan, which is situated conveniently both from 'Mysore' and Coorg areas, during 1960's is worth taking note of. The curers in this centre have also been able to secure substantial quantity of coffee for curing within a short period. The choice of Hassan for locating the curing houses can be attributed to its convenient situation from the plantations. However, the ability of the new curers in the centre to secure substantial quantity of coffee for curing later cannot be entirely attributed ^{to} their location. The curers in Chikmagalur who are in similar situation present a contrast. Perhaps, the new curers in Hassan were in an advantageous position from the institutional factors point of view too.

The planter's decision to cure his coffee at a place at times could be influenced by institutional factors. Thus, the existing pattern of flow of coffee meant for curing could be to an extent based on the institutional

factors. Needless to state again that any rationalisation scheme has to take note of these factors. However, any rationalization scheme purely from the point of view of minimizing transport costs may be thought of with the following note of caution.

The internal demand for Indian coffee is confined to the four southern States. The exports also can be effected from the ports in these States conveniently located from the coffee growing areas. Viewing this, the existing location of curing houses can be broadly accepted as justified. Due to the location of curing houses not very much removed from the plantations whose coffee they cure and due to the spatial pattern of demand, the transport costs have little importance. A well thought rationalization scheme will not accrue to the industry large savings. However, the new allocation may suggest a dismantling of the capacity in certain places and increase of capacity in others. The cost of implementing the new scheme may turn out to be more than the savings it would fetch.

The institutional factors can be ignored purely from the point of view of financial gains. But still their influence may have to be mitigated in certain areas to gain operational facility for the Board. One such instance is Mangalore. The case is discussed in the next section.

3.6 : Coffee Curing Industry in Mangalore

3.6.1 Importance of 'Mysore' and Coorg Areas

It is believed that the concentration of curing capacity on the coast was due to export orientation of the demand for coffee. Export demand could influence the location of curing houses only in the case of coffee growing areas that stretch along the West Coast. The growth of the curing industry in Mangalore is attributed to its locational advantage for curing the export-bound coffee from 'Mysore' and Coorg areas. The prospects of the industry in Mangalore should depend upon the extent to which the coffee from the above-mentioned plantations are needed for exports.

Curing centres in Mysore State accounted for more than 70 per cent of the exports from India. Table 3.6.1 presents the data. It can be seen from Table 3.6.2 that almost the entire coffee cured at these centres came from 'Mysore' and Coorg areas. It is also true that the centres in Mysore State cured more than 90 per cent of the crop from 'Mysore' and Coorg areas; the relevant percentages for the seasons, 1962-63 to 1965-66 were 91.92, 91.61, 92.85 and 92.62 respectively. Thus, it can be said that 70 per cent of India's exports accounted for by the curing centres in Mysore State originated in 'Mysore' and Coorg areas. (The importance of 'Mysore' and Coorg areas in India's

coffee crop is further evidenced in Table 3.6.3.)

Table 3.6.1 : Percentage Share of Curing Centres in Different States in India's Exports of Coffee, 1962-63 to 1965-66 Crop Seasons

State	Crop Seasons			
	1962-63	1963-64	1964-65	1965-66
Mysore	69.13	71.76	69.59	74.17
Kerala	6.24	7.79	5.10	6.16
Madras	16.43	11.73	17.26	13.80
Store Houses in Madras *	8.20	8.72	8.05	5.87
Total	100.00	100.00	100.00	100.00

* Contains coffee from the curing centres, Mangalore (Mysore) and Tellicherry, Calicut and Kalpetta (all in Kerala).

Note : Percentages are based on the data provided by the Coffee Board.

Courtesy: Coffee Board.

At present a quantity of coffee from Madras which is a deficit State is utilized for exports. Coffee available at the curing centres in Madras is mostly of 'Plantation' type. Assuming that exports from the State are entirely of 'Plantation', these exports formed 21.49, 17.85, 17.93 and 21.15 per cent of the total 'Plantation' cured in Mysore State during the years 1962-63, 1963-64, 1964-65 and 1965-66 respectively. It may not be possible to substitute the exports of 'Plantation' from Madras entirely with those from Mysore without affecting the quality of exports.

Table 3.6.2 : Percentage Share of Different Coffee Growing Areas in the Coffee Cured at the Curing Centres in Mysore State, 1962-63 to 1965-66 Crop Seasons

Crop Season	Coffee Growing Area				Total
	'Mysore'		Coorg	Other	
	Bababudans	Other Mysore			
1962-63	16.72	36.85	43.94	2.19	100.00
1963-64	14.96	39.28	44.18	1.58	100.00
1964-65	24.30	33.72	39.46	2.52	100.00
1965-66	15.41	37.10	44.73	2.76	100.00

Note : Percentages are based on the data provided by the Coffee Board.

Courtesy: Coffee Board.

Table 3.6.3 : Importance of 'Mysore' and Coorg Areas (Quantity Cured in Tonnes)

Crop Season	India	'Mysore' and Coorg Areas	'Mysore' and Coorg Areas as Percentage of India
1962-63	54,162	38,960	71.93
1963-64	66,601	50,683	76.10
1964-65	58,954	41,764	70.84
1965-66	60,423	44,281	73.29

Source : (a) Coffee Statistics, 1964-65 to 1966-67, Coffee Board.
 (b) Coffee Board for crop season 1965-66.

Coffee growing areas of 'Mysore' and Coorg may not be able to supply the entire exports from India. Nevertheless, as at present, they will continue to supply the bulk of exports (70 per cent).

3.6.2 Cost Advantage of Competing Centres to Cure the Coffee from 'Mysore' and Coorg Areas

Curing and transport costs do not form an important component in the total cost of producing coffee to the market. Even if Mangalore possesses any such advantage, a case for increasing the curing capacity in the place should not be built purely on this basis. The cost advantage of Mangalore for processing the export-bound coffee from 'Mysore' and Coorg areas, however, is often taken for granted. It will be interesting to examine the assumption. Transport costs have been calculated for the curing centres which now account for the coffee from these areas. They include all the curing centres in Mysore State and Tellicherry. Transport costs have also been calculated in respect of the other two centres in Kerala viz., Calicut and Kalpetta; these centres are conveniently located from Coorg plantations. Curing centres in Madras State are less conveniently located from 'Mysore' and Coorg plantations and cure little or none of their coffee.

Both 'Mysore' and Coorg plantations are situated in Mysore State. Coorg coffee is spread over the district. 'Mysore' plantations which include Bababudans and 'Other Mysore'

are concentrated in two districts, viz., Chikmagalur and Hassan (Table 3.6.4).

Table 3.6.4 : Coffee Production in Mysore State according to Districts, 1963-64 (in Tonnes)

District	Production
Chikmagalur, Hassan and Shimoga*	26,885
Mysore	648
South Kanara	1
North Coorg	11,409
South Coorg	13,408
Total	52,351

* As reported in Annual Season and Crop Report, 1963-64, Department of Statistics, Government of Mysore, Bangalore. Shimoga district had a production of only 45 tonnes.

Source : Coffee Statistics, 1964-65 to 1966-67, Coffee Board, p. 23.

Plantations in Coorg are more or less evenly scattered over the entire district between its three taluks. In the case of Chikmagalur and Hassan, a few of the taluks account for the major portion of the area (and the crop).

It can be seen from Table 3.6.5 that Chikmagalur and Mudigere taluks account for more than 75 per cent of the acreage under coffee in Chikmagalur district. In Hassan, Sakleshpur is the most important coffee growing taluk.

Table 3.6.5 : Coffee Acreage in Chikmagalur, Hassan and Coorg Districts, 1963-64 (Talukwise)

Chikmagalur		Hassan		Coorg	
Taluks	Area in acres	Taluks	Area in acres	Taluks	Area in acres
Chikmagalur	57,429	Sakleshpur	21,993	Somwarpet	27,479
Mudigere	26,524				
Koppa	8,182	Belur	10,008	Marcara	24,916
Kadur	336				
Narashim- rajapura	3,724	Alur	5,400	Virejpet	32,692
Tarikere	3,930				
Sringeri	77	Arkalgad	156		
Total	100,202	Total	37,557	Total	85,087

Source : Department of Statistics, Government of Mysore, Bangalore.

Transport costs¹ have been calculated in respect of Chikmagalur, Mudigere, Sakleshpur taluks and all the three taluks of Coorg.

It is believed that Mangalore has a cost advantage for curing the export-bound coffee originating from 'Mysore' and Coorg areas. It could, however, be learnt that there cannot be an exclusive category of export-bound coffee. In

¹ Transport costs take account of weight loss in curing in the case of uncured coffee. Computations are based on the rates given for road transport in Table

other words, a lot cannot be assigned for exports and utilized for the purpose entirely. Only a part (of the coffee cured), which is of superior quality can be exported. Hence, there is always a complementary internal demand which has to be supplied with a quantity exported. In section 3.4 while discussing the curing of coffee grown in Coorg area, it was assumed that the residual inferior coffee after the exportables have been picked were to be disposed off in the internal markets in Madras. In this section an internal market point in Mysore State has been considered.

There can be little demand at the plantations in Mysore State. So also, there can be little demand on the coast, i.e., the local markets of Mangalore (see p.431 of this section). As compared with the other curing centres in Mysore State, Mysore City is more conveniently located from the internal markets in the State. Transport cost computations here assume that the residual quantity, after the exportable coffee has been picked, will be utilized at the internal market situated at Mysore city.

It can be seen from Table 3.6.6 that as regards 'Mysore' and Coorg coffee, Mangalore does not possess any transport cost advantage for supplying the internal markets at Mysore city and the complementary export demand. In the case of 'Mysore' areas, Chikmagalur and Hassan possess such advantage. Kushalanagar, located amidst the plantations, is in an advantageous position in respect of Coorg coffee.

Table 3.6.6 : Composite Transport Cost of Supplying Export Demand and Internal Market at Mysore City from the Coffee Grown in 'Mysore' and Coorg Areas (Rs. Per Tonne)

Coffee Growing Area	Curing Centre								
	Mangalore	Chikmagalur	Hassan	Kushalnagar	Hunsur	Mysore City	Tellicherry	Calicut	Kalpetta
'Plantation'									
'Mysore'									
Chikmagalur	52.53	<u>44.83</u>	48.56	61.29	61.36	62.77	75.34	81.05	80.38
Mudigere	47.27	<u>44.83</u>	52.51	56.03	66.62	62.77	75.54	81.05	73.80
Sakleshpur	52.53	54.04	<u>45.93</u>	50.77	61.36	57.51	70.28	73.16	68.54
Coorg									
Somwarpet	57.79	64.56	52.51	<u>41.56</u>	50.84	52.25	59.75	61.32	58.01
Mercara	52.53	69.82	57.77	<u>41.56</u>	50.84	52.25	54.49	56.05	58.01
Virajpet	57.79	69.82	57.77	<u>44.19</u>	50.84	52.25	49.23	50.79	52.75
Arabica Cherry									
'Mysore'									
Chikmagalur	70.83	<u>51.77</u>	57.32	76.18	75.65	78.17	98.99	112.43	106.41
Mudigere	63.24	<u>51.77</u>	63.01	68.59	83.23	78.17	98.99	112.43	96.92
Sakleshpur	10.83	65.04	<u>53.53</u>	61.00	75.65	70.59	91.41	101.05	89.34
Coorg									
Somwarpet	78.41	80.22	63.01	<u>47.73</u>	60.47	63.00	76.24	83.98	74.17
Mercara	70.83	87.80	70.60	<u>47.73</u>	60.47	63.00	68.65	76.39	74.17
Virajpet	78.41	87.80	70.60	<u>51.52</u>	60.47	63.00	61.06	68.81	66.58
Robusta Cherry									
'Mysore'									
Chikmagalur	77.94	<u>52.65</u>	56.23	74.57	72.51	72.04	101.72	119.27	108.59
Mudigere	70.29	<u>52.65</u>	61.97	66.92	80.17	72.04	101.72	119.27	99.03
Sakleshpur	77.94	66.05	<u>52.40</u>	59.27	72.51	64.38	94.06	107.78	91.37
Coorg									
Somwarpet	85.60	81.35	61.97	<u>45.87</u>	57.21	56.73	78.75	90.56	76.06
Mercara	77.94	89.01	69.62	<u>45.87</u>	57.21	56.73	71.10	82.91	76.06
Virajpet	85.60	89.01	69.62	<u>49.70</u>	57.21	56.73	63.45	75.25	68.41

Note : The lowest transport cost in respect of each growing area is underlined.

In Table 3.6.6 it has been assumed that the residual coffee after the exports have been picked will be disposed off at the internal market point situated at Mysore city. Alternatively one can assume that Bangalore city represents the internal markets in Mysore State. In this latter case transport costs will increase in respect of all the centres that are considered. The extent of increase will be higher in the case of curing centre at Mysore city. Chikmagalur, Hassan and Kushalanagar will retain their transport cost advantage in relation to their respective areas.

Table 3.6.7 combines the transport costs as given in Table 3.6.6 and the garbling labour cost for different centres given in Table 3.4.10.

Consideration of garbling labour costs does not change the relative positions very much. Chikmagalur, Hassan and Kushalanagar retain their cost advantage. As these centres also have lower wages their net cost advantage is higher when garbling labour costs are taken into account.

It can be seen from Tables 3.6.6 and 3.6.7 that curing centres in Kerala, viz., Tellicherry, Calicut and Kalpetta do not possess any cost advantage for curing the coffee from 'Mysore' and Coorg areas, when the unexportable coffee outturned is to be disposed off in the internal market point at Mysore city. Curing centres in Madras

Table 3.6.7 : Composite Cost* of Supplying Export Demand and Internal Market at Mysore City from the Coffee Grown in 'Mysore' and Coorg Areas (Rs. Per Tonne)

Coffee Growing Area	Curing Centre							
	Mangalore	Chikmagalur	Hassan	Kushalnagar	Hunsur	Mysore City	Tellicherry	Calicut
'Plantation'								
'Mysore'								
Chikmagalur	89.89	<u>68.36</u>	72.07	84.80	91.36	90.71	111.13	116.64
Mudigere	84.63	<u>68.36</u>	76.02	79.54	96.62	90.71	111.13	116.64
Sakleshpur	89.89	77.57	<u>69.44</u>	74.28	91.36	85.45	105.87	108.75
Coorg								
Somwarpet	95.15	88.09	76.02	<u>65.07</u>	80.84	80.19	95.34	96.91
Mercara	89.89	93.35	81.28	<u>65.07</u>	80.84	80.19	90.08	91.64
Virajpet	95.15	93.35	81.28	<u>67.70</u>	80.84	80.19	84.82	86.38
Arabica Cherry								
'Mysore'								
Chikmagalur	108.19	<u>75.30</u>	80.83	99.69	105.65	106.11	134.58	148.02
Mudigere	100.60	<u>75.30</u>	86.52	92.10	113.23	106.11	134.58	148.02
Sakleshpur	108.19	88.57	<u>77.04</u>	84.51	105.65	98.53	127.00	136.64
Coorg								
Somwarpet	115.77	103.75	86.52	<u>71.24</u>	90.47	90.94	111.83	119.57
Mercara	108.19	111.33	94.11	<u>71.24</u>	90.47	90.94	104.24	111.98
Virajpet	115.77	111.33	94.11	<u>75.03</u>	90.47	90.94	96.65	104.40
Robusta Cherry								
'Mysore'								
Chikmagalur	115.30	<u>76.18</u>	79.74	98.08	102.51	99.98	137.31	154.86
Mudigere	107.65	<u>76.18</u>	85.48	90.43	110.17	99.98	137.31	154.86
Sakleshpur	115.30	89.58	<u>75.91</u>	82.78	102.51	92.32	129.65	143.37
Coorg								
Somwarpet	122.96	104.88	85.48	<u>69.38</u>	87.21	84.67	114.34	126.15
Mercara	115.30	112.54	93.13	<u>69.38</u>	87.21	84.67	106.69	118.50
Virajpet	122.96	112.54	93.13	<u>73.21</u>	87.21	84.67	99.04	110.84

* Includes Transport Cost and Gerbling Labour cost.

Note : The lowest cost in respect of each growing area is underlined.

State were not included in the analysis. They will have a greater cost advantage as compared with the centres in Kerala.

At present 90 per cent of the coffee grown in 'Mysore' and Coorg areas are cured in Mysore State. As oft repeated, coffee when it is cured can be divided into exportable and unexportable coffee; the former is utilized for exports, the latter for internal markets. Regarding 'Mysore' and Coorg areas it was seen in section 3.4 that when the unexportable coffee is demanded in deficit States of Madras or Andhra Pradesh, the curing centres in Mysore State are in advantageous position; the discussion in the present section revealed that the curing centres in Mysore State have the advantage when the unexportable coffee is demanded within the State. Thus, it can be said that 'Mysore' and Coorg coffee can be conveniently cured at the centres in Mysore State, whether the unexportable coffee is demanded within the State or in the deficit States like Andhra Pradesh or Madras. There is another conclusion which is of immediate importance. Mangalore, as often believed, does not possess any cost advantage for curing the coffee from 'Mysore' and Coorg areas, whether the unexportable part is demanded in deficit States like Madras or Andhra Pradesh (see sub-section 3.4.2) or in Mysore State.

3.6.3 Seasonal Character of the Curing Industry in Mangalore

Location of Mangalore facilitates exports. However,

due to the fastidious quality requirement of the export demand, only a part of the quantity cured is suitable for exports. Unexportable quality coffee outturned has to be disposed off in the internal markets. As regards the internal markets Mangalore can be a convenient supplier for the local markets within South Kanara district and for the coastal markets north of the centre. Due to the smallness of its geographical area, the local markets in South Kanara cannot have a large demand. The coastal markets could absorb only a small quantity during the two years (financial) 1962-63 and 1963-64.¹ A substantial part of the cured coffee available in Mangalore is thus utilized for the internal markets (in Mysore, Madras, Andhra Pradesh and Kerala) for which its location is less suitable.

There are certain other difficulties in encouraging the curing industry in Mangalore. The quality factor plays an important part in the sale of coffee. Due to this it cannot be cured in heavy monsoon. In Mangalore, like other coastal centres where the rains are heavy, the industry does not operate during the four months, June to September.

'Plantation' coffee reaches the curer earlier than the other types. The curing of 'Plantation' on the coast

¹ As per the Board's statistics coffee released for internal consumption in the two maritime States, Maharashtra and Gujarat, was 832 tonnes and 9 tonnes respectively for the year 1964-65. Thus there is no large demand that can be conveniently catered to by Mangalore.

Table 3.6.8 : Prominent Characteristics of Coffee Curing Industry in Mangalore (Quantity in Tonnes)

Crop season	Total quantity cured	Quantity retained for post-monsoon curing	Quantity transported for inland storage	Quantity used for exports	Coastal* exports from Mangalore
1962-63	14,909	1,471 (9.86)	4,619 (30.98)	4,270 (28.64)	278
1963-64	18,604	2,696 (14.49)	5,128 (27.56)	6,570 (34.99)	107

* Statistics of the Coasting Trade of India gives Statewise data regarding coasting trade (for financial years). The above exports refer to exports from Mysore State. Mostly these are effected through Mangalore port. However, the quantity may include coffee cured at centres other than Mangalore.

(Figures in brackets give the quantity as percentage of coffee cured in the centre.)

Courtesy : Coffee Board.

is completed ahead of the onset of monsoon. When the monsoon commences, a part of Robusta Cherry still remains uncured. As coffee in husk can face the rains better, uncured Robusta Cherry on the coast is carried over for post-monsoon curing. The cured coffee, however, cannot be retained on the coast during the months June to September without deteriorating its quality. Thus every year unsold cured coffee on the coast is transported inland for monsoon storage.

A quantity of cured coffee is transported from Mangalore to inland store houses before the onset of monsoon. The quantity thus transported includes both exportable and unexportable coffee. To the extent exportable coffee from Mangalore is transported inland, its advantage regarding exports is lost. Due to the fastidious quality requirement only part of the coffee cured is suitable for exports. Even from the exportable coffee found in Mangalore actual exports are partly effected through inland store houses. It can be seen from Table 3.6.8 that exports from Mangalore formed less than 35 per cent of the quantity cured in the centre during the years 1962-63 and 1963-64.

At present, the season's cured coffee in Mangalore is retained on the coast and presented for ^{sale} until mid-April. Every year the Board begins transporting unsold cured coffee from Mangalore as early as mid-April. Hitherto, the port of Mangalore closed for traffic by the middle of May. There was no point in retaining the coffee on the coast any further. The fear of non-availability of wagon-space also hastened the movement of coffee for inland storage. The port of Mangalore is being developed. Once this is completed, exportable coffee in Mangalore can be retained on the coast and exposed for sale and its despatch can be delayed until mid-June. After the monsoon showers have set in, no cured coffee can be retained on the coast as the storage technique

is yet to be perfected. Thus, the development of Mangalore port will give only a temporary leeway in respect of exportable coffee.

The major problems of the curing industry in Mangalore are listed below:

(i) The centre is not conveniently located from the internal markets.

(ii) The centre is inoperative during the rainy season. With the existing capacity and flow of coffee to the centre, a quantity remains uncured at the end of pre-monsoon season and is carried over for post-monsoon curing.

(iii) Unsold cured coffee cannot be retained on the coast during the rainy season and hence a quantity is transported from Mangalore to inland store houses every year.

The first and foremost problem of the industry in Mangalore is that it is inconveniently located to supply the internal markets. Any increase in the flow of coffee to the centre will increase the quantity released for internal consumption. The other two problems of the curing industry in Mangalore will assume importance under different assumptions. At present the curers in the centre are working at full capacity during the months January to June. If more coffee flows to Mangalore the quantity that will have to be carried for post-monsoon curing will increase. The difficulty can be got over by suitably increasing the

capacity at the centre.¹ However, the availability of more cured coffee on the coast before monsoon gives rise to a set of other problems.

Cured coffee cannot be retained on the coast. If the Board is unable to dispose off the cured coffee available in Mangalore before June (presently it is mid-April) it will have to be transported inland. With a larger quantity of cured coffee in the centre before monsoon, if the Board fails to sell the same, the quantity needed to be transported inland will increase. To the extent exportable coffee is transported thus, whatever advantage the centre has as regards exports is lost.

To evade the problem of transporting coffee before monsoon, the Board may expedite the sales of coffee available in Mangalore. In the case of exportable coffee there is certain economic advantage in doing so. As regards the un-exportable coffee it would mean shifting the burden to the trade. Internal markets are concentrated inland. Un-exportable coffee will have to be transported inland, now by the trade. Hastening the sales of coffee available in Mangalore will however affect the industry adversely from some other quarters. The Board's officials opine that the

¹ By curing the season's crop before monsoon in Mangalore the industry's off-season, which at present is from June to September, will be extended upto November.

concentration of sales over time may unfavourably affect the prices. There appears to be some truth in this. If coffee is found on the coast, sales will be relatively concentrated during the months January to June. If the same coffee is found at the inland centres, sales can be more leisurely spaced so as to take care of the price factor. Even a gain of two or three months, i.e., June to September, that will accrue by having the coffee at the inland centres may be beneficial.

There are no obvious advantages in encouraging the curing industry in Mangalore.

The Board may think it proper to cure only a certain quantity of coffee from 'Mysore' and Coorg areas in Mangalore. The coastal curers, however, because of their advantageous position from the point of view of the institutional factors, may be able to draw a quantity larger than is envisaged by the Board. For the Board to take over the responsibility of supplying the planter the necessary finances and his estate requisites may not be an easy task. Perhaps the Board will have to strike a formula that will reduce the influence of institutional factors.

3.6.4 Intra-State Allocation of Coffee in Mysore

It is possible to make at this stage, some observations regarding the allocation of coffee between the curing centres in Mysore State. The observations are based on the

discussion in the preceding pages in this section and the discussion in Section 3.4.

Curing centres in Mysore State can be broadly classified into three categories from the point of view of export demand and the internal demand within the State:

(i) Mangalore : located on the coast having an advantage regarding exports.

(ii) Chikmagalur, Hassan and Kushalanagar: located near the plantations having no special advantage either in the case of exportables or the coffee to be transported to the internal market; their main advantage being the transport cost on uncured coffee.

(iii) Mysore City and Hunsur: located more conveniently from the internal markets as compared with the other centres in the State. The former can be termed as a market point location. The latter being situated only 29 miles from Mysore City has certain advantage as regards transport cost on cured coffee that is meant for internal consumption at Mysore City.

In this Section, transport cost computations in respect of 'Mysore' and Coorg areas assumed that unexportable coffee will be disposed off at the internal market at Mysore City. It was found that curing centres near the plantations, viz., Chikmagalur, Hassan and Kushalanagar, have a cost advantage.

Mysore City is situated in the south eastern part of Mysore State. The advantage of curing centres, Mysore and Hunsur, as regards transport cost on coffee that is meant for internal consumption confines to this part. Whereas, there is no great demand for coffee in the coastal Mysore, alternative to Mysore City, market points in Mysore State can be visualized in its central and northern parts. Neither Mangalore, located on the coast, nor Hunsur and Mysore City, which are conveniently situated from the markets in south eastern part of Mysore, will have a cost advantage when the unexportable coffee is demanded in central and northern Mysore. The cost advantage of curing centres near the plantations would be greater in this case as compared with their advantage when the internal market point was assumed to be situated at Mysore City.

Coffee, when it is cured, can be divided into superior coffee and inferior coffee. The former is meant for exports and the latter is available for internal consumption. Curing centres in Mysore State cure the coffee from 'Mysore' and Coorg areas. As regards 'Mysore' and Coorg areas whether the unexportable coffee is demanded at the internal markets in Mysore State or at the internal markets in the deficit States, curing centres near the plantations are at an advantage. Thus, any reallocation of the 'Mysore' and Coorg coffee cured in Mysore State, between the curing centres within the State, should be in favour

of the centres which are located near the plantations, viz., Chikmagalur, Hassan and Kushalanagar.

At present, in Mysore State, there is a relative concentration of curing capacity on the coast as compared with the capacity at the plantations. As per the cost computations, capacity at the interior centres, viz., Hunsur and Mysore City, is more than justified. Any reallocation of the type suggested above would require dismantling of the capacity on the coast and in the interior, and installation of new capacity at the plantations. Apart from the capital expenditure involved, such a measure may not be practical. Hence the suggestion should be taken as a guideline for licensing of capacity in future. New curing capacity when required should be assigned to the centres situated near the plantations. There should not be any addition to the curing capacity on the coast. In addition to its cost disadvantage, the seasonal character of the industry in Mangalore imposes many other problems.

Allocation of coffee between the curing centres within the State could not be discussed in respect of Kerala and Madras. In Kerala, Tellicherry cures coffee from South Coorg, and Calicut and Kalpetta depend upon Malabar-Kynaad area. No such assumption, as could be made regarding the demand for coffee in coastal Mysore, could be made in the case of Kerala. The entire State is a

coastal strip. The State being more or less densely populated throughout, it is probable that the demand for coffee is evenly spread throughout the State. Compared to this spatial pattern of demand, the curing centres in Kerala are all concentrated at one point. A few broad observations regarding the curing centres in Kerala, however, can be made. In respect of Malabar-Wyneaad area it was seen in Section 3.4 that Kalpetta is in an advantageous position when the unexportable coffee is demanded in Madras State. On the same lines Kalpetta may be in an advantageous position to cure the area's coffee if the unexportable grades are required at the distant markets in Southern Kerala. When the unexportable coffee is to be disposed off in the proximate markets in northern Kerala Calicut may be a more convenient centre for curing Malabar-Wyneaad coffee. Tellicherry at present cures Coorg coffee; the same includes all the four types. The centre may be a convenient location to cure only 'Plantation' type, (which loses less weight in curing), when the unexportable grades are required in northern Kerala.

In Madras State, the plantations and the curing centres which cure their coffee are scattered. Coimbatore and Mettupalayam are conveniently located from the Nilgiris whose coffee they cure. Patteeveerampatti situated at the foot of Pulneys and Salem at the foot of Shevroys, account for the respective area's crop. As the internal demand in

Madras State could also be more or less uniformly spread over the State, it can be said there are market areas which can be advantageously catered to by the existing centres.

It should be noted that intra-State reallocation of coffee in Kerala and Madras States may not be a major problem of the industry. The two States together account for only 30 per cent of the coffee cured. The rest 70 per cent is cured in Mysore.

CHAPTER IV

CASHEWNUT PROCESSING INDUSTRY

4.1 : Introduction

In common usage the term 'cashewnuts' refers to the final product which is used for immediate consumption. The word 'cashewnut' actually means the unprocessed nuts, which is the raw material of the cashewnut processing industry. However, the raw material of the industry is known by other terms also. Whereas the published statistics use the term 'cashewnuts', it is known as 'raw cashewnuts' or 'raw nuts' in the industry circle. In the present study, any one of the three terms, 'cashewnuts', 'raw cashewnuts' and 'raw nuts', denotes the raw material of the industry.

The final product available for immediate consumption is termed as 'cashew kernels' in the published statistics; whereas, it is referred to, merely, as 'kernels' in the industry circle. Either of the terms has been used in the present study.

4.1.1 India's Monopoly in Kernel Exports and Dependence on Imported Raw Material

The Techno-Economic Survey of Kerala states: "In view of the fact that the industry [i.e. cashewnut processing] is neither strongly raw material nor market oriented the main factor responsible for a high degree of localization seems to be the element of skill required."¹ Labour's unfamiliarity

1 Techno-Economic Survey of Kerala, National Council of Applied Economic Research, 1962, p. 169.

with the job cannot be cited as a cause for the industry's failure to get established or grow. The training of labour normally proceeds in association with the evolution of industry and is either an automatic result or is primarily a responsibility of industry itself; labour is not normally trained in vacuo and in anticipation of demand which may or may not develop. The above quoted statement probably is in reference to the present international dispersal of the industry. India which enjoys "a near monopoly in regard to the supply of both cashew kernels as well as cashewnut shell liquid to the world markets"¹ is neither a major consumer of its product nor the major supplier of the industry's raw material needs, i.e., raw nuts. The export orientation of the demand and the industry's import dependence is evidenced by Table 4.1.1.

Due to this dependence on imports the net foreign exchange earnings of the industry are reduced to half of the total earnings by exports. (Table 4.1.2.)

Purely from transport cost point of view the location of cashew processing industry is material oriented. There is only one basic material, i.e., raw nuts. The labour intensive technique of processing uses cashew shell as fuel. Thus the pull from the fuel side is not diverse from that

1 Cashewnut Shell Liquid, Seminar Conclusions and Recommendations, Ernakulam, February 1969, Indian Institute of Foreign Trade, New Delhi, p. 1 (mimeographed).

**Table 4.1.1 : Export Orientation of Demand for Indian
Kernels and the Import Dependence for Its
Raw Material by the Indian Cashew Processing
Industry, 1960-64**

(Quantity in Tonnes)

Year	Production ¹ of kernels	Exports ² of kernels	Raw nuts ¹ processed by the industry	Raw nuts ³ required for kernel exports	Imports ² of raw nuts
1960	36,256	39,436	146,580	157,744	99,631
1961	44,693	41,191	181,456	164,764	127,202
1962	42,436	46,436	172,142	185,744	131,108
1963	49,105	53,394	198,748	213,576	164,369
1964	51,892	52,645	212,511	210,580	170,315

Note : Production of kernels and raw nuts processed by the industry as given by the A.S.I. appears to be under-estimates as the source does not cover small scale units.

Sources: 1. A. S. I.

2. (a) Cashew Exports, Seminar Conclusions and Recommendations, Ernakulam, September 1964, Indian Institute of Foreign Trade, New Delhi (mimeographed), for the years 1960 to 1963.

(b) Monthly Statistics of the Foreign Trade of India, Director General of Commercial Intelligence and Statistics, Calcutta, for the year 1964.

3. Estimated : It requires approximately 4 tonnes of raw nuts to produce a tonne of kernels.

Table 4.1.2 : Net Foreign Exchange Earnings of Indian Cashewnut Processing Industry 1961-62 to 1967-68

Year	Total earnings by exports in Rs. crores	Net foreign exchange earnings after deduction of import of material Rs. crores
1961-62	18.8	12.1
1962-63	20.1	11.0
1963-64	22.5	11.7
1964-65	31.3	14.9
1965-66	29.2	14.1
1966-67	44.8	23.5
1967-68	44.4	19.4

Source : Cashewnut Shell Liquid, Seminar Conclusions and Recommendations, 1969.

of the material and can be ignored. It requires 4 tonnes of raw nuts to produce a tonne of kernels. With 25 per cent recovery by weight and a freight rate which is more or less similar for raw nuts and kernels the processing industry should be located near the raw material in order to reap the transport cost advantage.

Considering the weight losing nature of the process, international distribution of the processing industry appears to be lopsided at least from the transport cost point of view. India is the monopoly exporter of kernels. Sixty per cent of the industry's raw nut requirement is met

with imports from East Africa. Mozambique, Tanzania and Kenya are the chief raw nut exporters to India (Table 4.1.3). The main markets for kernels are the U.S.A., U.S.S.R. and countries of Western Europe (Table 4.1.4). Geographical distribution of main raw material producing regions and markets for kernels further question the monopoly position of India.

Table 4.1.3 : Countrywise Imports of Raw Cashewnuts into India (in Tonnes)

Country	1959-60	1964-65	1969-70
Mozambique	65,778	124,188	90,584 *
Tanzania	24,769	61,847	60,627
Kenya	5,000	5,080	10,748
Others	403	408	1,467
Total	95,950	191,523	163,426

* Includes imports from East African countries other than Tanzania and Kenya.

Source : Monthly Statistics of the Foreign Trade of India.

4.1.2 Localization of the Industry Within India

Within the country, the industry is concentrated in a single State (Table 4.1.5), and within the State it is localized in one district (Table 4.1.6). Quilon district in Kerala accounted for more than 70 per cent of the total employment in the industry.

Table 4.1.4 : Exports of Cashew Kernels to Foreign Countries from India (in Tonnes)

Country	1959-60	1964-65	1969-70
U. S. A.	26,663	27,643	21,797
U. S. S. R.	4,499	12,723	26,314
U. K.	1,983	3,512	1,966
Canada	1,236	1,705	1,645
Australia	727	1,056	1,548
East Germany	922	3,780	1,849
Others	2,761	5,259	5,504
Total	38,791	55,678	60,623

Source : Monthly Statistics of the Foreign Trade of India.

Table 4.1.5 : Number of Units, Employment and Production in Cashewnut Processing Industry in Different States of India, 1964

State	No. of units	Employment	Production of cashew kernels in tonnes
Kerala	159	76,275	44,412
Mysore	8	5,870	4,824
Maharashtra	5	943	985
Goa	10	180	666
Madras	3	1,202	602
Andhra Pradesh	5	234	403
Total	190	84,704	51,892

Source : A. S. I., 1964.

Table 4.1.6 : Number of Units and Employment in Cashewnut Processing Industry in Different Districts of Kerala as on 31-12-1966

Name of the district	No. of units	Employment
Trivandrum	13	3,967
Quilon	196	76,092
Alleppey	6	6,441
Kottayam	1	100
Ernakulam	4	1,427
Trichur	10	1,993
Palghat	-	-
Kozhikode (Calicut)	3	1,304
Cannanore	5	1,328
Total	238	92,652

Source : An Economic Review - Kerala 1967, The State Planning Board, Government of Kerala, Trivandrum.

The industry in Andhra Pradesh is located in the districts of Srikakulam, Nellore and Guntur. In Madras State, the processing is carried on in Panruti in South Arcot district. In Goa too, the industry is localized in one place (Bicholim). In Maharashtra, it is located only in the district of Ratnagiri. Mangalore in South Kanara district accounts for the industry in Mysore State. In Kerala, though the industry is localized in Quilon, it exists in the other districts of the State as well.

Over its four decades of history, cashew processing industry has showed no significant locational shifts, whether it be between the countries, or within the main (rather the only) processing country, India.

The next section discusses the origin of the industry and its paradoxical international distribution.

4.2 : Origin and International Distribution

By the nature of the manufacturing process cashew decorticating industry should have been located near the material base. However, till recent times, African countries, the major suppliers of raw nuts to India, did not have a processing industry of their own. The present distribution of the industry effected by international trade gives a picture different from what could have been obtained by applying the usual location analysis to the national scene. The international distribution of the industry, thus, has to be explained with reference to the factors to which attention has been drawn by the various international trade theories. An attempt in this regard has been made in this section.

There are three sub-sections in the present section. Sub-section 4.2.1 examines the dependence of the Indian processing industry on imported raw nuts during the early stage; as will be seen the discussion is useful for the progress of the analysis in sub-section 4.2.3. Sub-section 4.2.2 briefly examines the various trade theories. In sub-section 4.2.3 the enquiry is directed to see which of the trade theories explain the international distribution of cashew processing industry.

4.2.1 Importance of Imported Raw Nuts during the Early Stage of Development of Indian Cashew Processing Industry

One hundred and seventy-three tonnes under the name

'kaju' (cashew) was despatched from Mangalore as early as 1889-90. There was a long lull after that. The next exports that are recorded, are in the third decade of this century. But these exports were substantially greater than the initial quantities despatched.¹ Bits of scattered information available, however, reveal that small exports featured during 1920's also. To this there is the complementary evidence of attempts made at organizing the industry on a factory scale. There is little to suggest that the origin of factory scale production dates back to the past century.

Cashew processing industry operating on a factory scale can be widely found only in 1930's. From a date at the beginning of the century until the break of the First World War business was on a small scale.² There was no buying of raw nuts. Cashew kernels were bought in shelled state by the exporters. The roasting was done by petty contractors in their own houses. The contractors distributed the roasted nuts to shellers at their houses. Shelled but unpeeled kernels were later delivered to the merchants. Exports then were of unpeeled kernels. These exports were

1 Annual Reports of the Cochin Chamber of Commerce, Cochin, 1889-90 onwards.

2 W. R. Langley (ed.), Century in Malabar: A History of P. L. & Co., Peirce Leslie and Co., Cochin. Chapter on cashew is the basis for the following discussion on early part of the history of cashewnut industry in Mangalore.

mainly to Marseilles and occasionally to London. It was the dealers in kernels (exporters) who later started processing cashew on a factory scale.

Shortly after the First World War a few trial shipments were made to New York. The General Food Corporation (U.S.A.) in association with the R. T. and Co. of Mangalore began to operate a small factory and introduced the idea of packing cashew kernels in an atmosphere of 'CO₂', a method which was patented by them.

The old method of buying kernels in the local market from contractors who got it roasted and shelled continued until 1924. But now the two factories in existence in Mangalore dried peeled and graded before packing for exports. As the cashew kernels were found popular the supply of raw nuts available in India was not enough to meet the increased demand. One of the pioneering firms reported it made its first overseas buying of raw nuts in the year 1924. Thus, the earliest imports from East Africa were around the year 1924-25.¹

The inception of the industry in Quilon was around the middle of the third decade. Soon it experienced great strides of growth. The industry in Mangalore did not show any signs of rapid growth in the early years or in recent

1 Ibid, p. 55.

years. The first cashew processing unit in Vengurla (Ratnagiri District, Maharashtra) was established in 1925. In Goa two units were established in the year 1929; a third was established in 1933. At present there are ten units in the region.¹

'Large Industrial Establishments in India' provides the data relating to number of units and employment in the processing industry (upto 1958). However, the data provided in the source are incomplete. Firstly, the Union Territory of Goa is excluded. Secondly, small units established in the early years do not seem to have been recorded in some cases; for instance, whereas it is reported that the first unit in Ratnagiri was started as early as in 1925, as per the above stated source the first unit was located in 1943. The data however are useful for broad purposes as is utilized here. Table 4.2.1 presents number of units and employment in the processing industry in different centres during the period 1931-47 as provided in the publication 'Large Industrial Establishments in India'.

Two observations can be made on the basis of Table 4.2.1. The Indian processing industry made its stride

1 A.S.I., 1965, Vol. II.

Table 4.2.1 : Number of Establishments and the Employment in Cashewnut Processing Industry, 1931-47

Year	Ratnagiri		Mangalore		Calicut		Quilon		Trichur	
	A	B	A	B	A	B	A	B	A	B
1931	-	-	1	351	-	-	-	-	-	-
1933	-	-	1	50	-	-	-	-	-	-
1935	-	-	3	1010	-	-	1	500	-	-
1937	-	-	4	1733	-	-	2	650	-	-
1939	-	-	-	-	-	-	-	-	-	-
1941	-	-	3	3057	1	1361	23	16318	1	1390
1943	8	826	2	1155	-	-	32	21372	-	-
1945	8	1141	4	962	1	25	146	38308	-	-
1947	10	2113	11	5057	2	853	117	35247	1	24

Note : A = Number of establishments
B = Number of persons employed

Source : Large Industrial Establishments in India, 1932 to 1947.

during the years of Second World War. Secondly, the phenomenal growth was confined to Quilon.

To examine the importance of imported raw nuts when India emerged as the world's only bulk exporter of kernels, it is necessary to know the industry's total raw nut requirement and the quantity imported at the time. Statistical information as regards the former is absent. However,

the industry's raw material requirement can be estimated. The cashew industry in India owes its origin and growth to the external demand. The exports now form nearly 95 per cent of the output. It can be fairly realistically assumed that the share of export demand though could have varied over years could not have changed significantly. Assuming that it requires 4 tonnes of raw nuts to export a tonne of kernels, it is possible to estimate broadly on the basis of exports total raw nut requirement of the industry. However, it should be noted that the raw nut requirement of the industry estimated on the basis of exports is a minimum estimate. Table 4.2.2 presents the relevant data to understand the dependence of the Indian processing industry on imported raw nuts during the years 1939-52.

It can be seen from Table 4.2.2 that the cashew processing industry depended on imported raw nuts heavily even during the early years of its development.

The cashew processing industry is concentrated in Quilon. It will be interesting to know the role of imported raw nuts in localizing the industry in the place. As in the case of Indian industry, the raw nut requirement of the processing industry in Quilon is estimated on the basis of exports of kernels from the centre.

The imports from Cochin might have contained a quantity which actually originated in East Africa. Direct

Table 4.2.2 : Exports of Cashew Kernels, Estimated Raw Cashewnut Requirement and Import Supply of Raw Cashewnuts to Cashewnut Processing Industry in India, 1939-52 (Quantity in Tonnes)

Year	Exports of kernels	Estimated raw nut requirement (col. 1 x 4)	Imports of raw nuts	Imports of raw nuts as percentage of estimated raw nut requirement (3 as percentage of 2)
	(1)	(2)	(3)	(4)
1939	13,200	52,800	37,594	71.20
1940	14,357	57,428	41,658	72.54
1941	16,851	67,404	31,498	46.73
1942	9,690	38,760	-	-
1943	3,017	12,068	-	-
1944	8,369	33,476	-	-
1945	10,229	40,916	41,658	*
1946	14,311	57,244	37,594	65.67
1947	16,397	65,588	42,674	65.06
1948	17,372	69,488	44,706	64.34
1949	19,305	77,220	39,626	51.32
1950	25,810	103,240	70,107	67.91
1951	24,177	96,708	55,883	57.79
1952	23,428	93,712	55,883	59.63

* Imports of raw nuts exceed estimated raw nut requirement.

Source : Cashewnut Industry in India, Supplement to the United Commercial Bank Review, May 1953, Calcutta, Exports of Kernels, p. 6, Imports of Raw Nuts, Appendix No. I, p. 10.

Table 4.2.3 : Exports of Cashew Kernels, Estimated Raw Cashewnut Requirement and Import Supply of Raw Cashewnuts to Cashewnut Processing Industry in Quilon, 1937-38 to 1946-47 (Quantity in Tonnes)

Year	Exports of kernels	Estimated raw nut requirement	Imports of raw nuts			
			East Africa	British India	Erstwhile Cochin State	Total Imports
1937-38	9,527	38,108	N.A.	N.A.	N.A.	18,818 (49.38)
1938-39	8,992	35,968	18,806 (52.28)	980	8,459	28,245 (78.53)
1939-40	11,481	45,924	22,915 (49.90)	301*	9,316	32,532 (70.84)
1940-41	14,366	57,464	26,829 (46.69)	362	17,467	44,658 (77.71)
1942-43	3,089	12,356	N.A.	N.A.	N.A.	7,319 (59.23)
1943-44	8,593	34,372	N.A.	N.A.	N.A.	N.A.
1944-45	8,629	34,516	9,023 (26.14)	10,305	219	19,547 (56.63)
1945-46	12,783	51,132	30,852 (60.34)	5,199	3,435	39,487 (77.23)
1946-47	13,924	55,696	47,195 (84.73)	1,423	4,537	53,155 (95.44)

N. A. = Not Available.

* Includes 239 tonnes from Portuguese India. / Figures in parentheses refer to respective imports as percentage of total requirement.

Source : Trade Statistics of Travencore, State, 1937-38 to 1946-47, Government Press, Trivandrum, Kerala.

imports from the East African countries alone formed around 50 per cent of the total supply to the industry in Travancore (i.e. Quilon). There is further evidence to show this import dependence. The Trade Statistics of Travancore State 1938-39¹ (p. vi) states: "Cashewnuts [imports] recorded sharp advance from 370,420 cwts. [18,818 tonnes] valued at Rs. 2,090,803/- in the previous year to 550,602 cwts. [27,972 tonnes] valued at Rs. 3,439,806 now. The major portion of the import was from East Africa." The 1939-40 issue (p. vi) of the publication said: "Portuguese East Africa [Mozambique] was as in previous years the main source of supply of cashewnuts." "Cashew industry is one of the leading industry in the State [Travancore]. Thousands of people are employed in the factories near Quilon. ... Import of cashewnuts and the export of kernels had been steadily improving during the past few years. ... To keep this industry going as before import of cashewnuts from Africa has to be ensured. The scarcity of freight resulting from the war situation, which is only worsening day by day, threatens this industry." observed the 'Trade Statistics of Travancore State' in its 1940-41 issue (p. viii).

The main conclusions that emerge from the discussion in this sub-section are the following. The progress of the

1 Trade Statistics of Travancore, Government Press, Trivandrum, ~~Kerala~~.

processing industry in India was rather spasmodic. The facts of the industry state that the processing industry was first established in India. The raw nuts available in India were insufficient for the great stride India made in kernel exports. At this time there was already a substantial production of raw nuts in Portuguese Africa. As will be seen, the same was true of Mozambique which accounted for almost the entire exports of raw nuts to India during the early years (see Table 4.2.4). For reasons to be examined the African country chose to export the raw nuts rather than processing them at home. It is the supply of raw nuts in India and substantial imports of raw nuts from Africa that enabled India to attain her unenviable position in the kernel exports.

The growth of the processing industry in India has been sudden and the same was possible only with the help of African raw nuts. Thus, there is no scope to suppose that the raw nut production in Africa during the early years was insufficient to initiate a native processing industry, and hence there is no scope to suppose that the early exports were inevitable due to their smallness. Mozambique had the necessary supply of raw nuts while India was yet to attain her monopoly position in kernel exports. Whereas, purely from the point of view of raw material supply the African country was in equally good position as was India,

why it exported raw nuts and let India become the monopoly exporter of kernels is examined in the subsequent sections.

4.2.2 Trade Theories

As stated earlier, the international distribution of the industry has to be explained with reference to the factors to which attention has been drawn by the various international trade theories. The various trade theories are briefly examined below.

(A) Factor Proportions Account :- As an explanation of comparative cost differences in footloose manufacturing industries this version of trade theory relies on four assumptions: (i) factor immobility across the national boundaries, (ii) production functions permit the unambiguous classification of commodities according to factor intensity, (iii) all countries possess equal technology, and (iv) constant returns to scale.

As a modification and improvement of the comparative cost theory, factor substitution is allowed, in which case the countries will not be using the same technique. The primary function of the fourth assumption is to place all producers on an equal footing regardless of their home market.

(B) The Scale Economy Account :- The simplest form of this version assumes that the countries possess the same production circumstances: identical labour force, capital

stock, natural resources and ability to improve technology. Trade is then guaranteed by different consumption preferences.¹

The Scale Economy Account essentially asserts that the country with the largest home market tends to specialize in those commodities which exhibit the greatest scale economies.

"Scale economy trade may, therefore, be defined as commerce which arises from economies of scale—static or dynamic—which are harvested to a different extent by each nation owing to variations in home market size."²

Static scale economies assumes the same technology, viz., two plants using the same technology and that one plant is merely an enlarged version of the other. Static scale economies as characterized above are internal to the plant, and not internal to the firm. Once a firm has built its plant, nothing will enhance the static scale economies of that plant. But dynamic scale economies are a different matter. Dynamic economies in the international context are an explanation of international technological disparities.³ These economies accrue due to the reduction in costs

1 G. C. Hufbauer, Synthetic Materials and the Theory of International Trade, Gerald Duckworth & Co. Ltd., London, 1966, p. 22.

2 Ibid, pp. 22-23.

3 Ibid, p. 21.

resulting from better technology. Better technology itself, however, is a privilege of greater 'production experience'.¹ Dynamic scale economies accrue to a country which is able to develop itself technology ahead of the others. The advancement in technology usually goes hand in hand with 'production experience'. The exponents of the Scale Economy Account school hold that countries with large domestic market will have greater 'production experience', hence will be technological leaders; thus they only reap dynamic scale economies.²

All the while the exponents of this interpretation of trade, insist, that a country should need have a dominating home market to export a commodity. In contradiction to this, S. Hirsch observes that, "This reasoning is fallacious once international trade is admitted into the economic model. If each national industry were to regard the world as the relevant market for its output, the scale of its manufacturing facilities need not be determined by the size of the domestic market."³ On the other hand he grants a good domestic market may still prove advantageous in another way. The economies available here are not internal to the

1 Ibid, pp. 46-52.

2 Ibid, p. 26.

3 S. Hirsch, Location of Industry and International Competitiveness, Clarendon Press, Oxford, 1967, p. 52.

plant, but external to it, nevertheless, internal to the firm. The economies are in marketing costs, i.e., a firm which has a greater domestic market will have a lower total marketing costs and hence more price competitive as compared to the other which has to sell a large portion of its output outside the national boundaries.¹

Another explanation of trade which runs almost parallel to Scale Economy Account is one put forth by S. Burenstan-Linder. He maintains, "It is a necessary but not a sufficient condition that a product be consumed in the home country for this product to be a potential export product. The range of exportable products is determined by internal demand."²

(C) The Technological Gap Account :- The Technological Gap Account presents an alternative to the theory advanced by the Scale Economy Account regarding the exploitation of static scale economies. According to the Technological Gap Theory a small country which innovates may yet build a larger plant; but the Scale Economy Account simply asserts that the country with the greatest home market builds the largest plant, regardless when it begins production.³ Similarly for the exponents of Technological

1 Ibid, p. 53.

2 Ibid, p. 13.

3 G. C. Hufbever, op.cit., pp. 26-27.

Gap theory "temporal differences in undertaking production may condition the exploitation of dynamic scale economies more than pre-existing differences in home market size. The innovating country may, solely as a result of larger accumulated production volume, improve its technology ahead of other nations."¹

Technological gap trade is "the impermanent commerce which initially arises from the exporting nations industrial break through, and which is prolonged by static and dynamic scale economies flowing from that break through."² According to the advocates of the thought, technological gap exports "do not normally originate in low wage countries. Such exports depend upon scientific and industrial leadership: discovering, developing and marketing the new product ahead of other countries. And this leadership is not typical of low-wage countries. Instead technological gap exports are usually characteristic of high wage countries."³ "But less developed nations can lay claim to another species of industrial export: low wage trade. By low wage trade is meant exports from low wage countries to high wage countries which are predicated on lower wage costs. ... although low wage exports could occur in almost

1 Ibid, pp. 26-27.

2 Ibid, p. 29.

3 Ibid, p. 30.

any commodity, they are ordinarily constrained to older industrial products."¹ The exponents of the school state that the full Technological Gap account "consists of the temporal sequences of technological gap trade followed by low wage trade. And since we have assumed that high wage countries normally furnish the leadership in discovering new products, it follows that technological gap trade and low wage trade will ordinarily flow in opposite directions rather than emanating from the same country."²

An important criticism levelled against this version of trade theory is that it refers to a single firm which had the privilege of enjoying an 'imitation lag' behind it, and the picture gets distorted when applied to the whole country.³ This apart, it seems probable that this interpretation of trade has a limited application to industries where economies of scale are significant. Further, where the innovating firm is able to cater to only a fringe of the market there is less possibility of reaping the economies in any substantial way as is supposed.

(D) Product Cycle Approach :- According to the Product Cycle Approach every industry passes through certain phases of growth. At each phase some inputs become more

1 Ibid, p. 30.

2 Ibid, p. 31.

3 Ibid, p. 28.

critical and are used more intensively. The advocates of the thought also group the countries according to the stage of their development and attribute some critical factors (inputs) as characteristic of some one stage of development. They later proceed on to say that each group of countries will specialize in industries at some one particular stage of growth.

Leaning as it does, in spite of this grouping, on Factor Proportions Account theory, it is an improvement over the latter, for it incorporates technological change. While it does so, it defines the factors of production more *broadly* than the former and implicitly assumes that countries at different stages of development are better endowed with certain type of factors of production and proceeds to postulate an explanation of trade through technological growth of the industries.

The number of phases that can be thought of during an industry's growth is left to one's discretion. It is also possible certain industries may not pass through all the stages or may fail to reach maturity. For illustration S. Hirsch divides the industry's growth into three phases.¹

New Phase :- At this stage the product is new. The stage is characterized by short runs of production since the technique is rapidly changing. The dependence on

1 S. Hirsch, op. cit., pp. 17-41.

external economies is low. Critical human factor required is of scientific and engineering type.

Growth Phase :- The second phase of the cycle is the phase during which products begin to enter the stage of mass production, mass distribution and mass consumption. The skills of organization and of frequent adjustment of the production process are most crucial at this stage.

Maturity :- As the market gets saturated the process becomes more or less capital intensive than in the previous phase and the optimal size of the unit becomes larger. Consequently economies of scale become an important factor in determining the competitive strength of individual manufacturer.

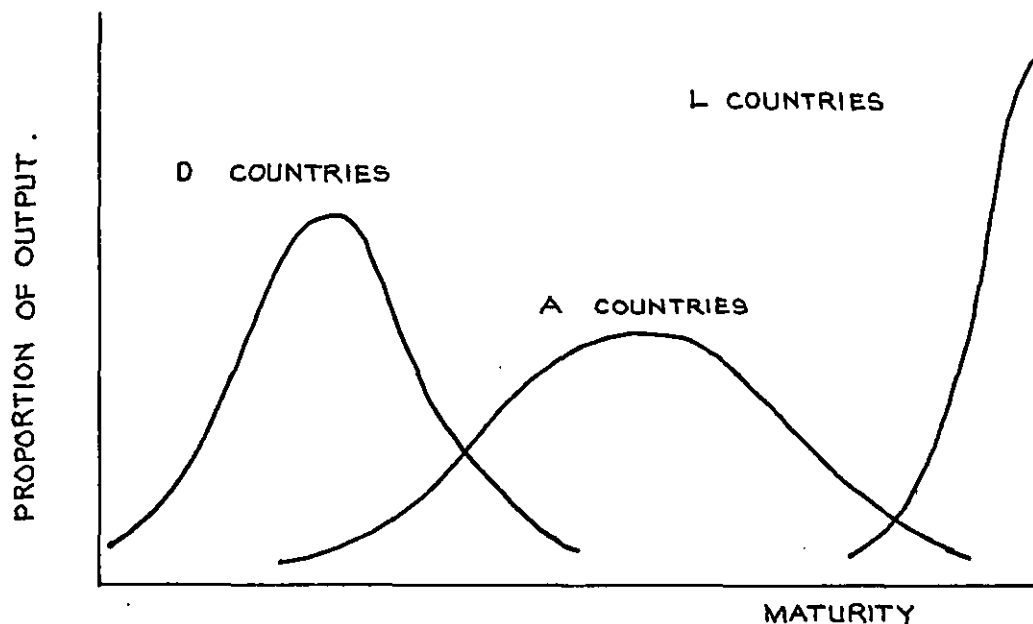
Assuming that critical factors are available at a lower price in some countries than in others, they will specialize in industries at certain stage of maturity as depicted by Chart No.

The Product Cycle Approach superimposes its logic on the transition of a new good to maturity. As per the school "A product is considered new if (1) it is manufactured by a method which were not previously used by the industry (2) it is based on a recent innovation or unfamiliar developments."¹ "New products contain a high proportion of scientific and engineering inputs."²

1 Ibid, p. 18.

2 Ibid, p. 19.

CHART NO. 3. OUTPUT OF EXPORT AND IMPORT
COMPETING INDUSTRIES IN THE THREE COUNTRY GROUPS
FREQUENCY DISTRIBUTIONS



A ADVANCED INDUSTRIAL ECONOMIES , e.g. U.S.A. , U.K.
D SMALLER DEVELOPED ECONOMIES , e.g. HOLLAND , ISRAEL ,
L LESS DEVELOPED ECONOMIES e.g. INDIA , TURKEY.
Source: S. Hirsch , Location of Industry and International
Competitiveness p.40

**4.2.3 Trade Theories and International Distribution
of Cashew Processing Industry**

The nature of trade theory put forth by S. Burenstam Linder is of little or no utility here. For, cashew industry in its location and trade, stands as an anti-thesis to the main hypothesis that a good need have a substantial home market, to be produced and traded. Likewise the Scale Economy Account which is more relevant of industries where the output of the optimum plant is substantial as compared to the size of some of the markets and where there are significant economies of scale. Apart from this like the former, it too insists on the prerequisite of a home market. Cashew industry developed without one.

The cashew processing industry had its origin in India. Naturally, the technical know-how of processing the raw nuts was familiar here earlier than it was known elsewhere. The Technological Gap Account would suggest that this could be one of the factors which led to the continued localization of the industry in India and also later to India's virtual monopoly, in world exports of kernels. Technological gap trade is characterized by static and dynamic scale economies. Also, technological gap exports are characteristic of high wage countries (developed countries). These factors do not permit one to apply the Technological Gap version of trade, to the situation found in the cashew processing industry. Further there was no revolutionary technical know-how involved in the processing of cashewnuts which needed an 'imitation lag'. What forbade the developed countries from having a processing industry of their own was the lack of availability of raw nuts and the weight losing nature of the process.

Technological Gap theory made flexible, need not restrict itself to differences in technical know-how in the employment of capital, i.e., degree of sophistication in the mechanical part of manufacturing. It can be extended to include differences in labour efficiencies also. Thus, the advocates of the theory claim that "A large part of

technology inevitably consists of labour's familiarity with the product and process at hand and often times this familiarity cannot be easily communicated to a foreign country."¹ Labours' unfamiliarity, i.e., an inferior labour skill in respect of a particular industry according to the advocates of Technological Gap theory is due to the time lag with which a country enters the international competition of the industry. Further, the time lag according to them is imposed due to the lack of technical know-how on the part of the country concerned.

Firstly, an inferior labour skill in respect of a particular industry may not be always a result of late entry. It is possible due to its lower level of economic development the general level of labour skills in the country itself is comparatively low; hence the skill in respect of any particular industry. In other words, the countries at the lower stage of economic development may take a longer time to train their labour for the skill required by any new industry. As will be seen the African raw nut exporting countries, (apart from other reasons also), faced a situation similar as above.

Secondly, the time lag, apart from the lack of technical know-how could be imposed by a stringent supply of any of the factors of production. It has been already

1 G. C. Hufbauer, op.cit., pp. 27-28.

noted that the technology employed in the processing industry being crude could not have prevented the African raw nut exporting countries from starting a processing industry. The factors which could forbid or delay a country's establishing the processing industry were insufficient supply of any one or all of the following : basic material viz., raw nuts, labour, labour skill, capital or entrepreneurial factor.

It has already been seen that an insufficient raw nut supply in the early years did not act as a constraint on the African countries, while the Indian processing industry was developing (see sub-section 4.2.1). The raw nut exporting countries in Africa could have faced a stringent supply of other factors. The same in later years could have put those countries in a disadvantageous position from the point of view of labour skill required by the processing industry. However, the inferior labour skill in respect of the processing industry the African countries faced in later years cannot explain the international distribution of the industry on the lines set by the Technological Gap theory. Though the inferior labour skill in the processing industry could be partly due to time lag, the time lag itself as against what is emphasized by the advocates of Technological Gap theory was not due to lack of technical know-how; on the other hand as will be seen it was due to other factors of production. To state that the

African countries which possessed the basic raw material failed to develop a processing industry because they lacked a suitable supply of other factors viz., labour, capital or entrepreneurial factor, is to explain the international distribution of the industry on the basis of Factors Proportions Account theory.

The Product Cycle Approach phased the growth of an industry into many distinct stages. At each stage some factors become critical. The factors of production defined by them are grouped and attributed as characteristic of some one stage of economic development. Thus, it is possible for a country to specialize in those industries which are at a particular stage of their growth, where the critical factors are an attribute of the country's economic development. Also, at different stages of an industry's growth different countries specialize. Hence the dispersal of the industry will vary from one stage to the other. The basic assumption of the above school that certain factors are an attribute of particular stages of economic development is questionable. Countries in the same stage may not be equally endowed with critical factors of an industry.

Like many other industries the cashew industry may not have different dispersals at different stages of its growth. The processing technology may improve; the raw material which is the crucial (critical) factor now, will continue to be so. The Product Cycle Approach is more

relevant to footloose industries. It is also less amenable to explain the failure of African raw nut exporting countries to develop a native processing industry.

The Factor Proportions Account and the Cashewnut Industry :- No verification of the Comparative Cost advantage theory (Factor Proportions Account) can be attempted here as it would need the information regarding costs relating to all industries located in the trading countries. The mere magnitude of the problem and the sheer impossibility of getting the relevant data precludes for an individual researcher, the venture. There is but one indirect way out. One has to confine the comparison to a single industry and if possible to an important factor and interpret the results with the broader background. The following quotation helps to advance the argument. "If factor substitution is impossible and technology is the same everywhere, output per man-year must also be the same everywhere. For in every country, a man works with the same quantity of capital and enjoys access to the same know-how. Accordingly, to the extent wages per man-year are lower in one country than another, profits per man year must be higher. Broadly speaking the two components of income—wages and profits—constitute the sum total of a man-year's output in manufacturing endeavour, and the total must be everywhere identical."¹ According to Factor Proportions

1 Ibid, p. 18.

Account international "wage-profit ratio differences decide comparative advantage and hence the direction in which trade flows. Wage-profit ratio differences can only determine trading patterns, however, if there are no returns to scale and if all countries enjoy approximately the same technology."¹ In other words, according to the above view a comparison of wage-profit ratio should suffice. As regards the conditions required for such a comparison they are met with. S. Hirsch argued the economies of scale internal to the plant are irrelevant in international context when, for the trading countries, markets are open beyond the national frontiers. Those economies in marketing that may accrue to a producer whose domestic market is larger than the external market, do not feature here. The monopoly suppliers of cashew kernels or cashewnuts (raw) hardly sell within their countries the processed (in the factories) nuts i.e., kernels. As regards the technology, since the cost comparisons should refer to the early years of the industry the technology being crude would not differ between places. (Even through passage of time, there has not been many revolutionary changes in the processing of cashew until recently. The changes have occurred only during 1960's.) As regards output per man-hour when the other things are same, it will be shown India was at an advantage.

1 Ibid, p. 66.

Thus, if a processing industry was established in Africa during the early years its competitiveness with the Indian counterpart can be understood by comparing the wage-profit ratio in India with hypothetical calculation of the same in the case of Africa. The main costs in the industry were (they are still in India) raw material and labour; the technology being crude construction costs were small and can be ignored. The market for kernels whether produced in India or Africa was U.S.A. and hence price of the product would be similar for the competing countries. Basic material i.e., raw nuts, being available at home both for India and Africa, raw nut costs would be more or less similar. Under the assumptions that the price of the product and raw nuts were similar, and construction costs being insignificant ignored, the competitiveness of an early African processing industry with the Indian can be learnt by examining the wage rates.

The main East African countries that export raw nuts to India at present are Mozambique, Tanzania (Tanganyika) and Kenya. However, it is only in the recent years the latter two have been exporting substantial quantities. In the early years, until the late forties Mozambique accounted for much of the exports (Table 4.2.4). In 1947, share of Kenya and Tanzania was only 2 per cent of the total exports from East Africa.

Table 4.2.4 : Exports of Raw Cashewnuts from Mozambique, Tanzania and Kenya, 1947-68 (Quantity in Tonnes)

Year	Mozambique	Tanzania	Kenya
1947	50,467	1,301	60
1948	45,481	5,678	70
1949	42,869	3,608	47
1950	68,791	6,637	142
1951	44,087	8,296	73
1952	47,337	11,692	41
1953	55,846	11,540	72
1954	58,976	16,560	940
1955	49,047	18,495	197
1956	37,964	17,010	1,921
1957	68,231	34,191	1,742
1958	95,972	31,813	1,773
1959	61,903	33,742	1,942
1960	56,851	37,307	4,886
1961	85,600	40,600	5,500
1962	82,400	60,000	2,000
1963	121,900	43,200	5,100
1964	127,800	56,700	4,700
1965	98,700	64,700	6,700
1966	77,200	72,200	5,600
1967	56,200	70,900	7,800
1968	132,100	79,700	8,600

Source : 1947-60 - Cashew Export Promotion Council, Ernakulam.

1961-67 - Yearbook International Trade Statistics, United Nations, New York.

The possibility of developing a cashew processing industry on the basis of raw material availability (and due to the weight losing nature of the process) is relevant of Mozambique alone. Of others it can be granted that cashew cultivation developed as a consequence to the needs of the Indian industry.¹ It is said in the case of British East Africa, "Export production sprang up along side the subsistence production of the African farmer. ..."² Even if these countries ventured an industry of their own the labour skill gap would have posed a serious handicap, in the absence of an alternative capital intensive technique. The labour cost comparisons between India and raw nut exporting countries need be confined to such a comparison between India and Mozambique.

African Labour :- Statistics regarding wages that prevailed in Mozambique and India during the early years of the industry are absent. But an examination of the labour factor in Africa and its salient features, as will be seen, suffice to convince India's advantageous position.

1 The late starting of cashew crop in the second half of the thirties in the British East Africa is evidenced by the following sources: (a) Annual Report Development of Agriculture, Kenya Colonial Protectorate, 1937, p. 106; (b) Economic Conditions in East Africa, Department of Overseas Trade, Uganda, Kenya, Tanganyika and Zanzibar Protectorate, 1934, p. 71.

2 B. van Arkdie and D. Chai, "The East African Economies", in P. Robson and D. A. Lury (ed.), The Economies of Africa, George Allen and Unwin Ltd., London, 1969, p. 319.

"On a first view, the distinguishing feature of labour problems in Africa is the inadequacy of the supply of labour to demand."¹ "Ever since European enterprise was established private employers complained of an insufficient labour supply."² The reasons behind this low labour supply were two. First, the African countries had low populations. This resulted in smaller number of persons who would be categorized as potential labour force. Second, the unwillingness of the African labourer to assimilate himself in the organized work system. This rendered the numbers in the 'potential' labour force and that in the 'actual', wide apart. The economically active population (potential labour force) and the number of wage earners in the African countries, which are of interest here, are given in Table 4.2.5. The wage earners, in Table 4.2.4, are not the entire 'actual' labour force. It is that part of it, which was available for the exchange economy, and is more relevant for the present purpose.

Their low population and the consequent lower potential labour force, are biological factors. The unwillingness of the African labour to work is a social factor. Resultant

1 Lord Hailey, An African Survey, A Study of Problems Arising in Africa South of Sahara, Oxford University Press, 1938, p. 603.

2 C. Leubuscher, Tanganyika Territory, A Study of Economic Policy under Mandate, Oxford University Press, 1944, p. 69.

Table 4.2.5 : Economically Active Population and Labour Force in East Africa

	Africans						Non-Africans		
	(1) Economically Active Male Population		(2) Wage Earners		(3) (2) as percentage of (1)		(4) Econo- mically Active Popula- tion	(5) Wage Earners	(6) (4) as percentage of (5)
	1935	1955	1938	1955	1938	1955			
Mozambique	1,121,750	1,507,500	N.A.	542,746	N.A.	36.0	33,101 (1950)	29,448 (1950)	88.9
Kenya	657,000	1,453,750	172,760	434,577	26.2	29.9	N.A.	43,668 (1954)	N.A.
Tanganyika (Tanzania)	1,276,500	2,051,250	207,106	389,220	16.2	18.9	33,558 (1952)	N.A.	N.A.
Uganda	911,000	1,325,000	72,680	225,453	7.9	17.0	N.A.	9,974 (1954)	N.A.

N. A. = Not Available.

Source : African Labour Survey, I.L.O., Geneva, 1958, p. 666.

upon his failure to adjust to the sudden changes in social and economic environments imposed by the capitalistic mode, the African worker shrunk from the regulations of the factory work which had no counterpart in his tribal life. "The introduction of capitalistic undertakings in Africa found a population that had little incentive to improve its subsistence by wage-earning, and ^{since} it was inexperienced in the use of money it was slow to react to the stimulus of cash inducements."¹

A consequence of the African labourer's refusal to offer his services voluntarily was to acquire it from him by force. Labour conscription which in most countries is a resort during the times of emergency was used in almost entire Africa all along, even during the twentieth century, until recently. The privilege was exercised by the government and also by the private bodies when possible. After the Second World War, the coffee industry in British East Africa suffered a serious setback when it was denied the privilege of 'recruiting' the labour. Hence, the importance and also the necessity of forced labour.²

The African worker, thus, when he worked, did so to some extent under force. No sooner the obligation was over

1 Lord Hailey, op.cit., p. 604.

he immediately returned to his tribal life. And when he actually worked, due to his unwillingness to work, his productivity was very low; unwillingness, which was a social consequence of the modern capitalistic organization being forced on him. "Perhaps the most important (and the most neglected) influences affecting the work effectiveness of the Africans in the organized system of the European type undertaking, concern the cultural and mental factors conditioning his attitude to work in general and that type of work in particular."¹ Further there was another type of unwillingness to work. Unfamiliarity of work leading to unwillingness to work which too led to a lower output per labour hour.

The low productivity of an African labourer was due, apart from the above-mentioned factors, due also to the high turnover of labour. Most of the labour used was migrant in character. The East Africa Royal Commission Report accepting the otherwise unskilled nature of the labour available, observes: "It is probable, that the main factor is the impermanence of the labour and its reluctance to form part of a settled labour force."²

The low productivity of labour and its high turnover, together had their influence on labour cost. The general

1 African Labour Survey, I.L.O., Geneva, 1958, p. 140.

2 East Africa Royal Commission 1953-55 Report, Her Majesty's Stationery Office, London, 1955, p. 153.

wage rates otherwise for the unskilled labour were low, though skilled labourers were (are) difficult to get even at high rates. As facilities for acquiring skill were not highly developed, great mass of the labour availability was deplorably unskilled. Thus in Africa the factor of labour understandably needed "much more training and adaptation before being suitable for employment in any Western type of industrial organization. Industrial skills of all kinds have always been short in supply. ..." ¹ Inevitably the cost of training labour was a burden of some magnitude in the early years for any new type of enterprise. Having "regard to the quality and quantity of service obtained in nature" ² the wage costs tended to be high in spite of the fact that wage rates were low.

Mozambique :- The salient features of labour factor in Africa, discussed above, are true of Mozambique also.

The low economically active population in this Portuguese colony is evident from Table 4.2.5. Of this only 36 per cent were employed in the exchange economy.

The forced labour which was practised in the African countries was very much in vogue in the Portuguese territories. In the Portuguese colonies of Africa "A native not

1 The Economies of East Africa A Study of Trends, East African Railway and Harbours Administration, Nairobi, 1955, p. 130.

2 East Africa Royal Commission 1953-55 Report, p. 106.

having a fixed place of abode or means of subsistence, and not habitually engaged in any profession, occupation, or trade, was liable to be required to work either for public services or for a private employer."¹ "In Portuguese Africa where forced labour has long been used by private companies as well as Government services, the economy is dangerously compromised with the system."²

The social factors which slowed down the assimilation of African labour into the modern organized work system played their role here too. In addition the colony suffered a further drain on its already thin labour resources. The social factors constrained the supply from what can be called the potential labour force. The drain was on the actual labour force. "The flow of Negro workers to the South African mines was a pointed issue from 1900."³ The workers from Mozambique and Angola were drawn across the frontiers into the Congo, Rhodesia and South Africa by the lure of higher wages.⁴ Powerless to halt the yearly migration the Portuguese entered into formal agreements with the concerned governments, whereby the interest of the

1 Lord Hailey, op.cit., p. 623.

2 Antonio de Figueiredo, Portugal and Its Empire: The Truth, A book that will help people to understand Angola, Victor Gollancz Ltd., London, 1961, p. 102.

3 James Duffy, Portuguese Africa, Harvard University Press, Cambridge, Massachusetts, 1959, p. 169.

4 Ibid, pp. 168-72.

province, the mine owners and the Africans would be mutually protected. "The Transval mining industry was permitted to continue to recruit in Mocambique [Mozambique] in return for a guarantee that a percentage of the Transval railway traffic passed through the port Lorenzo Marques [Mozambique]."¹ "From 1904 to the present the Transval mines have taken from 60,000 to 115,000 Africans from Mocambique each year, the peak coming in 1928-29. For fifty years these recruits have been the backbone of the mines labour force."² This subordination of the available supply for another part of Africa consequently suffered the needs of Mozambique's large farms. Thus it became a favourite theme in colonial studies, to blame Mozambique's slow progress, on the lack of working hands.

It is helpful to look at certain overall dimensional facts. The most optimistic estimate of the labour supply that was available for the exchange economy in Mozambique in 1935, can be put around 403,825. This is under the assumption, as in 1950's a 36 per cent of the economically active population offered its services in the exchange (Table 4.2.5). By any argument the actual percentage should be less than this. If from this a lakh migrated every year to the mines of South Africa the actual labour supply to

1 James Duffey, op.cit., p. 170.

2 Ibid, p. 171.

the exchange economy in 1935 in Mozambique will^{ba} only around 3 lakhs. As compared to this Mozambique would have required around 10,000 persons to process the raw nuts exported from her, which averaged around 27,500 tonnes during the period. The industry's claim would have involved a keen competition for labour, having regard to the fact that the State's important crops like cotton, rubber, coffee and sisal suffered constantly due to lack of hands.

The quality of labour in Mozambique like its quantity was no better, even as compared to the other African countries. The low skills was partly a doing of the imperial power. "The Portuguese, do not approve of a policy of creating native intelligentsia; they place no restrictions on higher education of natives ..."¹ but there was little positive encouragement of mass education. Thus "With a per capita expenditure of less than £1 a year per African child of school age, it is not surprising that the rate of illiteracy in Mocambique remains at over ninety-nine per cent."²

The slow development of the labour skills can partly be evidenced by the fact that manufacturing industry had made little progress even as late as 1950 (Table 4.2.6). Like the absence of formal education the lack of growth in

1 Bryce J.M. Nairn, O.B.E., Portuguese East Africa (Mocambique), Her Majesty's Stationery Office, London, 1955, p. 43.

2 Antonio De Figueiredo, op.cit., p. 112.

industrial activities also tells upon the development of skills.

Table 4.2.6 : Structure of the Economically Active Population, Mozambique : 1950

	Number employed	Per- centage
Agriculture, Forestry, Hunting and Fishing	1,261,377	75.3
Mining and Quarrying	1,875	0.1
Manufacturing	78,134	4.7
Construction, electricity, gas, water and sanitary services	19,354	1.2
Commerce	23,093	1.4
Transport, storage and communication	16,099	1.0
Services	115,493	6.9
Activities not adequately described	157,404	9.4
Total	1,672,829	100.0

Source : Yearbook of Labour Statistics, 1966, I.L.O.,
Geneva, p. 51.

Capital and entrepreneurial initiative are the important factors which influence the growth of the industry. As Mozambique was not favourably endowed with these factors the industrial growth in Mozambique had a recent origin. Not many decades ago the manufacturing industry and the

labour skill which is usually a consequence of it, were both almost extinct in the Portuguese colony.

Like the other African countries it is said that the wages in Mozambique were low. The "average salary of Africans does not exceed three shillings a day which is less than the price of a cinema ticket."¹ The African wages were low in comparison to the industrialized nations. As compared with India, particularly the wages that are relevant here i.e., those exist in the cashew processing industry (in Quilon where the industry enjoys a good supply of female labour), the African wages were high. With a labour productivity which was always much lower than that existing in India, the labour costs were necessarily higher. This will be true even of Mozambique where the wages were lowest. Thus cashew were "exported to India for shelling before being re-exported to the United States because to have this work done would be more expensive than the labour of Indian women."²

The labour costs were high partly due to low productivity of labour. Labour skill on the other hand depended on the growth of industrial activity. If the absence of labour skill is one of the factors which held the industrial growth

1 Ibid, p. 115.

2 Ibid.

the other factors too were not congenial in Mocambique [Mozambique]. During the time of Salazar's the intention of Portugal all along has been to maintain and perpetuate the legacy of history. The legacy has been to replace the natural development of the provinces by artificial stimuli and restrictions and even of milking the colonies for the profit of the metropolis.¹ "Such an atmosphere of monopoly and restrictive practice was not, indeed, calculated to promote economic growth even in much more favourable circumstances than those of early twentieth century."²

If that was the policy of the government, the private enterprise from home too had little to do with the colony. This was partly due to the fact that unlike the other European countries industrial growth in Portugal was not in match with its political achievements. Lack of private initiative was partly due to the disenchantment of the various companies that were granted concession in 1890's.³ These companies were exploratory and speculative. Their hopes lay in the discovery of substantial mineral deposits, the success of large scale projects and the getting of concessions within the territory. The companies were later

1 James Duffey, op.cit., p. 279.

2 R. J. Hammond, Portugal and Africa 1815-1910, The Food Research Institute, Stanford University Press, 1966, p. 301.

3 Ibid, p. 300.

a financial burden and disappointment to the State and the investors.¹

While the private enterprise was hesitant to come forth, government policy in fact encouraged this capital shyness. The Colonial Act of 1930 apart from it provided for the nationalization of colonial economies, "it prohibited the use of African labour by private companies and individuals."²

If the private enterprise from Portugal did not show any interest in the colonies, the native enterprise was non-existent. Enterprise from the other European countries could not have been allowed an incursion. It is from these other European countries, apart from the natives, the colony had to be safeguarded.

Of availability of capital as such, less spoken the better. Capital available in the colony with the natives was thin. Moreover Portugal itself depended on the colony for its continuous trade deficits.³

From the above discussion the main factors, that could have inhibited the possibility of Mozambique's establishing a cashew processing industry were five: (1) scarcity

1 James Duffey, op.cit., p. 90.

2 Ibid, p. 279.

3 Antonio De Figueiredo, op.cit., p. 110.

of labour, (ii) scarcity of labour skills, (iii) high labour costs, (iv) capital shyness, and (v) lack of entrepreneurial initiative. To explain the international distribution of any industry on the basis of any or all of the above-mentioned factors, is to draw upon the main tenets of the Factor Proportions Approach interpretation of international trade. Of the five factors listed above, the second mentioned is only a break-up of the broader labour factor by the levels of skill. India possessed better skills in all respects. To develop any industry, if the other factors were equally available, India would have been in an advantageous position as compared with the African countries. Cashew processing industry could not be an exception.

4.3 : Location of Cashewnut Processing Industry in India

4.3.1 Indigenous Supply of Raw Nuts as a Factor Influencing the Growth of the Industry

The process of decorticating cashewnuts into kernels is of weight losing nature. As mentioned earlier four tonnes of raw nuts are required to produce one tonne of kernels. The industry thus is located where the material is available. Though cashewnut crop is said to be growing on variety of soils, amenable it can be cultivated on sandy soils. The main areas growing cashewnut in India are those lining the coast of its peninsular part. The West coast accounts for a major portion of the area and the crop (81 per cent in 1964-65, see Table 4.3.2). The concentration of the cashewnut processing industry thus is found on this coast. Apart from the availability of raw material, the coastal locations were favourable from two other points of view. The cashewnut processing industry in India owes its establishment and existence to foreign demand for kernels. Also, from the inception of the industry there is perceptible an acute dependence on raw nuts imported from East Africa. Both for exporting kernels and importing raw nuts coastal locations are advantageous.

The statistics relating to production of cashewnut during the early period of the processing industry are not

available. The earliest and the only reference to cashewnut production is found in Census Report of Madras for the year 1930-31. "The production of the raw nuts in South Kanara is estimated at about 70,000 to 80,000 bags of 140 lbs. each [4,500 to 5,000 tonnes] while an equal quantity is produced in the adjacent parts of Malabar, Cochin and Travancore some of which is imported into Mangalore. The east coast¹ districts account for 110,000 bags [6,300 tonnes]. The total production in India, therefore, is about 300,000 bags [18,900 tonnes]."² There could be some cultivation of cashewnut on the Konkan coast; the same, however, has to be inferred from the early establishment of the processing industry in Ratnagiri and Goa.

The location of cashewnut processing industry within India was mainly influenced by the availability of local raw material. The industry had its origin in Mangalore and the available information suggests that during 1920's it had not taken strong roots in other places. The Census Report for Madras for the year 1931 states: "The production of cashewnut kernels is an important industry on the west

1 This refers to the coastal districts in the present Andhra Pradesh and Madras States.

2 Census of India, 1931, Vol. XIV, Madras, Part I Report, p. 222. The production estimates given in the source can be over-estimates as generally is the case with the estimates made in recent times. This apart even at present a good part of the production does not reach the industry.

and east coasts, particularly the former, Mangalore being the chief centre. ... There are five or six factories in Mangalore engaged in the industry which provide employment for about 4,000 persons mostly women and the annual wage bill amounts to about 4 1/2 lakhs of rupees."¹ There is no reference to the processing industry in the 1931 Census Report for Travancore; the industry however is mentioned in the 1941 Census Report for the State. The industry from Mangalore later spread to Quilon, Calicut and Trichur. During 1920's these were small units located in Ratnagiri in Maharashtra; Goa soon followed the suit. In the States of Madras and Andhra Pradesh, the industry has a more recent origin. The growth of the industry during the period 1931-47 has already been presented in Table 4.2.1. Its growth in different places during the period 1949-66 is presented in Table 4.3.1.

The processing industry in Mysore (Mangalore), Maharashtra (Ratnagiri) and in Goa has an origin as early as (or earlier than) that of the industry in Kerala (Quilon). It can be learnt by referring to Tables 4.2.1 and 4.3.1 that over the years the industry has progressed only in Kerala.

The districts of Alleppy and Trivandrum are adjacent to the district of Quilon. The districts in Kerala being

1 Ibid, p. 222.

Table 4.3.1 : Number of Units and Employment in Cashewnut Processing Industry, 1949-65

State	Kerala																	Kerala (A.S.I.)		
	Cannanore		Kozhikode		Trichur		Ernakulam		Alleppy		Kottayam		Quilon		Trivandrum		Total		A	B
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B		
1949	2	755	1	993	1	83	2	694	3	872	-	-	107	35,255	1	280	117	38,392	N.A.	N.A.
1952	2	595	2	1,059	1	2	2	369	3	1,619	-	-	147	40,108	5	1,923	162	45,675	N.A.	N.A.
1953	2	723	2	1,299	1	50	2	750	4	1,750	-	-	149	50,260	5	1,770	165	56,602	N.A.	N.A.
1954	2	718	2	1,314	5	1,009	2	745	4	1,531	-	-	135	46,016	6	2,494	156	53,827	N.A.	N.A.
1955	3	1,169	2	1,265	1	250	1	100	4	1,531	-	-	141	44,922	6	2,494	158	51,731	N.A.	N.A.
1956	3	1,233	2	1,400	6	1,756	3	909	4	1,905	-	-	136	50,247	4	2,312	158	59,762	N.A.	N.A.
1957	2	1,168	2	1,237	8	2,212	2	471	4	2,148	-	-	146	56,608	2	1,055	166	62,899	N.A.	N.A.
1958	2	1,191	2	1,223	8	2,987	2	750	4	2,000	-	-	150	56,821	5	2,436	173	67,408	N.A.	N.A.
1959	-	-	-	-	-	-	-	-	N.A.	-	-	-	-	-	-	-	-	-	123	52,407 ¹
1960	-	-	-	-	-	-	-	-	N.A.	-	-	-	-	-	-	-	-	-	129	62,246
1961	-	-	-	-	-	-	-	-	N.A.	-	-	-	-	-	-	-	-	-	152	73,720
1962	2	813	2	955	8	1,980	3	756	6	5,749	-	-	162	64,360	5	2,235	188	76,880	150	69,061 ²
1963	4	1,625	3	1,328	9	2,175	3	766	6	6,202	-	-	167	64,373	5	2,496	197	78,965	153	73,551
1964	4	1,402	3	1,356	9	1,796	4	1,304	6	6,466	-	-	167	68,321	6	3,205	199	83,850	163	76,275 ³
1965	4	1,380	3	1,328	9	1,810	11	1,431	6	6,564	-	-	177	72,648	6	3,476	209	88,637	164	81,521 ⁴
1966	5	1,328	3	1,304	10	1,993	4	1,427	6	6,441	1	100	196	76,092	13	3,967	238	92,652	N.A.	N.A.

A = Number of Units. B = Number Employed.

N. A. = Not Available.

(continued)

Notes : 1 - Employment refers to 118 units who sent the returns.

2 - Employment refers to 149 units who sent the returns.

3 - Employment refers to 159 units who sent the returns.

4 - Employment refers to 160 units who sent the returns.

Table 4.3.1 : (continued)

State	Mysore		Maharashtra		Andhra Pradesh								Madras		Goa			
	South Kanara (Mangalore)		Ratnagiri (Malvan and Vengurla)		Guntur (Vetapalam)		Nellore		East Godavari		Srikakulam (Palasa)		Total		South Arcot (Panruti)		Bicholim	
Year	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1949	8	5,765	12	2,230	2	31	-	-	4	60	-	-	6	91	-	-	N.A.	N.A.
1952	9	6,733	5	1,270	5	259	-	-	5	71	10	322	20	652	1	23	N.A.	N.A.
1953	10	7,502	6	1,224	4	217	1	14	3	46	10	367	18	644	4	46	N.A.	N.A.
1954	10	7,586	5	1,163	4	246	2	25	3	59	11	436	20	766	7	183	N.A.	N.A.
1955	9	7,406	4	866	3	147	2	24	3	67	12	453	20	691	6	114	N.A.	N.A.
1956	N.A.	N.A.	4	842	3	148	2	20	3	79	11	371	19	618	6	118	N.A.	N.A.
1957	8	5,061	3	744	4	198	3	48	3	53	12	396	22	695	6	90	N.A.	N.A.
1958	8	4,476	3	750	10	295	2	32	3	71	13	446	28	844	6	88	4	502
1959	10	6,878	3	754	-	-	-	-	N. A.	-	-	-	-	-	N.A.	N.A.	4	895
1960	10	6,063	3	755	-	-	-	-	N. A.	-	-	-	2	88	N.A.	N.A.	2	388
1961	10 ⁵	5,941	4	737	-	-	-	-	N. A.	-	-	-	-	-	N. A.	N.A.	5	1,520
1962	10	5,971	4	705	-	-	-	-	N.A.	-	-	-	-	-	N.A.	N.A.	6	1,319
1963	9	6,244	4	652 ⁶	-	-	-	-	N. A.	-	-	-	-	-	3	1,269	6	1,791
1964	8	5,870	5	943	-	-	-	-	N. A.	-	-	-	5	234	4	1,202 ⁷	6	1,381
1965	8	5,614	5	729	-	-	-	-	N. A.	-	-	-	5	217	4	1,844	10	342

Notes : 5 - Includes one unit belonging to Madras State.

6 - Employment refers to 3 units who sent the returns.

7 - Employment refers to 3 units who sent the returns.

Source : (i) List of Large Industrial Establishment in India, for all the States for the years 1949 to 1958.

(ii) An Economic Review, Kerala, for Kerala for the years 1962 to 1966.

(iii) A. S. I., for all the States except for Goa for the years 1959 to 1965 and for Goa for the year 1965.

(iv) Statistical Yearbook, Goa, Daman and Diu, for the years 1958 to 1964.

small in their geographical extent, the processing units in the former two districts are at near proximity to Quilon where the industry is localized. It can be learnt from Table 4.3.1 the three districts, Quilon, Alleppy and Trivandrum together accounted for more than 90 per cent of the total number of units and employment in the industry in Kerala.

Thus, broadly the industry has grown in and around Quilon. In other centres, whether in Kerala where Quilon is located or in centres in other States, the industry has shown little progress.

As was the case with its location, the growth of the industry also can be partly explained by the availability of indigenous raw nuts. The production of raw cashewnut in the various States of India during 1950's and 1960's is given in Table 4.3.2.¹

The State of Kerala accounted for the major share of the cashewnut production. This should partly explain the rapid growth of the industry in Quilon. However, Quilon was not the only processing centre in Kerala which could have availed of the raw material produced in the State. The cashewnut processing units in Calicut were established as early as 1941. From the production figures given in

¹ Agricultural Statistics of India provides Statewise acreage figures from 1950-51 onwards. The source does not give statistics relating to production of cashewnuts.

Table 4.3.2 : Production of Raw Cashewnut in India, 1956-57, 1957-58, 1960-61 and 1964-65 (in Tonnes)

State	1956-57	1957-58	1960-61	1964-65
Kerala	58,674	69,098	85,800	84,649
Mysore	3,565	4,248	11,173	12,687
Maharashtra	5,275	5,370	N.A.	1,210
Andhra Pradesh	2,771	3,208	2,275	3,157
Madras	11,816	13,391	15,850	16,039
Other	-	-	-	3,335
Total	82,101	95,315	117,224	121,077

Source : For the years 1956-57 to 1960-61: Study on Cashewnuts in India, Committee on Natural Resources, Planning Commission, New Delhi, 1964, p. 8.

For the year 1964-65: Report of the Working Group for the Formulation of Fourth Five Year Plan Proposals on Spices and Cashewnut, Indian Council of Agricultural Research, New Delhi, 1965, p. 25.

Table 4.3.2 for Kerala, it is not possible to indicate whether Quilon had any advantage over Calicut as regards the supply of indigenous raw nuts. Fortunately in the case of Kerala where cashewnut is an important crop district-wise figures of cashewnut production are available. The data are presented in Table 4.3.3.

Cashewnut cultivation in Kerala spans the entire State. This brings to light one other fact that the

Table 4.3.3 : Districtwise Production of Raw Cashewnut in Kerala, 1956-57 to 1964-65
(in Tonnes)

District	1956-57	1957-58	1958-59	1959-60	1960-61	1961-62	1962-63	1963-64	1964-65
Cannanore	7,153	9,490	10,079	10,242	10,242	9,917	31,657	32,898	34,911
Kozhikode (Calicut)	6,655	7,417	7,862	15,170	16,207	16,704	13,464	13,756	14,853
Palghat	2,814	2,997	3,492	5,092	5,064	5,348	7,444	8,163	8,989
Trichur	17,202	13,991	13,695	13,108	13,841	13,068	10,445	8,992	8,972
Ernakulam	-	11,268	10,884	10,645	10,140	11,075	7,512	7,795	8,412
Kottayam	6,625	2,774	3,189	3,356	3,507	3,572	2,570	2,423	1,557
Alleppey	-	3,658	4,237	4,552	4,600	4,640	3,338	2,876	3,086
Quilon	12,884	10,729	10,593	11,910	13,887	14,510	10,427	11,780	11,706
Trivandrum	5,344	6,777	8,491	7,623	7,146	6,969	5,189	3,707	3,903
Total	58,677	69,101	72,522	81,678	84,634	85,803	92,046	92,316	96,463

Source : Season and Crop Report, Kerala State, Government of Kerala, Trivandrum, 1956-57 to 1964-65.

Statewise production figures obliterated. Mangalore is located adjacent to the northern-most boundary of Kerala. Mysore State, which may be taken at first sight to be the supply region for Mangalore, has but little production. The centre's actual supply region extends beyond the State frontier. Mangalore could get supplies of raw nuts from Cannanore district of Kerala.

In Mysore the cultivation of cashewnut was confined to the coastal districts of South and North Kanaras. The districtwise breakdown of the States cashewnut production is given in Table 4.3.4.

Table 4.3.4 : Districtwise Production of Raw Cashewnut in Mysore State 1956-57 to 1961-62 (in Tonnes)

District	1956-57	1957-58	1958-59	1959-60	1960-61	1961-62
South Kanara	2,077	3,285	3,646	3,221	3,480	9,714
North Kanara	1,299	1,461	1,521	2,359	2,170	1,787
Kolar	368	388	208	179	178	244
Coorg	195	205	241	235	245	
Others	52	63	100	94	142	
Total	3,991	5,402	5,716	6,088	6,215	11,745

- Source :** (a) For the years 1956-57 to 1960-61: Area Production and Yield Per Acre of Principal Food and Non-Food Crops, Department of Statistics, Government of Mysore, Bangalore (mimeographed).
 (b) For the year 1961-62, courtesy: Department of Statistics, Government of Mysore, Bangalore.

The geographical location of the growing areas in Mysore rendered it convenient to process the State's cashewnut produce in Mangalore. In addition the processing centre had adjacent to it, in the south, the cashewnut growing areas of northern Malabar. However, even after granting that the raw nuts from Cannanore district of Kerala could be advantageously supplied to Mangalore, the centre was not in as much a favourable position as Quilon was. Relatively, from the indigenous raw material supply point of view, Quilon was in a better position. This conclusion has further support. The backwaters and the canal system which provided cheap and easy transportation was continuous along the coast, only upto Calicut. Road transport is not only expensive but was not developed till late 1950's. Bridges across the streams that thread the coast are of a recent origin.

From the districtwise production of raw cashewnut in Kerala as given in Table 4.3.3 it is difficult to say which of the two centres, Quilon and Calicut, was in a better position. It is fairly clear, leaving aside Calicut, Quilon was in an advantageous position as compared with the other processing centres from the point of view of indigenous raw material supply. Calicut, however, could have had an equally good supply of indigenous raw nuts as could Quilon.

4.3.2 Import Supply of Raw Nuts

The supply of indigenous raw nuts, it was seen, was

insufficient to meet the growing demand for kernels even during the early years after the industry was established in India. The Indian industry could attain its present monopolistic position only with the help of imported raw nuts. To facilitate both the imports of raw nuts and exports of kernels the processing centres were established on the coast. As regards facilities provided by different processing centres for such imports and exports, Quilon by its own port was in no way in an advantageous position. As a commercial centre and trading port Quilon was of a lesser importance when compared with Mangalore. Among the coastal towns which possessed cashewnut processing industry Calicut by far was the most important as a port.

The lesser importance of Quilon as a port, however, was made up by the nearness of a bigger port. The port of Cochin is at a convenient distance from Quilon. Further the processing centre was connected with Cochin by an efficient canal system. This rendered transportation cheap. The facilities provided by the port of Cochin proved of crucial advantage to the processing industry in Quilon in two ways. Immediately after the War there was an increase in demand for cashew kernels from U.S.A. This necessitated heavier imports of raw nuts. Due to the war conditions fewer ships touched the smaller ports. There was a diversion of trade to the nearest big port from the smaller ports. In the West Coast south of Mangalore such diversion was

through the port of Cochin. "More ships called at the port and shipping space was easier to obtain there than at any Travancore port."¹ As compared with the processing centres in Kerala and Mangalore in Mysore, Quilon was in an advantageous position. As said earlier, the centre was most conveniently situated from the port of Cochin as compared with Mangalore or Calicut. The increased demand for cashew kernels from U.S.A. helped the industry in Quilon alone.

Another reason why the nearness of Cochin port proved helpful to the industry in Quilon is the following. The smaller ports of Mangalore, Calicut, Quilon and Ratnagiri close during the monsoon. As the demand for kernels increased steeply, it was an inevitable feature that both the imports of raw nuts and exports of kernels had to be continuous throughout the year. Such imports of raw nuts and exports of kernels during the rainy season again had to be diverted through the nearest bigger port which is open for traffic. This cost the processing industry in almost all the centres. These costs, however, were less for Quilon because of the nearness of Cochin port and the availability of cheap water transport.

Due to the above cited reasons imports of raw nuts from Africa and exports of kernels from India were

1 Trade Statistics of Travancore, 1940-41, p. vi.

increasingly effected through the port of Cochin. This can be learnt from Table 4.3.5. The Table also testifies the fact that both imports of raw nuts and exports of kernels through the smaller port Mangalore declined immediately after the War.

Table 4.3.5 : Imports of Raw Cashewnuts into and Exports of Cashew Kernels from Cochin and Mangalore 1937-38 to 1949-50 (in Tonnes)

Year	Imports of Raw Nuts into		Exports of Kernels from	
	Cochin	Mangalore	Cochin	Mangalore
1937-38	-	6,428	8,031	3,085
1938-39	1,891	5,212	7,864	4,247
1939-40	2,140	2,938	9,779	1,555
1940-41	3,210	1,772	13,454	1,349
1941-42	17,826	2,526	16,167	464
1942-43	4,316	113	4,074	65
1943-44	-	-	4,408	21
1944-45	-	-	7,540	215
1945-46	13,037	-	13,846	366
1946-47	22,065	381	14,097	1,511
1947-48	37,723	1,281	15,737	-
1948-49	40,205	1,284	16,254	1,827
1949-50	22,459	3,213	14,183	1,431

Source : Annual Reports of the Cochin Chamber of Commerce, Cochin.

A situation which was in favour of Quilon during the war time continued even after. Due to the decision of the Government of India to instal a naval base in Cochin, the facilities at the port increased. Trade and traffic through Cochin port increased considerably; this affected the smaller ports like Mangalore, Calicut, Alleppy and Quilon.

The processing centres in Andhra Pradesh and Madras were of a recent origin. The industry in Quilon had by then attained a sufficient localization. The advantage, if any, of these centres over Quilon, during the time when the industry made its stride in the latter, is less relevant now. These processing centres, however, were in a less advantageous position as regards processing imported raw nuts purely from the transport cost point of view. The processing centres in Ratnagiri though they were old centres, were in a worse position than either Mangalore or Calicut as regards imported raw nuts. The ports of Ratnagiri as trading centres were of a lesser importance and had less cargo traffic passing through them. The same, however, cannot be said about the industry in Goa. The port of Marmagoa could facilitate both imports of raw nuts and exports of kernels. The industry here had an early origin. It had locational advantages similar to those enjoyed by Quilon for processing the imported raw nuts, perhaps better.

4.3.3 Other Factors

Labour :- The most important processing cost in the industry is labour cost. 'Report on An Enquiry into Conditions of Labour in the Cashewnut Processing Industry in India'¹ provides information regarding wages in the industry in different States for the year 1952. From the data provided in the above source it is not possible to compute labour cost per tonne of kernels and hence know the advantage of different centres in respect of the cost item. However, from the data it can be suggested that, as it is at present, some of the smaller centres like those in Ratnagiri District of Maharashtra and those in Andhra Pradesh had a labour cost advantage over the localized centre Quilon. Nevertheless, as will be seen, this advantage for smaller centres was of not much avail. Cheap labour need not always reflect its abundance. The availability of labour as a factor conditioning the growth of the industry irrespective of the cost advantage, will be discussed in a later section.

Entrepreneurial Initiative :- Another factor whose influence cannot be quantitatively estimated but which played an important role in the localisation of the industry in Quilon was entrepreneurial initiative. This again has

¹ Report on An Enquiry into Conditions of Labour in the Cashewnut Processing Industry in India, Labour Bureau, Ministry of Labour, Simla, 1954.

to be learnt from the gradual development of labour resources by the entrepreneurs in Quilon.

The early units in Quilon were large and were located in the town. As the demand for kernels shot up, the labour required to process the increased quantity of raw nuts was not available in the town. It could be found only in the interior of the district where there was surplus labour in agriculture. But as the processors went interior in search of labour the size of units had to be smaller due to the lesser density of population. It can be seen from Table 4.3.6 that within a few years after the war there was a mushroom growth of units which were small in size. The swarming of investors was partly due to the low capital requirement of the industry.

Table 4.3.6 : Distribution of Units and Employment according to Number of Persons Employed: Cashewnut Processing Industry, Quilon, 1945

Size Group by No. of Persons Employed	No. of units	Employment
Less than 100	27 (18.49)	1,820 (4.75)
101 - 250	65 (44.52)	10,932 (28.54)
251 - 500	36 (24.66)	12,242 (31.96)
500 and above	18 (12.33)	13,314 (34.75)
Total	146 (100.00)	38,308 (100.00)

Note : Figures in brackets indicate the percentage of the total falling in the particular size group.

Basis : Large Industrial Establishments in India, 1946.

To a great extent credit should be given to the pioneering enterprises for the idea of utilizing the cheap agricultural labour available in the interior. Throughout the history of localisation of the industry in Quilon there has been a concentration of the industry in a few hands. A single ownership which accounted for more than 15 per cent of the employment throughout, accounted for nearly 25 per cent of the labour force engaged in the industry in the year 1964.¹ The firm with few others played a significant role in the early localisation of the industry in Quilon. Table 4.3.7 provides the relevant data to prove the same.

In the year 1941-42 the entire industry was within seven hands. In the next year, five of the firms accounted for 62 per cent of the total number of units and 70 per cent of the total employment. In the year 1945 the big three firms concentrated in them 29 per cent of the total number of units and 43 per cent of the total employment. In the same year seven other firms which individually owned units ranging from 4 to 10 in number, accounted for 23 per cent of the total number of units in existence and 21 per cent of the employment in the district. On the whole, 10 firms owned 52 per cent of a total of 146 units in existence and accounted for 64 per cent of the labour employed in the industry in the district.

1 The firm was Musaliar Industries.

Table 4.3.7 : Concentration of Ownership : Cashew Processing Industry in Quilon, 1938-39, 1941-42, 1942-43 and 1945

	1938-39		1941-42		1942-43		1945	
	No. of units	Employment	No. of units	Employment	No. of units	Employment	No. of units	Employment
Firm A	2	5,000	5	7,260	5	7,260	20	9,597
Firm B	-	-	3	2,050	3	1,550	12	3,890
Firm C	-	-	3	1,620	2	970	10	3,110
Total for the three firms	2	5,000	11	10,930	10	9,780	42	16,597
Total for the District	34	19,120	30	19,557	29	19,270	146	38,308
Percentage share of the three firms in the District Total	5.88	26.15	36.67	55.89	34.48	50.75	28.77	43.33

Basis : (a) For the years 1938-39, 1941-42 and 1942-43: Statistics of Travancore, XXXXX, Government of Travancore, Trivandrum, 1938-39, 1941-42 and 1942-43.

(b) For the year 1945: Large Industrial Establishments in India, 1946.

Ingenuity of the entrepreneurship in Quilon can be found in one other sphere. It saved on what was already a meagre capital requirement. In Quilon cashew processing units are sheds where roasted cashewnuts are shelled and peeled. The roasting of cashew raw nuts is concentrated in one place, from where it is distributed to the shelling and peeling sheds under the firm. Like roasting, grading also is concentrated. The saving due to centralizing the operation of roasting was considerable when the units had to instal 'oil-bath' plants for roasting. The capital investment in an 'oil-bath roasting' plant was much greater than its predecessor 'drum roasting'.

One other reason often voiced and an excuse offered by the processors in Mangalore for their failure to develop the processing industry was that labour legislation and factory laws in the erstwhile State of Travancore were less strict and imposed. Except the processing centres in Ratnagiri which was then under the Bombay Presidency and Goa which was a Portuguese colony, other centres were under the Madras Presidency as was Mangalore. The above privilege helped the employers in Quilon to get more out of their workers than the processors elsewhere. It helped them in one other way. In the absence of a Government statute requiring them to provide the labour with some prescribed minimum conditions of work, most of the so-called factories

were deplorably bad. The construction of a factory building was easy both in terms of time and money. It was enough to roof a thatch over a bamboo wall. Even in the year 1962-63 as many as 22.36 per cent of the total number of sheds had thatched roofs and 8.08 per cent had bamboo walls, while 24.84 per cent had 'dwarf wall with trellis.'¹

¹ J. T. Chirayath, A Study on the Cashew Industry in Kerala, Industry Study Series Report No. 1, Labour and Industrial Bureau, Trivandrum, 1965, pp. 52-55.

4.4 : Locational Advantage: Processing Costs

In the last section it was observed that the growth of the cashew processing industry in its different centres depended mainly on two factors. The availability of indigenous raw material and the ability of a particular processing centre to augment the indigenous supply with imported raw nuts.

The processing centre in Quilon was in an advantageous position as regards the indigenous supply of material. The indigenous supply of the material is mainly concentrated in the State of Kerala. The processing centres in other States would have had to bear a higher cost on transporting the material from Kerala to the respective centre. As regards the raw nuts imported from Africa too, Quilon had a transport cost advantage over most of the smaller centres.

There is another item of transport cost in the cashew processing industry apart from that on the basic material cashew raw nuts. This refers to the transport cost on the product (cashew kernels) from the processing centre to the market, i.e., the port from where the exports of kernels take place.

Whatever be their transport cost disadvantage, if the smaller centres had a compensating advantage over Quilon in processing costs, it should have been possible for them

to bear the higher cost of transportation on the material or/and on the product.

The processing industry, at present, is concentrated in Quilon, though in many of the smaller centres it has a history as long as that in the former. An attempt is made in this study to examine whether the smaller centres had a net cost (processing cost + transport cost) advantage over Quilon and have failed in spite of such advantage. If such instances have occurred, the factors that led to the stunted growth of the industry in those places are looked into.

An enquiry into the industry on the above-stated lines requires a discussion on the processing costs and the transport costs for different centres. The present section deals with the processing costs. It examines whether the smaller centres had any processing cost advantage over the localized centre, Quilon. In the next section, the advantage of smaller centres over Quilon is compared by taking into account both transport costs and processing costs.

4.4.1 Use of A.S.I. Data and the Method of Cost Computation

Unlike the two other industry studies, in the case of cashew industry, the A.S.I. data were found useful. At present in most of the States where the industry exists, it is concentrated in some one centre. Thus, the Statewise

information given in the A.S.I. could be conveniently used as representative of the particular centre. The name of the respective centre(s) where the industry is localized in each State is given in Table 4.4.1.

Table 4.4.1 : The States Where the Cashew Processing Industry Exists and the Centre Where It Is Concentrated in Each of These States and the Districts in which the Centre is Located

Name of the State	Name of the Centre	The District in which the centre is located
Kerala	Quilon	Quilon
Mysore	Mangalore	South Kanara
Maharashtra	Malwan and Vengurla	Ratnagiri
Andhra Pradesh	Palasa Vetapalam	Srikkulam Guntur
Madras	Panruti	South Arcot
Goa	Bicholim	Bicholim

In Andhra Pradesh, the industry is located in four districts, East Godavari, Guntur, Nellore and Srikkulam; the relative concentration is in Vetapalam in Guntur and Palasa in Srikkulam. The industry in Nellore district is located in Nellore city which is at close proximity to Vetapalam in Guntur. There are only a few stray units in Mori in East Godavari, away from other centres in the State.

Due to the availability of secondary source of information provided in the A.S.I., the survey of the industry was limited to only those centres of which some qualitative information was felt necessary. Such centres were Mangalore, Calicut, Quilon, Ratnagiri and Goa.

With the help of A.S.I. data, the cost of producing a tonne of cashew kernels (main product of the industry) in the various States where the industry is located, is calculated. However, the entire production costs are not processing costs; the latter form a part of the former. After a brief discussion, the items of processing costs that are relevant for the present purpose are selected. Before presenting the cost computations, it is necessary to describe the form of A.S.I. data and the method employed in computing the costs.

The form of A.S.I. data is presented below. The breakdown of the Gross Value of output and Input, as given in the source, is shown separately.

The Gross Value of output is given under the following heads:

I. Products and by-products

- (a) Cashew kernel
- (b) Cashew shell
- (c) Cashew shell oil
- (d) Cashew rejection
- (e) Others

II. Addition in stocks of semi-finished products

III. Work done for customers

IV. Sale value of goods sold in the same condition as purchased

The Gross Value of Inputs is given under the following heads:

I. Materials consumed

(a) Basic materials

- (i) Cashewnut in shell (Raw cashewnut)
- (ii) Others
- (iii) Chemicals and auxiliary materials

(b) Packing materials

- (i) Tinsplate containers
- (ii) Packing cases
- (iii) Others

(c) Consumable stores

(d) Materials consumed for repair and maintenance

II. Fuel, electricity, lubricants, etc.

III. Salaries, wages and benefits or privileges

- (a) Workers
- (b) Persons other than workers
- (c) Money value of benefits or privileges

IV. Work done by other concerns

V. Inward transport charges, purchase agency services, taxes and duties on purchase, postage, stationery and printing etc.

VI. Non-industrial services purchased

VII. Product reported for sale but used for further manufacture

VIII. Depreciation

IX. Purchase value of goods sold in same condition as purchased

In the following paragraphs, for convenience, the components of Gross Value of Output have been referred to as income heads and the inputs have been referred to as cost items.

From the A.S.I. data, the item IV from the list of income heads and the cost item IX have been omitted from consideration, as they do not form an integral part of the processing industry.

A brief description of the method employed in computing the costs is given below:

Enquiries made from knowledgeable persons in the industry revealed that certain costs are exclusively incurred over certain income heads. The various costs thus had to be apportioned between the different income heads.

The cost items I(a), I(c), I(d), II, III(a) and III(c) are distributed over 'Cashew kernels' and 'Cashew rejection'. The expenditure on cost item I(b), it was learnt, is mainly incurred on the main product 'Cashew kernel'. The cost Item III(b), it was learnt, is incurred over other income heads also. The cost items III(b) and IV to VIII are distributed over the entire output.

The costs in the present study are calculated per tonne of main product, i.e., cashew kernels. The method used for converting the other products and earnings into the main product is given below.

Gross Value of
Output for
State A,

$$V_A = V_A^1 + V_A^2 + V_A^3 + V_A^4 + \text{Value of other products for State A} + \text{Value of Addition in stocks from semi-finished goods for State A} + \text{Value from 'Work done for customers' for State A}$$

where V_A^1 , V_A^2 , V_A^3 , and V_A^4 are values from 'Cashew kernel', 'Cashew shell', 'Cashew shell oil' and 'Cashew rejection' for State A.

V_A^1 , V_A^2 , V_A^3 and V_A^4 are arrived at the following way:

$$V_A^1 = Q_A^1 \times P^1$$

$$V_A^2 = Q_A^2 \times P^2$$

$$V_A^3 = Q_A^3 \times P^3$$

$$V_A^4 = Q_A^4 \times P^4$$

where Q_A^1 , Q_A^2 , Q_A^3 and Q_A^4 are quantities of 'Cashew kernel', 'Cashew shell', 'Cashew shell oil' and 'Cashew rejection' produced in State A and P^1 , P^2 , P^3 and P^4 are the weighted average prices for 'Cashew kernel', 'Cashew shell', 'Cashew shell oil' and 'Cashew rejection' for the entire industry in India.

The cost items I(a), I(c), I(d), II, III(a) and III(c) are distributed over 'Cashew kernel' and 'Cashew rejection'. Calculating the cost per unit of output for State A, in respect of any of these items is demonstrated by taking the case of cost item I(a):

$$\text{Cost on item I(a)} \\ \text{per tonne of} \\ \text{kernels} = \frac{\text{Expenditure on item I(a)}}{Q_A^1 + Q_A^4 \times \frac{P^4}{P^1}}$$

Most of the expenditure on cost item I(b) is incurred on the main product, kernels. Unit costs as regards this item is calculated thus :

$$\text{Cost on item I(b)} \\ \text{per tonne of} \\ \text{kernels} = \frac{\text{Expenditure on cost item I(b)}}{Q_A^1}$$

The cost items III(b) and IV to VIII are distributed over the entire output. Below is demonstrated, the calculating of cost per unit of output in respect of these items. The case of cost item V is taken for illustration.

$$\text{Cost on item V} \\ \text{per tonne of} \\ \text{kernels} = \frac{\text{Expenditure on item V}}{\frac{V_A}{P^1}}$$

In the present study costs are not calculated per unit value of output. In other words, the differences in prices for their products (and services) secured by the industry in different States have not been taken into account. Such price differences have been assumed away.

As per the A.S.I. data, it was found, the industry in Maharashtra, Goa, Madras and Andhra Pradesh secured better prices for their products. The industry in these States realized their output in the internal markets. The internal

markets now offer better prices as compared to the prices secured in the export market by the industry in Mysore and Kerala. The higher prices in the internal markets are due to the smallness of the quantities sold. Once bulk supplies are dumped, the prices in the internal markets are bound to slump, for, as yet cashew^{kernel} is a luxury to most Indians. The price advantage enjoyed by some of the centres in the past was of quasi type and may not persist in the future. It is for these reasons that the cost computations here assume away the price differences and therefore are calculated per unit of output.

The A.S.I. commenced from the year 1959. Cashew processing industry has been included from the first year. However, except for the year 1964 (the latest available), the source does not cover all the States where the industry exists. The cost of producing a tonne of kernels in the various States has been calculated for the years for which the data were available. Table 4.4.2(a) to (f) present the data.

As mentioned earlier, the entire production costs are not processing costs. Even when the processing costs have been identified, not all of them need be considered. In the following paragraphs, the relevance of different cost items for the present purpose has been discussed.

**Table 4.4.2(a): Cost of Production Per Tonne of Cashew
Kernels in Different States, 1959 (in Rs.)**

Cost item	State	Kerala	Mysore	Maha- rashtra
Basic materials	}	3,179	2,970	3,454
Packing materials				
Consumable stores				
Materials consumed for repair and maintenance				
Fuel, electricity, lubricants etc.		2	13	6
Total		3,181	2,983	3,460
Wages paid to workers		488	538	262
Money value of benefits or privileges		27	36	1
Total		515	574	263
Salaries paid to persons other than workers		69	57	17
Work done by other concerns*			64 (74)	48 (48)
Inward transport charges, purchase agency services, taxes and duties on pur- chases, postage, stationery and printing etc.		95	40	96
Non-industrial services purchased		43	25	31
Depreciation		6	15	8
Total		213	201	200
Cost per tonne of kernels		3,909	3,758	3,923

* The figures in brackets refer to cost per tonne of kernels due to the item 'Work done by other concerns' when it is treated as an item of labour cost.

Basis : A.S.I., 1959.

Table 4.4.2(b) : Cost of Production Per Tonne of Cashew
Kernels in Different States, 1960 (in Rs.)

Cost item \ State	Kerala	Mysore	Maha- rashtra	Andhra Pradesh
Basic materials	3,116	3,392	3,415	3,052
Packing materials	87	265	282	194
Consumable stores	2	7	20	2
Materials consumed for repair and maintenance	14	18	2	-
Fuel, electricity, lubricants etc.	3	22	4	2
Total	3,222	3,704	3,723	3,250
Wages paid to workers	535	526	264	106
Money value of benefits or privileges	22	30	2	-
Total	557	556	266	106
Salaries paid to persons other than workers	71	51	14	34
Work done by other concerns*	12 (13)	56 (64)	-	59 (59)
Inward transport charges, purchase agency services, taxes and duties on pur- chases, postage, stationery and printing etc.	67	82	89	158
Non-industrial services purchased	22	12	25	18
Depreciation	13	31	11	2
Total	185	232	188[‡]	271
Cost per tonne of kernels	3,964	4,492	4,177	3,627

* The figures in brackets refer to cost per tonne of kernels due to the item 'Work done by other concerns' when it is treated as an item of labour cost.

‡ Includes Rs.49.00 on the item 'Products reported for sale but used for further manufacture'.

Basis : A.S.I., 1960, Vol. II.

**Table 4.4.2(c) : Cost of Production Per Tonne of Cashew
Kernels in Different States, 1961 (in Rs.)**

Cost item	State	Kerala	Mysore*	Maha- rashttra
Basic materials		3,136	3,535	3,417
Packing materials		84	236	289
Consumable stores		5	11	17
Materials consumed for repair and maintenance		19	27	-
Fuel, electricity, lubricants etc.		3	20	6
Total		3,247	3,829	3,729
Wages paid to workers		635	549	243
Money value of benefits or privileges		17	37	2
Total		652	586	245
Salaries paid to persons other than workers		71	53	-
Work done by other concerns**		4 (4)	60 (69)	94 (95)
Inward transport charges, purchase agency services, taxes and duties on purchases, postage, stationery and printing etc.		46	66	58
Non-industrial services purchased		16	13	15
Depreciation		11	21	18
Total		148	213	185
Cost per tonne of kernels		4,047	4,628	4,159

* Refers to 9 units in Mysore and 1 unit in Madras as per the A.S.I.

** The figures in brackets refer to cost per tonne of kernels due to the item 'Work done by other concerns' when it is treated as an item of labour cost.

Basis : A.S.I., 1961, Vol. II.

**Table 4.4.2(d) : Cost of Production Per Tonne of Cashew
Kernels in Different States, 1962 (in Rs.)**

Cost item	State	Kerala	Mysore	Maha- rashtra
Basic materials		2,541	2,800	2,995
Packing materials		87	284	315
Consumable stores		7	9	14
Materials consumed for repair and maintenance		19	32	3
Fuel, electricity, lubricants etc.		3	20	5
Total		2,657	3,145	3,332
Wages paid to workers		708	594	290
Money value of benefits or privileges		22	51	2
Total		730	645	292
Salaries paid to persons other than workers		75	64	14
Work done by other concerns*		7 (8)	66 (80)	107 (107)
Inward transport charges, purchase agency services, taxes and duties on pur- chases, postage, stationery and printing etc.		53	64	84
Non-industrial services purchased		23	24	10
Depreciation		11	28	31
Total		169	246	246
Cost per tonne of kernels		3,556	4,036	3,870

* The figures in brackets refer to cost per tonne of kernels due to the item 'Work done by other concerns' when it is treated as an item of labour cost.

Basis : A.S.I., 1962, Vol. II.

**Table 4.4.2(e) : Cost of Production Per Tonne of Cashew
Kernels in Different States, 1963 (in Rs.)**

Cost item	State	Kerala	Mysore	Maha- rashtra	Madras
Basic materials		2,637	3,006	2,675	2,554
Packing materials		98	310	387	115
Consumable stores		7	15	21	-
Materials consumed for repair and maintenance		18	24	10	5
Fuel, electricity, lubricants etc.		2	22	7	4
Total		2,762	3,377	3,100	2,678
Wages paid to workers		692	573	302	668
Money value of benefits or privileges		46	68	10	18
Total		738	641	312	686
Salaries paid to persons other than workers		66	75	-	52
Work done by other concerns*		7 (7)	27 (35)	104 (104)	4 (5)
Inward transport charges, purchase agency services, taxes and duties on pur- chases, postage, stationery and printing etc.		52	63	98	97
Non-industrial services purchased		21	22	12	17
Depreciation		9	23	32	23
Total		155	210	246	193
Cost per tonne of kernels		3,655	4,228	3,658	3,557

* The figures in brackets refer to cost per tonne of kernels due to the item 'Work done by other concerns' when it is treated as an item of labour cost.

Basis : A.S.I., 1963, Vol. II.

**Table 4.4.2(f) : Cost of Production Per Tonne of Cashew
Kernels in Different States, 1964 (in Rs.)**

State	Kerala	Mysore	Maha- rashtra	Andhra Pradesh	Madras	Goa
Basic materials	3,366	3,961	3,622	3,576	3,308	3,591
Packing materials	131	325	358	240	68	236
Consumable stores	13	12	7	2	10	45
Materials consumed for repair and maintenance	23	30	11	2	7	1
Fuel, electricity, lubricants etc.	6	30	8	3	4	42
Total	3,539	4,358	4,006	3,823	3,397	3,915
Wages paid to workers	715	590	302	189	506	179
Money value of benefits or privileges	58	61	12	2	26	2
Total	773	651	314	191	532	181
Salaries paid to persons other than workers	70	95	17	36	20	44
Work done by other concerns*	8 (8)	44 (56)	86 (86)	117 (118)	2 (2)	323 (327)
Inward transport charges, purchase agency services, taxes and duties on purchases, postage, stationery and printing etc.	58	28	51	327	92	10
Non-industrial services purchased	29	29	18	19	23	25
Depreciation	15	28	22	6	15	90
Total	180	224	194	505	152	492
Cost per tonne of kernels	4,492	5,233	4,514	4,519	4,081	4,588

* The figures in brackets refer to cost per tonne of kernels due to the item 'Work done by other concerns' when it is treated as an item of labour cost.

Basis : A.S.I., 1964, Vol. II.

4.4.2 Identification of Locationally Significant Costs

Basic Materials :- Expenditure on the 'Basic materials' refers to mainly that on 'Cashewnut in shell', i.e., raw cashewnuts. The other two items under the head account form a negligible portion (0.64 per cent for all-India in 1964 - A.S.I.).

In the A.S.I., "the value of Materials etc. consumed is the cost at the factory. It includes the purchase price, transport charges and other incidental costs."¹ Sometimes, 'transport charges and other incidental costs' are included in the cost item 'Inward transport charges, purchase agency services etc.'. The definition of cost item 'Inward transport charges, purchase agency services etc.' in the A.S.I. is as follows: "It is the total incidental expenditure on the purchase of materials etc., such as cost of transport, purchase agency commission, taxes and duties paid etc. which could not be included in the purchase value of any individual item of material etc. It also includes postage, stationery and printing expenses."²

If there was a single source of material for the industry in all the States, and if the transport cost and all the other incidental expenditure was included on the

1 A.S.I., 1964, Vol. II, p. iv.

2 Ibid.

reported value of the basic material, such information could have been utilized here. This, however, is not true. The processing industry in different States depends upon different sources. Also the transport costs appear under two heads, viz., 'Basic materials' and 'Inward transport charges, purchase agency services, etc.'.

The cost of the material at the source it can be assumed is the same for all the centres, wherever they be located and hence can be ignored. What is required to know is transport cost on the material from the various sources to different centres. Transport costs on raw nuts (and also on kernels) have been discussed in the next section. The cost of the material as given in the A.S.I. is not useful for the present purpose and hence is ignored.

Packing Materials :- The expenses on 'Packing materials' cannot be termed as a processing, but however is, one inevitable item in producing cashew kernels to the market. Where the processing industry is localized, an industry exclusively engaged in providing the packing material grows subsidiary to the former. The packing costs, thus, have a locational significance.

Table 4.4.2 includes expenditure incurred on 'Packing materials'. The cost item, however, could not be used in further analysis. According to cost computations presented, the States of Kerala and Madras have the advantage in respect

of the item. In the case of the industry in Madras, it did not use one of the essential items of packing material, i.e., packing cases; the lower costs in the State are partly due to this fact. Apart from this, there are other reasons why the 'Packing materials' costs are lower in some of the States. Firstly, the quality of the packing material used in the various centres differed. The centres which disposed of their product in the internal markets probably did not conform to the standard of packing insisted for exports. The lower costs in respect of this item in Madras and Andhra Pradesh are to a certain extent due to the above reason. The cost per unit of packing material 'Tin plate containers' and 'Packing cases' given in Table 4.4.3 should be an evidence to the effect.

Cashew kernels from Kerala are mostly exported. Hence the industry in the State has to abide by the standards of packing insisted upon by the Export Promotion Council. The lower costs on 'Packing materials' in the State (as evident from Table 4.4.2) have a reason behind. A tonne of kernels requires 88 tin plate containers and 44 packing cases. As can be seen from Table 4.4.4, the industry in Kerala used much less than what the normal requirement is.

The A.S.I. data could have been relied upon if the industry in the different States had conformed to the same

Table 4.4.3 : Cost Per Unit of Packing Material, 1960 to 1964 (in Rs.)

Year	State					
	Kerala	Mysore	Maha- rashtra	Andhra Pradesh	Madras	Goa
(a) Tin Plate Containers						
1960	1.28	2.16	2.23	1.10	N.A.	N.A.
1961	2.06	2.20	2.24	N.A.	N.A.	N.A.
1962	2.05	2.26	2.47	N.A.	N.A.	N.A.
1963	2.15	2.50	2.57	N.A.	1.93	N.A.
1964	2.53	2.57	2.92	1.47	2.23	2.67
(b) Packing Cases						
1960	0.78	1.28	2.03	1.12	N.A.	N.A.
1961	0.87	1.15	1.74	N.A.	N.A.	N.A.
1962	0.96	1.20	1.78	N.A.	N.A.	N.A.
1963	1.01	1.29	1.94	N.A.	-	N.A.
1964	0.99	1.36	1.96	1.73	-	1.95

N. A. = Not Available.

Basis : A.S.I., 1960 to 1964.

quality of the packing material. This, however, was not so. Moreover, one of the packing materials was not used in one of the States (Madras). Though the cost item 'Packing materials' has locational significance, it could not be included in the immediate analysis of the processing costs.

The packing material costs have been discussed separately in later section.

Table 4.4.4 : Packing Material Used Per Tonne of Cashew Kernels in Different States (Quantity in Nos.)
1960 to 1964

Year	State					
	Kerala	Mysore	Mahe- rashtra	Andhra Pradesh	Madras	Goa
(a) Tin Plate Containers						
1960	39.4	84.1	87.6	130.6	N.A.	N.A.
1961	32.0	82.8	87.2	N.A.	N.A.	N.A.
1962	32.9	87.3	89.8	N.A.	N.A.	N.A.
1963	35.5	88.2	103.7	N.A.	53.7	N.A.
1964	41.0	86.8	87.4	120.5	29.9	59.0
(b) Packing Cases						
1960	18.1	40.4	43.0	29.7	N.A.	N.A.
1961	15.7	34.6	41.9	N.A.	N.A.	N.A.
1962	16.0	43.9	40.5	N.A.	N.A.	N.A.
1963	15.9	42.6	48.5	N.A.	-	N.A.
1964	19.5	41.0	41.6	28.0	-	35.7

N. A. = Not Available.

Basis : A.S.I., 1960 to 1964.

Consumable Stores :- 'Consumable stores' as an item of cost is unimportant. Only in rare cases, some States show a slightly higher expenditure on the item. The cost

item is likely to have very little locational significance. Its inclusion on the other hand may distort the picture because of the exceptional cases.

Materials Consumed for Repair and Maintenance:- The item 'Materials consumed on repair and maintenance' is more influenced by the expenditure incurred on the item during the year. Where there are many processing units, heavy expenditure on the item incurred by some may be cancelled by the lower expenditure incurred by some other. This is possible only in the case of the industry in Kerala. The same, however, is not true of the other States where the industry consists in most cases, less than ten units where they are big; a little more in number where they are small. The cost item, it has already been discussed, has scant locational significance.¹ It is more so in the cashew processing industry where the mechanical part is simple.

Fuel, Electricity, Lubricants, Etc.:- 'Fuel, electricity, lubricants, etc.' is a minor item of cost in the industry. The industry mostly uses cashew shell which is a by-product of the industry. The A.S.I. "excludes any fuel manufactured within the factory and consumed within it".² Thus, a major component of fuel costs does not appear in the official statistics. As the fuel used is a

1 See sub-section 2.7.3

2 A.S.I., 1964, Vol. II, p. iv.

by-product of the industry, it remains a fact that fuel costs have little locational significance.

It can be seen, referring to the cost computations made for the year 1964 [Table 4.4.2(f)] the expenditure on the item 'Fuel, electricity, lubricants etc.' are high for the States of Mysore and Andhra Pradesh. The higher expenditure on the item in these two States, it is shown below, has little locational basis.

The high cost on the head 'Fuel, electricity, lubricants etc.' in the case of the industry in Mysore (i.e., Mangalore) is due to the sub-item 'Other fuel oils'.¹ In Mangalore the processing industry employs 'oil bath process' for roasting the cashew raw nuts. The expenses on 'Other fuel oils' is due to this. The oil bath process, however, compensates the extra expenditure. It provides cashew shell oil which is a by-product particular to this method of roasting. The expenditure on 'Other fuel oils', however, is not a necessary part of the processing costs.

In Goa, the higher expenditure on the item 'Fuel, electricity, lubricants etc.' is due to the sub-item 'Petroleum'.² The industry does not use petroleum for processing the raw nuts. The expenditure on the sub-item in all probability is external to the industry.

1 Ibid, p. 132.

2 Ibid.

Inclusion of the cost item 'Fuel, electricity, lubricants etc.' would inflate the processing costs in Mysore and Goa. It need be further stressed again the higher costs due to the above-mentioned cost item has little locational significance. The cost item 'Fuel, electricity, lubricants etc.', thus, has been excluded.

The cost item 'Fuel, electricity, lubricants etc.' has been distributed over 'Cashew kernel' and 'Cashew rejection'. In the case of Mysore where the higher expenditure on the item was due to the method of roasting employed, the cost item could have been distributed over 'Cashew kernel', 'Cashew rejection' and 'Cashew shell oil'. 'Cashew shell oil', as said earlier, is a by-product peculiar to this method of roasting. This contrivance, however, could not have been applied in the case of the industry in Goa. The cost item 'Fuel, electricity, lubricants etc.' remains excluded.

'Wages to workers' [i.e., cost item III(a)] is the most important processing cost. It has locational significance and is included while comparing the processing costs at different centres. The cost item III(c), i.e., 'Money value of benefits or privileges', include those accruing to 'Workers' and to 'Persons other than workers'. As the two components cannot be separated, the item has been added to 'Wages to workers'. The cost items III(a) and III(c) are aggregated and will be called 'Labour Costs' henceforth.

It can be seen referring to the cost computations made for the year 1964 [Table 4.4.2(f)], that 'Labour Costs' are significantly low in the case of the States, Andhra Pradesh and Gos. Labour costs in Maharashtra, too, are low as compared with the States of Kerala, Mysore and Madras. Lower labour costs in some of the States are partly due to the method adopted in compiling the A.S.I. data in the official statistics.

Due to the shortage of labour and its irregularity in some places, the entire processing is not done within the factory premise. A part is done outside, by distributing work at the homes of labourers. 'Report on an Enquiry into Conditions of Labour in the Cashewnut Processing Industry in India' observed that in Guntur district in Andhra Pradesh "the work is given on contract to a person who roasts the nuts and arranges for the shelling through persons employed by him. ... Peeling is done on contract basis and sometimes the work is given out. ..." ¹ In Srikakulam district in Andhra Pradesh "Peeling is done by out-workers ..." ² In Ratnagiri (Maharashtra) peeling is given as out-work. ³ In Goa, according to Dr. I.C. Almeida, "A majority of workers in the cashewnut factory are daily

1 Report on an Enquiry into Conditions of Labour in the Cashewnut Processing Industry in India, Labour Bureau, Ministry of Labour, Simla, 1954, p. 11.

2 Ibid, p. 12.

3 Ibid, p. 10.

wage earners. Some women workers work in their own houses for the factory."¹ In 1969, when the researcher visited the industry in Goa, the processors reported that the entire 'peeling' was done by workers at their homes. The practice of distributing work outside the factory continues in Ratnagiri. In Mangalore (Mysore) part of the peeling is done outside the factory premises.

Thus, part of the labour cost in processing is incurred outside the factory premises. The labourers who are responsible for this part of the work are not in the factory register. Hence in the A.S.I. statistics, the wages paid to them do not appear in item III(a), i.e., 'Wages paid to workers'. As per the definition of different cost items, the above-mentioned labour cost can occur, in the cost item 'Work done by other concerns', which according to A.S.I. definition, "comprises work done by other concerns on repair and maintenance as also manufacturing work done on materials given out to them. The cost of industrial services purchased is inclusive of any transport and other charges incurred in this connection."² (Italics mine.)

The processing industry does not have any manufacturing activity other than decorticating cashews. This is

1 Dr. I.C. Almeida, "The Cashewnut Industry in Goa", Indian Cashew Journal, Export Promotion Council, Ernakulam, August 1962, p. 2.

2 A.S.I., 1964, Vol. II, p. iv.

mostly done by human labour. Thus, any part of the manufacturing carried through outside agencies should refer to labour costs. In other words, where the expenses on the cost item 'Work done by other concerns' is high, it can only be due to the inclusion of the part of the labour costs. The expenditure on the maintenance and repair work done by other concerns should be negligible for the mechanical part of cashew processing is rather simple.

That a part of the processing work in some States is done by labour employed outside the factory premises is evidenced by Table 4.4.5. The Table presents number of man-hours utilized per tonne of kernels in the various States during the year 1964.

Table 4.4.5 : Man-hours Utilized Per Tonne of Cashew Kernels in Different States, 1964

	Kerala	Mysore	Maha- rashtra	Andhra Pradesh	Madras	Goa
Man-hours per tonne	3,649	2,719	2,090	618	4,251	470

Basis : A.S.I., 1964, Vol. II.

Such vast differences in labour input as evident from Table 4.4.5 cannot be due to differences in labour productivity. Moreover, output per labourer should have been higher in Kerala where the labourer has greater experience in the skill. The man-hours given in the A.S.I.

refer to those employed within the factory premises. A part of the man-hours spent in processing, in the case of some of the States, does not appear in the official statistics.

It has been assumed here that part of the cost item 'Work done by other concerns' refers to labour costs. Labour costs have locational significance. However, the part of the item 'Work done by other concerns' which refers to labour costs cannot be separated; the entire cost item has been included among the relevant processing cost items selected for comparison.

Salaries to Persons Other Than Workers:- 'Salaries to persons other than workers' [i.e., item III(b)], is an item of 'scale cost'. It was discussed that the salaries paid to supervisory and managerial personnel were dependent on the particular establishment. In other words, historical factors rather than locational factors influenced the cost item. It is difficult to accept the wide variation in the cost item between the various States (see Table 4.4.2) as entirely due to location. The cost item has not been included in further analysis.

Product Reported for Sale but Used for Further Manufacture :- The cost item 'Product reported for sale but used for further manufacture' appears only once in the case of industry in Maharashtra during the year 1960. The item has been excluded.

Inward Transport Charges, Purchase Agency Services, etc.:- Much of the cost item is accounted for by transport costs on raw nuts; the other sub-items which are less important also do not have any locational significance. Transport costs on raw nuts in the A.S.I., however, may be included under one other head, i.e., 'Basic materials'. Transport costs on raw nuts in the A.S.I. data for any State depends upon the raw material sources which supply the industry in the State. For reasons already cited data relating to transport costs on raw nuts aggregated with other sub-items appearing under different heads in the A.S.I. are not useful. Thus, though much of the cost item 'Inward transport charges, purchase agency services etc.' is accounted for by transport costs on raw nuts which is of locational significance, the cost item remains excluded. In this study, as said earlier, transport costs on raw nuts (and also on kernels) have been dealt with separately.

Non-industrial Services :- 'Non-industrial services purchased' include amounts paid on account of audit fee, accounts and bank charges, legal expenses, insurance charges, local rates and factory licences etc."¹ The cost item is not an important one. It has little locational significance. Referring to Table 4.4.2, it can be seen, the industry in different States had similar expenditure per unit of output

1 Ibid.

in respect of the cost item. The cost item has been excluded.

Depreciation :- Depreciation costs have no locational significance. Depreciation costs in the A.S.I. are as reported by the individual units.¹ It need not be discussed again here that depreciation costs reported are influenced by historical factors and other extra locational factors. Where there are large number of units as is the case in Kerala, the extremes get evened out. The same is not possible where there are a few units and if in a particular year many of them show high depreciation costs due to some new addition to the capital assets, the State's average on depreciation will soar high unrealistically. It can be seen from Table 4.4.2(f) that the depreciation costs varied from Rs. 6 per tonne of output to Rs. 90. Depreciation laws as put down by the income tax authorities are common to all. Above variation in the item should be less due to locational factors.

Locationally significant items of processing costs in the industry are mainly two. These are namely, 'Labour costs' and 'Work done by other concerns'. The former includes 'Wages to workers' and 'Money value of benefits or privileges'. The 'Work done by other concerns' has locational

1 Ibid.

significance as it incorporates part of the labour costs involved in processing.

The inclusion of 'Work done by other concerns', thus, is under the assumption that the cost item is an item of labour cost. 'Labour costs' are distributed over 'Cashew kernel' and 'Cashew rejection'. As a labour cost, 'Work done by other concerns' too has to be distributed only over the above two income heads. The locationally significant processing costs presented in Table 4.4.6 take account of this adjustment.

Table 4.4.6 : Locationally Significant Processing Costs Per Tonne of Cashew Kernels in Different States, 1959-64 (in Rs.)

Year	State					
	Kerala	Mysore	Maha- rashtra	Andhra Pradesh	Madras	Goa
1959	515	648	311	N.A.	N.A.	N.A.
1960	570	620	266	165	N.A.	N.A.
1961	656	655	340	N.A.	N.A.	N.A.
1962	738	725	399	N.A.	N.A.	N.A.
1963	745	676	406	N.A.	691	N.A.
1964	781	707	400	309	534	508

N.A. = Not Available.

Basis : Table 4.4.2.

The A.S.I. covers all the States where at present the industry exists, only for the year 1964. The comparison

of processing costs in different States can be done only in respect of this year. Table 4.4.7 presents processing cost advantage of other centres (represented by respective States) over Quilon (represented by Kerala).

Table 4.4.7 : Processing Cost Advantage of Other Centres Over Quilon (Kerala) Per Tonne of Cashew Kernels, 1964 (in Rs.)

Centre	
Mangalore (Mysore)	+ 74
Malwan and Vengurla (Maharashtra)	+ 381
Palasa and Vetapalam (Andhra Pradesh)	+ 472
Panruti (Madras)	+ 247
Bicholim (Goa)	+ 273

Except in the case of industry in Mysore, i.e., Mangalore, elsewhere the smaller centres had a significant processing cost advantage over Quilon (represented by Kerala). Their advantage was due to low labour costs. As regards the industry in Andhra Pradesh and Maharashtra, it can be broadly stated that such advantage existed as long back as 1953 (see p.506). Perhaps with some latitude one can say the industry in Goa too could have had such advantage in the past. In the case of the industry in Madras there is reason to doubt the magnitude of centre's advantage given in Table 4.4.7. It can be learnt by referring to Tables 4.4.2(e) and 4.4.2(f) that labour costs

in Madras declined steeply from the year 1963 to 1964. A small decline in the wage costs from one year to the subsequent is possible; however, the steep fall as seen in case of Madras seems less probable. In the case of Madras, if one takes into account the wages that prevailed in 1963 as representative of wage costs in the State, much of the cost advantage indicated in respect of the State in Table 4.4.7 is lost.

Some of the smaller centres had labour cost advantage over Quilon in the past. Such advantage increased over time. The industry is concentrated in Kerala (i.e., Quilon and around). Wages in the State have been statutorily fixed since 1953. These wages have been since then revised many times. As compared to this the industry elsewhere has not drawn the State's attention.

The industry in Kerala is concentrated in Quilon. The cost computation in respect of the State it is assumed reflects costs in Quilon. Calicut in North Malabar is one of the oldest processing centres in India. The wages in Kerala are statutorily fixed. They are uniform throughout the State.¹ Even before the wages were statutorily regulated

1 J. T. Chirayath, op.cit., pp. 83-86.

'Piece rates' for shelling and peeling prescribed were same throughout the State. Besides, dearness allowance for the labourers in the industry is based on the Quilon cost of living index and is uniform throughout the State. It can be recalled that the above statutory regulation of wages in Kerala is in contrast to that in the case of roofing tile industry in the State, wherein both basic wage and dearness allowance differed from region to region.

Calicut being a commercial centre possibly had no labour cost advantage over Quilon. Broadly it can be said that Calicut did not have any significant processing cost advantage over Quilon in the past.

Post Script to Section 4.4

While the draft of cashewnut processing industry was completed the A.S.I. volume for the year 1965 was available. Costs have been computed for the year below.

Table A : Cost of Production Per Tonne of Cashew Kernels in Different States, 1965 (in Rs.)

State	Kerala	Mysore	Maha- rashtra	Andhra Pradesh	Madras	Goa
Basic materials	3,741	4,184	4,211	4,012	3,855	3,958
Packing materials	154	378	402	289	285	285
Consumable stores	13	14	5	1	19	15
Materials consumed for repair and maintenance	33	34	22	1	33	14
Fuel, electricity, lubricants etc.	5	40	15	2	35	35
Total	3,946	4,650	4,655	4,305	4,227	4,307
Wages paid to workers	797	608	360	192	661	277
Money value of benefits and privileges	60	62	17	2	31	19
Total	857	670	377	194	692	296
Salaries paid to persons other than workers	75	117	33	44	90	79
Work done by other concerns*	22 (24)	34 (41)	127 (127)	74 (74)	3 (4)	154

(continued)

Table A : (continued)

Cost item	State	Kerala	Mysore	Maha- rashtra	Andhra Pradesh	Madras	Goa
Inward transport charges, purchase agency services, taxes, duties on purchases, postage, stationery and printing etc.		104	131	113	338	68	27
Non-industrial services purchased		42	36	31	16	70	61
Depreciation		16	35	30	7	36	85
Total		259	353	334	479	267	406
Grand Total		5,062	5,673	5,366	4,978	5,186	5,009

* The figures in brackets refer to cost per tonne of kernels due to the item 'Work done by other concerns' when it is treated as an item of labour cost.

Locational advantage of processing centres as compared with Quilon is calculated on the basis of the above Table. It should be recalled that only two items, labour costs and 'Work done by other concerns', have been taken into account for the purpose. The inclusion of the latter is due to the presence of element of labour cost in it. In the following Table locational advantage for the year 1964 as given in Table 4.4.7 is also presented.

All the smaller centres retain their processing cost

Table B : Processing Cost Advantage of Other Centres Over Quilon (Kerala) Per Tonne of Cashew Kernels, 1964 and 1965 (in Rs.)

Centre	1964	1965
Mangalore (Mysore)	+ 74	+ 110
Malwan and Vengurla (Maharashtra)	+ 381	+ 377
Palasa and Vetepalam (Andhra Pradesh)	+ 472	+ 613
Panruti (Madras)	+ 247	+ 185
Bicholim (Goa)	+ 273	+ 429

advantage. There is, however, a considerable increase in the cost advantage in the case of two States, Andhra Pradesh and Goa.

4.5 : Locational Advantage II : Processing Costs and Transport Costs

The discussion in the last section revealed that some of the smaller centres had a significant advantage over Quilon as regards processing costs. The smaller centres experienced a stunted growth mainly due to the thin supplies of raw nuts locally available to them. With the processing cost advantage they possessed it should have been possible for some of these smaller centres to draw material from distant sources.

There were two ways the smaller centres could augment their locally available material. Cashewnut crop in India is mainly concentrated in Kerala. The smaller centres in other States could have secured raw nuts from the part of Kerala that is convenient to them. They could also import raw nuts from Africa. The possibilities for the smaller centres to increase their supplies of material with imported raw nuts is examined first.

4.5.1 Smaller Centres : Could They Augment Their Locally Available Material with Imported Raw Nuts?

Port Facilities Available to the Various Processing Centres :- As regards augmenting the raw material supplies with raw nuts imported from Africa, the same depended upon the port facilities the processing centre possessed. The processing centres on the West Coast are port towns; among

those on the East Coast except in the case of Panruti in Madras the others do not have ports in close proximity. Even on the West Coast, the port towns where the processing industry is located, differed in the facilities they provided, except for the industry in Goa, none has a major port at vicinity.

The 'Report on the Survey of the Minor Ports in India' classified ports into different categories. "Ports which handle or have handled in the past one lakh tons or more of cargo per year or are otherwise important are classified as Intermediate Ports. Other ports with an annual cargo tonnage below one lakh but not less than 1,500 tons or which have an importance for any other reason (such as passenger amenity, customs or naval requirements etc.) may be classified as minor ports."¹ According to the above classification, the nearest port in respect of the various processing centres fell in different categories as given in Table 4.5.1.

The big ocean-going ships do not usually touch the minor ports where sufficient cargo is not available for transshipment. The processing industries in Malwan and Venturla (Ratnagiri district, Maharashtra) and also in Quilon were thus in a disadvantageous position. However,

¹ Report on the Survey of the Minor Ports in India, Ministry of Transport, Government of India, New Delhi, 1952, Part I, p. 2.

Table 4.5.1 : Classification of the Nearest Port in respect of the Various Cashewnut Processing Centres, 1952

Centre	Nearest Port	Class of the Port
Malwan	Malwan	Minor
Vengurla	Vengurla	Minor
Quilon	Quilon	Minor
Mangalore	Mangalore	Intermediate
Calicut	Calicut	Intermediate
Panruti	Cuddalore	Intermediate
Bicholim	Marmagao	Major

Source : Report on the Survey of the Minor Ports in India, Ministry of Transport, Government of India, New Delhi, 1952, Part I, p. 3.

as Quilon was a greater commercial town and also bulk shipments were available both in the case of raw nut imports and kernel exports, some trade could pass through the port unlike in the case of the other two.

For the industry in Malwan and Vengurla the ports of Marmagao and Ratnagiri are almost at a similar distance. Though the former is a major port and was also open for traffic throughout the year, due to political reasons the facilities from the port were not available to the industry in Malwan and Vengurla. The port of Ratnagiri was categorized as an intermediate port for reasons otherwise than tonnage

of cargo passed through it. "Due to its importance as a passenger port, Ratnagiri is classified as an intermediate port".¹ From the point of view of natural facilities the port of Ratnagiri is less endowed. The ocean-going cargo traffic passed less frequently through the port. Probably the industry in Malwan and Vengurla would have had to depend on the services of Bombay port for the imports of raw nuts and exports of kernels.

Like the industry in Ratnagiri (district), the processing centre Quilon had only a minor port in the vicinity. Though Alleppey was the most industrialized and commercial port town in Travancore-Cochin, with the development of Cochin as a major port, the importance of the former receded. Categorized as an intermediate port, Alleppey was less used by the processing industry in Quilon. There has been substantial imports of raw nuts through Quilon only in recent years. In the past, bulk of both imports of raw nuts into and exports of kernels from Quilon was through Cochin port (Table 4.5.2).

(With the development of Neendakara port near Quilon, the imports of raw nuts and exports of kernels through Cochin may not increase at the rate as in the past.²)

1 Report of the Intermediate Ports Development Commission, April 1960, Ministry of Transport and Communication, Government of India, New Delhi, 1960, p. 92.

2 Traffic Survey of the Cochin Port, National Council of Applied Economic Research, New Delhi, 1969, pp. 54 and 60.

Table 4.5.2 : Imports of Raw Cashewnuts Into and Exports of Cashew Kernels From the Ports of Cochin and Quilon 1956-57 to 1965-66 (July to June) (in Tonnes)

Year	Imports of Raw Nuts into		Exports of Kernels from	
	Cochin	Quilon	Cochin	Quilon
1956-57	49,385	N.A.	21,182	3,534
1957-58	84,100	10,502	27,898	7,577
1958-59	80,215	15,413	31,480	5,307
1959-60	96,729	N.A.	35,632	-
1960-61	72,202	37,601	29,982	5,788
1961-62	78,176	18,452	36,989	4,461
1962-63	103,096	37,471	39,525	5,628
1963-64	143,217	23,454	41,877	8,924
1964-65	115,271	47,789	49,493	3,517
1965-66	112,567*	50,406	45,189	4,717

* April to March.

Source : Annual Reports of the Cochin Chamber of Commerce, Cochin.

The industry in Quilon depended on Cochin. Likewise, the industry in Ratnagiri would have had to trade through Bombay port throughout the year. There are as said earlier some processing centres on the East Coast which do not have ports of their own. Such centres located in the interior are in Andhra Pradesh. There are only two centres which are

worth considering in the State. These are Palasa in Srikakulam district and Vetapalam in Guntur district. The industry here would have had to depend upon some one port nearby. For the industry Palasa, Vishakapatnam is the nearest port and for Vetapalam the nearest port is Madras.

In the case of some of the intermediate ports where the ships do not touch the wharf but anchor at a distance in the sea, the ports do not remain open for traffic during the rainy season. Such ports that are of concern here are Mangalore and Calicut. During the four to five months of monsoon commencing from mid-May, the industry in the above-mentioned port towns had to depend on Cochin port.

Marmagao port that could have served the industry in Bicholim (Goa) is a major port and is open for traffic throughout the twelve months of a year.

Transport Costs in Processing the Imported Raw Nuts:-

For the industry in Ratnagiri district, of which it was stated that probably the industry would have had to depend upon the port of Bombay, the inland transport costs refer to that from Bombay to Malwan or Vengurla on raw nut imports, and from Malwan or Vengurla to Bombay on kernel exports. Likewise, for the industry in Srikakulam district it refers to transport costs between Palasa and Vishakapatnam, and for the industry in Guntur, between Vetapalam and Madras port.

In the case of the industry in Quilon only a small

portion of the raw nut imports and kernel exports were effected through Quilon port; a major part of the trade was through Cochin port. Inland transport costs for Quilon have been computed once taking into account Quilon port as the trade channel and second, taking into account that the trade channel is Cochin port.

For Mangalore and Calicut two computations were necessary. During the fair season when these ports are open for traffic inland transport cost is assumed to be nil. For part of the year, during the monsoon, the inland transport cost from Cochin to the respective centre on raw nuts, and from the respective centre to Cochin on kernels, is accounted for.

Unlike the intermediate ports on the West Coast Cuddalore port on the East Coast (the port convenient to the processing centre Panruti in Madras State) is open for traffic throughout the year. However, fewer ships actually touch the port during the monsoon months.¹ Due to this reason, for the processing centre in Panruti, trade possibilities through Cuddalore port and through Madras port are taken into consideration.

For the industry in Goa the trade channel is Marmagao throughout the year.

¹ Report on the Survey of Minor Ports in India, 1952, Part II, Individual Cases, p. 6.

The preceding paragraphs discussed the problem of transporting the imported raw nuts from the ports to the processing centres and the kernels vice versa. As regards the freight from East Africa, the processing centres on the East Coast were at a disadvantage. The freight on the imports would have cost the centres on the East Coast 15 shillings more per tonne of raw nuts than it cost the processing centres on the West Coast.¹ The freight disadvantage on kernels exported to America would have been insignificant and hence is ignored here.

The transport costs involved in processing the raw nuts imported from Africa for different centres are presented in Table 4.5.3.² The Table also presents transport cost advantage of smaller centres over Quilon for processing the imported raw nuts.

There are difficulties in evaluating the transport cost advantage of different centres that existed in the past as regards processing the imported raw nuts. Such advantage cannot be learnt directly from Table 4.5.3. A few clarifications are necessary.

1 Mackinnon and Mackenzie Company Private Limited, Bombay. According to shipping company there were no shipments from East Africa to the East Coast in the past.

2 The computation of transport cost involved in processing the imported raw nuts from Africa for different centres makes an assumption. It is assumed here that for the processing centres who could import and export through their respective ports, the inland transport cost on raw nuts imported and on the exports of kernels was or would have been insignificant. Hence they are ignored.

Table 4.5.3 : Transport Cost Per Tonne of Cashew Kernels Processed of Imported Raw Cashewnuts for Different Centres and Advantage of Smaller Centres Over Quilon, 1964 (in Rs.)

Centre	Quilon (Kerala)		Calicut (Kerala)		Mangalore (Mysore)		Malwan Vengurla (Maharashtra)	Vetapalam (Andhra Pradesh)	Palasa (Andhra Pradesh)	Panruti (Madras)		Bicholim (Goa)
	Quilon	Cochin	Calicut	Cochin	Mangalore	Cochin	Bombay	Madras	Vishaka- patnam	Cuddalore	Madras	Marmagao
Freight from ¹ Africa	291	291	291	291	291	291	291	331	331	331	331	291
Inland transport ² cost on raw nuts	-	92	-	106	-	187	200 ⁴	153	104	-	94	-
Inland transport ³ cost on kernels	-	25	-	29	-	51	66 ⁴	41	28	-	26	-
Total	291	408	291	426	291	529	557	525	463	331	451	291
Advantage over Quilon if Quilon imports and exports through Quilon port			0	*	0	*	-266	-234	-172	-40	-160	0
Advantage over Quilon if Quilon imports and exports through Cochin port			+117	-18	+117	-121	-149	-117	-55	+77	-43	+117

* This possibility does not arise.

Basis : 1 - Courtesy : Mackinnon and Mackenzie and Company Private Limited, Bombay.

2 - There was a supplementary charge of 12 per cent on goods traffic with effect from April 1st, 1964. This supplementary charge of 12 per cent was merged with basic rates from 1st April 1965. Therefore transport rates which were in effect from 1st April 1965 could be conveniently used for the calendar year 1964. The relevant transport costs above have been based on Goods Tariff No. 31-A, Part II, Goods Rate Tables, in force from 1st April 1965, Indian Railway Conference Association, New Delhi. Raw cashewnuts do not appear as a separate category in the classification of goods given in Goods Tariff No. 32, Part I Containing General Rules, in force from 15th December 1965, Indian Railway Conference Association, New Delhi. The tariff indicated for nuts "Not otherwise classified" i.e., 85-B is used here.

3 - Based on Goods Tariff No. 31-A, Part II, Goods Rate Tables in force from 1st April 1965, Good class for cashew kernels is 92.5-B.

4 - This refers to approximate transport cost by road as reported by the processors.

Difficulties in Evaluating the Locational Advantage
of Different Centres for Processing the Imported Raw Nuts :-

(a) Processing costs discussed in the previous section refer to the year 1964. It is on the basis of the processing costs that prevailed in 1964, it was deduced that some of the smaller centres had a significant advantage over Quilon in respect of the cost in the past. This involves an implicit assumption that similar differences in processing costs existed in the past also. The assumption could be supported with the help of some data relating to processing costs in the past (see p. 506).

(b) The transport costs indicated in Table 4.5.3 refer to the year 1964. Here too as was the case with processing costs it needed an assumption that transport cost advantages existed in 1964 prevailed in the past. However, while calculating the transport costs, care was taken to recognize in respect of the relevant centres the absence of some of the existing trade facilities in the past. For example, in the case of the industry in Ratnagiri the trade channel accepted was Bombay as the more convenient port of Mormugao was not available in the past due to political reasons.

(c) At present the inland transportation of both raw nuts and cashew kernels is by road. Transport costs by road were not available and hence the transport cost

computations in Table 4.5.3 are based on the railway tariff. The industry in Ratnagiri has no railway line connecting it with Bombay; hence, transport cost by road has been taken into account.

(d) The transport costs by rail are generally lower than that by road. The processing centres on the coast could have made use of coastal transport (which is cheaper than the above two) between the respective centre and the relevant port. The centres in Ratnagiri district could have used coastal transport between the respective centre and Bombay port; the industry in Quilon between Quilon and Cochin. Mangalore and Calicut could have used the cheaper coastal transport between the respective centre and Cochin port during monsoon when trade is diverted to Cochin port; likewise Panruti could have used coastal transport between the centre and Madras port when Cuddalore port remained closed for traffic.

(e) The processing industry in Quilon had another alternative regarding inland transportation. The processing centre in Quilon is connected with Cochin by waterways which was its main trade channel. Though at present much of the transit between Cochin and Quilon is by road, it was not so until the recent past. Table 4.5.4 evidences the fact.

In the year 1957-58 it cost Rs. 8.66 to transport a

Table 4.5.4 : Quantity of Raw Cashewnuts and Cashew Kernels Moved by Different Modes of Transport between Cochin and Quilon, 1960-61 (in Tonnes)

Mode of Transport	Raw nuts (Cochin to Quilon)	Cashew kernels (Quilon to Cochin)
Road	2,000	-
Rail	-	-
Waterways	54,516	36,503
Total	56,516	36,503

Source : T. Pankajakshan, An Economic Study of the Port of Cochin. Thesis submitted to the University of Poona for the degree of Doctor of Philosophy, 1963, Tables 4.4 and 4.7 (unpublished).

tonne of raw nut from Cochin to Quilon by waterways. Transport cost on raw nuts required per tonne of kernels thus would be Rs. 34.64. In the same year the cost of transporting tonne of kernels from Quilon to Cochin was Rs. 13.90.¹ The total inland transportation cost (both on raw nuts and kernels) for Quilon, in processing the imported raw nuts, therefore, was only Rs. 48.54 per tonne of kernels produced. However, on the above basis no alteration regarding transport cost for Quilon can be made in Table 4.5.3. It can, nevertheless, be stated that the processing centre had a

¹ Traffic Survey Report on Inland Navigation in Kerala, Kerala P.W.D., Irrigation Branch, Government of Kerala, Trivandrum, 1960, pp. 105-06.

greater transport cost advantage (or a smaller disadvantage) in the past, than is depicted in Table 4.5.3.

(f) The ships actually do not touch the wharf in the case of smaller ports. The intermediate ports of Ratnagiri, Mangalore, Calicut and Cuddalore and also the minor port of Quilon belong to this category. In Mangalore the processors had to incur Rs. 53.20 for transporting the raw nuts required per tonne of kernels from the steamer to the wharf. They had to incur another Rs. 15.40 per tonne of kernels exported, from the wharf to the steamer.¹ These costs would be more or less representative of the other ports mentioned above. In the case of major ports like Marmagao and Cochin the above-mentioned costs do not appear. Hence, the transport cost advantage indicated in Table 4.5.3 for the industry in Calicut, Mangalore and Panruti, when Quilon traded through Cochin port and the former through their respective ports, is more than the actual.

(g) The processing centre in Quilon operated through both Quilon and Cochin ports. Part of the diversion of the trade to Cochin was due to the monsoon months. Partly it was due to the incapacity of Quilon port to handle the volume of trade. If the industry had expanded at the rate as it did in Quilon, a similar diversion of the trade would

1 As reported by the processors.

have been inevitable in the case of Mangalore, Calicut and Panruti even during the part of the year when their ports are open for traffic. It is not possible to estimate for different centres the proportion of trade that would have passed through the concerned ports; some broad assumptions regarding the same, nevertheless, could have been made. An analysis on the above lines was felt not necessary for the present. It can, however, be seen from Table 4.5.3 cost of any diversion is more in the case of the above-mentioned centres.

Net Cost (Processing + Transport) Advantage of Smaller Centres as Compared with Quilon for Processing the Imported Raw Nuts :- For centres other than Calicut, their net cost advantage can be learnt by combining Tables 4.4.7 and 4.5.3. As regards Calicut, its processing cost advantage over Quilon does not appear in Table 4.4.7. Labour costs account for the major portion of the processing costs. Wage rates being statutorily fixed, and being uniform throughout Kerala, labour costs will be more or less similar in Quilon and Calicut. Thus, it is possible to assume that the processing cost advantage of Calicut over Quilon is nil and its transport cost advantage represents the centre's net cost advantage. The net cost advantage of smaller centres over Quilon for processing the imported raw nuts computed on the above basis have been presented in Table 4.5.5.

Table 4.5.5 : Net Cost Advantage of Smaller Centres over Quilon for Processing the Imported Raw Cashewnuts, 1964 (Rupees Per Tonne of Cashew Kernels)

Name of the smaller centre	Port of operation	Port of operation for Quilon	
		Quilon	Cochin
Calicut (Kerala)	Calicut	0	+ 117
	Cochin	x	- 18
Mangalore (Mysore)	Mangalore	+ 74	+ 191
	Cochin	x	- 47
Malwan and Vengurla (Maharashtra)	Bombay	+ 115	+ 232
Vetapalam (Andhra Pradesh)	Madras	+ 238	+ 355
Palasa (Andhra Pradesh)	Vishakapatnam	+ 300	+ 417
Panruti (Madras)	Cuddalore	+ 207	+ 324
	Madras	+ 87	+ 204
Bicholim (Goa)	Marmagao	+ 273	+ 390

Note : x indicates that this situation does not arise.

In the case of the industry in Mangalore, Calicut and Panruti (Cuddalore port) it was observed that the ships do not touch the port even when the port is open for traffic. Hence there was an additional transport cost. Taking this into account it can be broadly said the processing centres in Mangalore and Calicut did not have any significant cost

advantage over Quilon for processing the imported raw nuts. As per Table 4.5.5 the processing centre in Panruti had a net cost advantage in spite of the above-mentioned extra item of transport cost. In respect of Panruti, however, it may be useful to recall some qualifications raised regarding the centre earlier (see p. 543). It was found that the processing costs in Panruti (Madras) declined from 1963 to 1964; the same was due to a fall in labour costs. The steep fall in labour costs as reported in the above case, it was stated is less probable. Hence accepting the wages that prevailed in 1963 as representative of wage costs in Panruti it was argued that the processing costs for the centre would be higher. Thus, on the above lines the centre's net cost advantage over Quilon would be lower than that is indicated

4.5.5. Accounting for the fact that the industry in the past used waterways for transporting the raw nuts from and to Cochin in the past, the cost advantage of Panruti is much less.

Of the three remaining States, viz., Maharashtra, Andhra Pradesh and Goa, the latter two had a significant cost advantage over Quilon. The advantage of Goa was due to both transport costs and processing costs. For processing the raw nuts, the centres in Andhra Pradesh had a transport cost advantage. But an overwhelming labour cost advantage in its in a significant net cost advantage in

advantage over Quilon for processing the imported raw nuts. As per Table 4.5.5 the processing centre in Panruti had a net cost advantage in spite of the above-mentioned extra item of transport cost. In respect of Panruti, however, it may be useful to recall some qualifications raised regarding the centre earlier (see p. 543). It was found that the processing costs in Panruti (Madras) declined from 1963 to 1964; the same was due to a fall in labour costs. The steep fall in labour costs as reported in the above case, it was stated is less probable. Hence accepting the wages that prevailed in 1963 as representative of wage costs in Panruti it was argued that the processing costs for the centre would be higher. Thus, on the above lines the centre's net cost advantage over Quilon would be lower than that is indicated in Table 4.5.5. Accounting for the fact that the industry in Quilon used waterways for transporting the raw nuts from and kernels to Cochin in the past, the cost advantage of Panruti will be much less.

Of the three remaining States, viz., Maharashtra, Andhra Pradesh and Goa, the latter two had a significant cost advantage over Quilon. The advantage of Goa was due to both transport costs and processing costs. For processing the imported raw nuts, the centres in Andhra Pradesh had a transport cost disadvantage. But an overwhelming labour cost advantage results in a significant net cost advantage in their favour.

According to Table 4.5.5 the processing industry in Maharashtra had a smaller cost advantage over Quilon. This is partly due to the fact that the inland transport cost accounted for in respect of the centres in Ratnagiri district in Maharashtra unlike the other centres refers to road transport. The industry in Ratnagiri could have utilised cheaper coastal transport on imports of raw nuts and exports of kernels between Bombay and the centre. It should, however, be noted that the inland transport cost in respect of Quilon also was less than that is indicated in Table 4.5.3 as the industry mainly relied on waterways in the past.

Of the many smaller processing centres probably those in Andhra Pradesh and Goa could have processed the imported raw nuts with advantage as compared with Quilon.

In the preceding analysis the cost computations and discussion included the processing centre in Calicut. This was not essential. The industry in Calicut could have grown independent of supply of raw nuts imported from Africa. Calicut is located in Malabar (North Kerala) and had a congenial supply of indigenous raw nuts.

4.5.2 Smaller Centres : Could They Supplement Their Locally Available Material with Raw Nuts Available in Other Regions in India?

The smaller centres had another alternative to supplement their locally available material. This was to draw raw material from distant indigenous sources. Cashew cultivation

in India is concentrated in the State of Kerala. Within the State it is spread almost over its entire stretch.

At present none of the smaller centres draw the material from sources other than local, except to a small extent the processing centre in Mangalore (Mysore). It is only in the case of Quilon, that the processors go as far as Rajmahundry in Andhra Pradesh (near Vetapalem) and Tanjore in Madras (near Panruti).

Raw cashewnuts are generally moved by road. There is scant information as regards the cost of transporting the raw material from Kerala to the smaller centres in other States. Transport cost presented in Table 4.5.6 are based on the railway tariff. These costs will be lower than the cost of moving the material by road. Wherever the information in respect of other modes of transportation was available, the same has been presented. Table 4.5.6 also gives transport cost advantage of smaller centres over Quilon for securing the raw nuts from Kerala.

Table 4.5.6 presents transport costs only in respect of raw nuts. Transport cost on kernels is a less important item as compared with the cost of transporting the material and processing costs. The advantage in the cost item transport cost on kernels depended on the port through which the processing centres (would have) operated. The difficulty in evaluating such advantage has already been

Table 4.5.6 : Cost of Transport^{ing} Raw Cashewnuts Required Per Tonne of Cashew Kernels from Kerala to Different Processing Centres and Advantage of Smaller Centres Over Quilon, 1964 (in Rs.)

Centre	Raw Nut Supplying Region in Kerala									Advantage* of smaller centres over Quilon, Raw nut supplying region		
	Southern Kerala (Quilon)			Central Kerala (Trichur)			Northern Kerala (Calicut)			Southern Kerala	Central Kerala	Northern Kerala
	Rail	Sea	Road	Rail	Sea	Road	Rail	Sea	Road			
Quilon (Kerala)	-	-	-	174	N.P.	150	214	N.A.	240	-	-	-
Calicut (Kerala)	214	N.A.	240	71	N.P.	96	-	-	-	- 214	+ 79	+ 214
Mangalore (Mysore)	288	N.A.	N.A.	154	N.P.	N.A.	112	N.A.	152	- 288	- 4	+ 102
Malwan and Vengurla (Maharashtra)	627**	242	N.A.	571**	326*	N.A.	583**	242	N.A.	- 242	- 176	- 28
Vetapalam (Andhra Pradesh)	433	392**	624	340	N.A.	N.A.	356	N.A.	N.A.	- 392	- 190	- 142
Palasa (Andhra Pradesh)	591	N.A.	N.A.	507	N.A.	N.A.	520	N.A.	N.A.	- 591	- 357	- 306
Penruti (Madras)	254	N.A.	N.A.	268	N.A.	N.A.	284	N.A.	N.A.	- 254	- 118	- 70
Bicholim (Goa)	514	242	260	458	326*	N.A.	470	242	N.A.	- 242	- 176	- 28

N. A. = Not Available.

N. P. = Not Practicable .

* Least transport cost irrespective of the mode of transportation has been used to decide the advantage.

** Rail upto Mormegao and road thereafter. Transport cost by road from Mormegao to Malwan and Vengurla at the rate of Rs.25.00 per tonne of raw nuts works out to be Rs.100.00 per tonne of kernels; in addition a transshipment cost of Rs.13.00 has been included.

* By sea upto Calicut and rail thereafter. Includes Rs.13.00 as cost of transshipment.

** As reported by the processors.

Basis : (i) Rail : Goods Tariff No.31-A, Part II Goods Rate Tables, In force from 1st April 1965. Indian Railway Conference, Goods Class 85-B.

(ii) Sea : Courtesy, Scindia Navigation Company, Bombay.

(iii) Road : As reported by the processors.

discussed. In the succeeding analysis, transport cost on kernels has been omitted. The conclusions arrived at below should be broadly acceptable in spite of the omission of the cost item.

The industry in Maharashtra is located in small port towns. It was observed the ocean going ships do not touch these ports. These ports, however, were amenable for coastal shipping. They could have imported the raw nuts from Kerala directly.

In Table 4.5.6 the coastal freight between the ports of Kerala and the ports of Maharashtra or Goa refers to general cargo freight. There has been no shipment of raw nuts between Kerala and Maharashtra or Goa. The freight on raw nuts, however, is less than general cargo freight.

There were some coastal shipments of raw nuts between Ratnagiri (Maharashtra) and Mangalore. The freight in the case was Rs. 20.00 per tonne of raw nuts. On the basis of the above freight the cost of transporting the raw nuts required per tonne of kernels works out to Rs. 80.00. In the absence of similar shipments between the Kerala Ports and the ports of Maharashtra or Goa the cost of transporting raw nuts has to be estimated.

The coastal freight system in India has a zonal basis. It divides the West Coast into two broad zones. The ports of Kerala form one zone; the ports of Mysore, Goa and the

ports of Maharashtra form another. Taking into account the zonal character of the coastal freight system the cost of transporting the raw nuts required per tonne of kernels from Kerala to the processing centres in Maharashtra or Goa can be at the most Rs. 160.00.

Two more qualifications as regards Table 4.5.6 may be in place. First, for procuring the raw nuts from Southern Kerala the smaller centres, Mangalore, Calicut and Panruti could have utilized the cheaper coastal transport; with this, transport cost disadvantage of these centres in respect of Southern Kerala region would be less than that is indicated in the Table. Second, Quilon could have procured the raw nuts from Northern Kerala by coast; in which case transport cost advantage of smaller centres in respect of Northern Kerala region would be less than what is indicated in Table 4.5.6.

One can now combine the transport cost advantage of smaller centres over Quilon as given in Table 4.5.6 and their processing cost advantage as given in Table 4.4.7. Table 4.4.7 does not present data in the case of Calicut; as was done earlier it has been assumed that processing cost advantage of Calicut over Quilon is nil. Table 4.5.7 presents for the smaller centres their 'processing cost + transport cost on raw cashewnuts' advantage over Quilon in processing the raw nuts from Kerala.

Table 4.5.7 : 'Processing Cost + Transport Cost on Raw Cashewnuts' Advantage of Smaller Centres over Quilon for Processing the Raw Cashewnuts from Kerala, 1964 (Rupees Per Tonne of Cashew Kernels)

Name of the smaller centre	Raw material region		
	Southern Kerala	Central Kerala	Northern Kerala
Calicut (Kerala)	- 214	+ 79	+ 214
Mangalore (Mysore)	- 214	+ 70	+ 176
Malwan and Vengurla (Maharashtra)	+ 139	+ 205	+ 353
Vetapalam (Andhra Pradesh)	+ 80	+ 282	+ 330
Palasa (Andhra Pradesh)	- 119	+ 115	+ 166
Panruti (Madras)	- 7	+ 129	+ 177
Bicholim (Goa)	+ 31	+ 97	+ 245

Observations on the basis of Table 4.5.7 should be made bearing in mind the qualifications raised against transport costs presented in Table 4.5.6; also it will be useful to recall the qualification made earlier as regards the processing costs in Panruti (see p. 543). From Table 4.5.7, it is safer and judicious to identify only those of the smaller centres which had significant advantage over the localized centre Quilon. Broadly, it can be stated, as compared with Quilon the centres in Maharashtra, i.e., Malwan and Vengurla, and Vetapalam in Andhra Pradesh, could have processed with advantage the raw nuts from Central and

Northern Kerala regions.

The cost advantage of Malwan and Vengurla in Maharashtra and that of Vetapalam in Andhra Pradesh over Quilon is due to their processing cost advantage; lower processing costs in these centres is due to low labour costs. It could be known in respect of the above smaller centres their processing cost advantage prevailed in the past also (see p. 506). However, it may not be realistic to assume that in all the cases where there exists such a cost advantage at present, a similar advantage existed in the past also.

As per Table 4.5.7, in respect of Northern Kerala region Calicut had a smaller cost advantage as compared with that of the centres Maharashtra, Goa and Vetapalam in Andhra Pradesh. In contrast to the latter centres the advantage of Calicut is due to transport costs. Located in the raw material region of Northern Kerala, Calicut's transport cost advantage in respect of the region is unquestionable for the past also. Further, in the case of the smaller centres which are located at a distance from the raw nut supplying regions in Kerala, their failure in spite of their cost advantage can be attributed to entrepreneurs' lack of knowledge regarding the raw material sources. The explanation does not hold good in the case of Calicut. Thus apart from the smaller centres which had significant advantage over Quilon, it may be of interest to look into factors which led to the slower growth of the industry in Calicut.

Post Script to Section 4.5

In Post Script to Section 4.4, processing costs were calculated for the year 1965. The 1965 processing costs reinforced the conclusions arrived at in this section on the basis of 1964 processing costs.

It was found that the processing centres in Andhra Pradesh, viz., Palasa and Vetapalam, were in an advantageous position to process the imported raw nuts, and that only Vetapalam could have processed the raw nuts from Central and Northern Kerala with advantage. With the 1965 processing costs, the advantage of centres in Andhra Pradesh in respect of imported raw nuts increases. If 1965 processing costs are better indicators of past advantage, Palasa also could have processed the raw nuts from Central and Northern Kerala.

As regards Goa, the 1964 data indicated that it could have advantageously processed only the imported raw nuts; the 1965 data indicate that Goa could have had an advantage also in respect of raw nuts from Central and Northern Kerala.

4.6 : Slow Growth of Cashewnut Processing Industry in Goa, Maharashtra, Andhra Pradesh and Calicut in Kerala

In the preceding section it was found that some of the smaller centres had a cost advantage over Quilon in the past. The processing industry in Andhra Pradesh and Goa could have competed advantageously with Quilon in processing the imported raw nuts. The centres in Maharashtra and Vetapalam in Andhra Pradesh could have augmented their supply of locally available material from Kerala.

The industry in Calicut, it can be said, had more or less similar labour costs as those prevailed in Quilon. Though the centre was in an disadvantageous position as regards processing the imported raw nuts, this should not have been a hurdle on the industry's growth. On the basis of indigenous raw nuts locally available, and which hitherto moved to Quilon, the centre should have registered a faster growth.

The centres in Andhra Pradesh, Maharashtra, Goa and Calicut (in Kerala) should have shown a better growth of the processing industry than is actually registered by them. An attempt is made below to examine the factors that possibly led to the stunted growth of the industry in these places.

Accidents of entrepreneurial history explain a part of the phenomenon. The present effort, however, confines

to an examination of the objective conditions which hindered the growth. The data on these aspects are more available; while entrepreneurial history remains an incomplete story.

The processing industry in India owed its growth to the raw nuts imported from Africa. And almost the entire production of kernels is exported. Both from the point of view of importing raw nuts and exporting kernels, Goa was in the most favourable position among all the processing centres. Further, Goa was also a Portuguese colony like Mozambique, the chief raw nut exporter to India. This should have been an added advantage for the processing industry in Goa. In the following paragraphs an attempt is made to examine the factors which could have hindered the growth of the industry in Goa. These factors, as will be seen, could be offered as an explanation for the slow growth of the industry in the other smaller centres, except Calicut. The case of Calicut is discussed separately.

4.6.1 Factors Behind the Slower Growth of the Industry in Goa

Labour :- In Goa "during the past decade especially, agriculture has been stagnating. That has been so first because investments in this sector have been lacking, as farmers did not get a fair return. ... Secondly, alternative employment were found to be more remunerative than agriculture. The development of mining needed a large

labour force, which had to be supplied from the agricultural labour pool."¹ "As a result farm labour is the problem of the economy. The farm labour moved at the cost of agriculture."² "The rapid growth of the mining industry not only released the surplus labour from rural areas but it also resulted in creating over full employment."³ The mining industry also improved the finances of the State. "These features, together with the growing employment in new channels helped the Portuguese government to inflate Goan economy in spite of the fact that traditional industries, including agriculture, were languishing."⁴

There were not many industries in Goa. Cashewnut processing industry stood next to mining industry in importance. It brought foreign exchange to the State. Cashewnut processing has been, with few others, a traditional industry of Goa, though it never could account for a large employment. All these traditional industries were agro-based. The advancement of mining industry, it is said, had its impact on these industries.

1 G. V. Kamat Helekar, "A Resume of the Goan Economy", in A. B. Shah (ed.), Goa : The Problems of Transition, Bombay, Manaktalas, 1965, p. 34.

2 Ibid., p. 35.

3 G. M. Laud, "Economic Problems of Goa", in A. B. Shah (ed.), Goa : The Problems of Transition, p. 56.

4 Ibid.

Cashewnut processing industry in Quilon and Mangalore, where it is concentrated, depends mainly on female labour. In other centres too, the processors, as far as possible, utilize female labour. Thus in the case of Goa, the development of mining industry could have prevented a suitable supply of labour to the processing industry, only if the mining industry also, (like the cashewnut processing industry), used female labour. In 1963-64, out of a total number of 23,071 workers employed in the mining industry, 8,834 (38.29 per cent) were females.¹ Thus, the mining industry depends on female labour too. However, the progress of the mining industry of a marked nature was true only after 1950. The ore rush which began in the early 1950's reached its peak during 1957-61. Cashewnut processing industry in India had a much earlier beginning. The exports of raw nuts from Mozambique, another Portuguese colony, commenced from as early as 1930's. The competition from the mining industry which obviously could pay better wages as it does now, was not there at all. Labour supply for any industry, then, was better than it is now.

However, the growth of the mining industry brings to light an important fact that in Goa, there was no superfluous population depending on agriculture. There was no surplus

¹ Statistical Year Book, Goa, Daman and Diu 1963 and 1964, General Statistics Department, Government of Goa, Daman and Diu, Panjim, 1966, pp. 185-87.

agricultural labour force which could be conveniently lifted off for industrial purposes. The employment in the mining industry in 1960 was around 20,000. In the early 1950's, the same was much less. Thus, even a shift of labour, of the magnitude much less than the present employment in the mining industry, could disrupt the region's agriculture. A cashewnut processing industry that was capable of processing the raw nuts exported from the sister colony of Mozambique to India would have required around 10,000 labourers. That this would have been a tall claim, is, a part-explanation for the almost stagnant state of the processing industry. Like the mining industry, the processing industry could have got the necessary supply of labour from agriculture by paying better wages; but then, the advantage of low wages would have been lost.

Cashewnut processing industry in India, as said earlier, uses mainly female labour. Women in India, it is believed, are still conservative as regards working outside their homes. It is said, to an extent supply of female labour is influenced by social customs, mores and such other sociological factors. Thus, a percentage of the female population in the economically active age group (which reflects the potential labour pool), may not form a part of the actual labour force. Sociological factors too, could have acted in restricting the supply of labour to the processing industry in Goa.

Capital :- Among the other factors that can be thought to have inhibited the growth of the cashewnut processing industry in Goa, perhaps, the lack of investors was one. The traditional industries were "out-classed by the incredible growth of mining over the past fifteen years. Its profitability was so unbelievable that it caught the imagination of every Goan and developed in him a sense of complecency, leading to the neglect of the sources of income that have come down from generation to generation."¹ The growth of mining industry as a factor leading to the neglect of other industries, including cashewnut processing, can be accepted only for the period after 1950's. Cashewnut processing industry had nearly a decade before that to catch the eye of the investors, if it were remunerative. That it paid good dividends is evidenced by the growth of the industry in Quilon.

Government Policy :- The Portuguese policy as regards this colony was less harsh, as compared to their policy towards their East African territories. The Portuguese were anxious to keep their Indian colony contented for fear of political repercussions. The State's role under the Portuguese was essentially that of a custodian of law. As regards the economic development of the colony, their policy in no way was a positive one. Being the poorest among the

Western colonial powers, Portugal, apart from its natural lack of interest in the development of colonial economies, had little monies for such purposes. Its policy, however, could not be one of a purposive check on the growth of the colony's economy, because of the fear of political upheaval. The Portuguese colonial policy towards Goa, as regards its economic development, can be best characterized as one of total neglect.¹

Whatever be the factors that inhibited the possible growth of the processing industry in Goa in the past, at present, the growth of the mining industry has deprived the processing industry both of capital and labour. Of this the former is of lesser importance. The capital requirement of the processing industry is low. Further, the investors in the processing industry and those in the mining fall in distinct categories. In the capital market, the competition from the mining industry has less reasons to be severely felt by the processing industry. The "two factors conditioning the growth of this industry in Goa are the availability of skilled labour and the raw material [local]. There are some other minor factors such as the availability of credit, which also affect the industry directly".² "Hitherto

1 P. R. Rao, Portuguese Rule in Goa, Bombay, Asia Publishing House, 1963, pp. 56-57.

2 Dr. Jose C. Almeida, "The Cashew Industry in Goa", Indian Cashew Journal, Cashew Export Promotion Council, Ernakulam, August 1962, p. 2.

not more than thirty per cent of the capacity has been utilized. The localization of the industry in the mining areas of Bicholim and Ponda places additional strain in the sense that necessary labour cannot be recruited as the mining industries offer higher wages."¹ Even in 1967, part of the processing had to be done by distributing work at the homes of labourers. "Some women workers work in their homes for the factory."² The processors in Goa also complained of irregularity of attendance among those who worked in the factory. This rendered any scheming of production, in advance, almost impossible.

4.6.2 Factors Behind the Slower Growth of the Industry in Maharashtra and Andhra Pradesh

There were other smaller centres which too, like Goa, had a cost advantage over the localized centre, Quilon. The factors which withheld the growth of the industry in Goa and in these other centres, however, need not be identical.

Availability of capital could not have been a dominating factor anywhere at anytime in the industry, hitherto.

As for the forthcoming of entrepreneurial initiative, this factor is not easily accountable. Nevertheless, there are reasons to suppose why this could have played an important role. Unlike the case of bigger industries, the

1 Ibid.

2 Ibid.

investors in the cashew processing industry had a narrow locational horizon, which confined to their own place. An evaluation of advantages of alternative locations before locating the individual processing unit was rarely done. The establishment of the industry was due to the availability of local material. The growth of the industry also, in most cases, did not grow further than what was warranted by the availability of raw material locally. (There was however the exceptional case of Quilon which attracted investors from distant Malabar and South Kanara. The deliberate choice of Quilon was not so much based on its cost advantage but is more illustrative of the general migration of capital and entrepreneurial skill to the localized centre of any industry.) As the investors in the industry did not look into locational advantages of alternative choices while locating their units, they were, for most part, not aware of their cost advantage later. Thus, in spite of the cost advantage, the industry failed to grow in some places. This could be a plausible part-explanation for the lack of the industry's growth in the centres in Andhra Pradesh.

The third factor, a more important one, was the availability of labour. The availability of labour has two facets. First, the total supply of labour in the region for all the economic activities. Second, the ability of

the particular enterprise or economic activity to compete for labour from this common pool. In the following paragraphs some facts regarding labour factor in Ratnagiri district in Maharashtra, and Srikakulam and Guntur districts in Andhra Pradesh, are noted.

Cashewnut processing centre in Malwan (Ratnagiri) has the mining town of Redi nearby. The latter attracts labour from the other parts of the district. In the past, there has been always a traditional migration of labour from Ratnagiri to Bombay, the State's capital. Such migration was at its peak during the decade 1951-61.¹ As in the case of Goa, there was difficulty of getting labour to work in the factories. Part of the processing continues to be carried on outside the factory premises.² Ratnagiri district is essentially rural in character and has very few organized industries. Out of the total population of 1,711,964 hardly about 1,500 were employed in organized industries in 1954.³ The factory mode of production is not widely prevalent in the district. This lesser orientation

1 Census of India, 1961, District Census Handbook: Ratnagiri, Maharashtra, pp. 13 and 22. Also see, Maharashtra State Gazetteers: Ratnagiri District (Revised Edition), Directorate of Government Printing, Stationery and Publications, Maharashtra State, Bombay, 1962, p. 280.

2 Report on Ratnagiri District, Development Commission, Small Scale Industries, Government of Maharashtra, Bombay, 1962, p. 27.

3 Maharashtra State Gazetteers: Ratnagiri District (Revised Edition), 1962, p. 392.

to factory type of work possibly explains why, even from a labour pool which is already thin, only a few offer their service to work in the factories.

Srikkulam, in Andhra Pradesh, is a backward district. The 1951 District Census Handbook for Srikkulam district observes, "There has been neither industrial activity nor agricultural prosperity to promote any large increase in population. For these reasons, and owing to the fact that this is a deficit district, there has been migration on appreciable scale."¹ The situation had not changed much in 1961.² Migration of labour may be partly due to lack of opportunities and partly due to better wages elsewhere.

Guntur district, in Andhra Pradesh, where cashew processing is carried on in a small scale, is one of the most prosperous districts in the State, both agriculturally and industrially. This district attracts large number of labourers from the neighbouring districts. With the advent of Nagarjunsagar canal work the tendency has increased.³ The existence of other industries and the implementation of developmental projects has resulted in higher wages. This

1 Census of India, 1951, District Census Handbook: Srikkulam, Madras, 1951, p. 4.

2 Census of India, 1961, District Census Handbook: Srikkulam, Andhra Pradesh, pp. xlviil and xxxix.

3 Census of India, 1961, District Census Handbook: Guntur, Andhra Pradesh, pp. xx-xxi.

must have resulted in a lower labour supply to cashewnut processing industry which possibly paid a relatively lower wage.

It is a fact that due to the difficulties of getting labour to work in the factories, in the processing centres in Andhra Pradesh, part of the processing is done through contractors. The contractors in turn distribute work at the homes of the labourers.¹

4.6.3 Relative Endowment of Labour Factor

It could be learnt from authoritative statements that in the Union Territory of Goa, the processing industry could not progress due to a stringent supply of labour. Similar observations, however, were not available in respect of the industry in Andhra Pradesh and Maharashtra. The industry in these latter two States too had a cost advantage over Quilon, where the industry is localized.

Cashewnut processing industry uses female labour. It is difficult to say with precision that labour supply in Goa, Maharashtra and Andhra Pradesh was insufficient for a large scale development of the industry. It is difficult even to compare the relative endowment of labour factor in different centres. A crude attempt, however, is made below as regards the relative endowment of labour factor.

¹ Report on an Enquiry into Conditions of Labour in the Cashewnut Processing Industry in India, 1954, p. 11.

It can be said that supply of female labour to any industry is dependent on three factors. The factors are namely: (i) female population in the age group 15-59, (ii) demand for female labour by other industries, and (iii) social factors constraining the supply of female labour.

As regards the social factor, it is believed that Indian women are conservative about working outside their homes even to this day. However, this seems to be more true of urban areas where a good percentage of the population belongs to higher income strata (meaning thereby the white collared people). It is supposed here that the general low income levels of the people requires many Indian women to supplement men's incomes. In rural areas agricultural sector already employs a good part of the female population in the economically active age groups. Lower labour participation among females in the past can be partly due to lack of suitable employment opportunities.

As per Table 4.6.1, column (4), participation of female labour is high in the districts of South Kanara (Mysore), Ratnagiri (Maharashtra), Srikakulam, Cuntur and Nellore (all three in Andhra Pradesh). It can be seen from column (5) in the Table that in these districts a large part of female population in the age group 15-59 is engaged in agricultural activities. As compared to the above-mentioned districts, the districts where the processing industry is located in Kerala, Madras and Goa, female labour

**Table 4.6.1 : Female Labour Participation in the Districts
Where Cashewnut Processing Industry Is
Located, 1961**

State/District	Total females in the age-group 15-59*	Working females in the age-group 15-59*	Female labour participation $\frac{(3)}{(2)} \times 100$	Working females in the age-group 15-59 employed in Agriculture** as percentage of the total females in the age-group 15-59
(1)	(2)	(3)	(4)	(5)
KERALA				
Cannanore	475,955	193,234	40.60	24.18
Kozhikode (Calicut)	686,566	171,609	25.00	10.00
Trichur	457,560	172,924	37.79	15.04
Ernakulam	481,549	165,103	34.29	16.40
Alleppey	483,704	182,579	37.75	13.89
Quilon	494,730	171,653	34.70	10.46
Trivandrum	452,406	124,717	27.57	7.66
MYSORE				
South Kanara	419,115	283,272	67.59	51.92
MAHARASHTRA				
Ratnagiri	555,235	386,775	69.66	63.92
ANDHRA PRADESH				
Srikakulam	669,692	514,663	76.85	63.68
Guntur	805,711	500,563	62.13	43.39
Nellore	554,779	366,293	66.03	51.99
MADRAS				
South Arcot	860,929	405,179	47.06	40.25
GOA, DAMAN AND DIU				
Goa	173,699	84,547	48.67	38.07

* Table B-I: Workers and Non-workers classified by Sex and Broad Age Groups.

** In Table B-I: Workers and Non-workers classified by Sex and Broad Age Groups, those appearing under classes 'As Cultivator' and 'As Agricultural Labourer' have been taken as employed in Agriculture.

Source : Census of 1961, State Volumes.

participation is low. In these latter districts agriculture could employ relatively smaller percentage of available female labour force.

Employment opportunities are less diversified for women. Apart from agriculture, they can be employed only in a few industrial activities. Lower participation in some places may be more due to lack of employment opportunities rather than voluntary refrainment ^{from} of employment. For instance, the lower participation rates in Kerala, which is known for its poverty and where a higher participation of female labour could be anticipated can be explained thus. Labour participation is the percentage of working females in the age group 15-59 to the total females in the age group, i.e.,

$$\frac{\text{Working females in the age group 15-59}}{\text{Females in the age group 15-59}} \times 100$$

Relatively, the districts in Kerala are small in area. The area under agriculture, and the employment the sector could provide, was comparatively small. The State is less developed industrially. Further, women cannot be employed in all types of industrial work. The above-mentioned factors make the number of working females in the numerator small. Whereas, due to the high density of population throughout the State, there is a large number of females in the age group 15-59, which makes the denominator large. A relatively small numerator and a denominator which is

comparatively large, results into low participation rates for females in Kerala. If the agricultural sector could absorb a greater part of the total female labour available or if alternative industrial jobs were provided, possibly the female labour participation would have been higher for the districts in Kerala. It can be broadly stated, due to low incomes, social constraints might play only a lesser role in influencing the supply of female labour; suitable opportunities given, women might have come forth to work in the past too.

If the social factors do not severely constrain the supply of female labour, total females in the age-group 15-59 should roughly indicate the total supply of female labour. In the case of industrial activities labour need to conglomerate at a single point. Commutation distance is one of the factors which influences the supply of labour. Thus, absolute number available may be a less reliable indicator of labour supply. In the following analysis density of population instead of absolute number has been used as the indicator of labour supply.

For the present purpose, it would be more appropriate if the labour factor endowment of different centres can be learnt in respect of the period 1940-55; for, it is during these years that the processing industry got localized in Quilon. Unfortunately, even the breakdown of data available in the 1951 Census is not sufficient. The 1961 Census

which gives the required breakdown is less suitable from the point of view of time. It is too recent; whereas, what is required here is to know the labour supply position prior to 1950 and early 1950's. The following analysis, however, utilizes data presented both in the 1951 Census and those in 1961 Census. Table 4.6.2 presents the relevant data.

Column (2) in Table 4.6.2 gives the density of female population in the age group 15-54, per square mile in 1951. Assuming that the social constraints have the same influence on the supply of labour in all the districts, column (2) should indicate relative position of different districts as regards total supply of female labour. Reading through the column, it can be noticed that as compared with the industry in other States, whole of Kerala was in a favourable position as regards labour supply. (There are no data in respect of Goa for the year 1951. However, viewing the territory's relative position in 1961, it can be stated that in 1951 Goa was in a disadvantageous position as compared with Kerala.)

A large female population in the economically active age group would be of no avail if there are competing economic activities. Whether the processing industry could offer competitive wage rates to attract the required labour cannot be known now. There is one way to account for the demand for labour from competing economic activities. One

Table 4.6.2 : Relative Endowment of Labour Factor in the Districts Where Cashewnut Processing Industry Is Located, 1951 and 1961

State/District	1951		1961		
	Density of female population in the age-group 15-54 per square mile *	Non-working female population per square mile **	Density of female population in the age-group 15-59 per square mile	Total ‡	Non-working‡‡
(1)	(2)	(3)	(4)	(5)	(6)
KERALA					
Cannanore)	235	189	173	103	91
Kozhikode) (Calicut)			336	251	232
Trichur)	331	223	398	248	213
Ernakulam)			379	249	212
Alleppy)	294	226	693	431	364
Quilon)			254	166	145
Trivandrum	376	297	534	387	334
MYSORE					
South Kanara	119	90	129	42	36
MAHARASHTRA					
Ratnagiri	100	83	111	34	30
ANDHRA PRADESH					
Srikakulam	163	139	172	40	35
Guntur	123	104	139	53	49
Nellore	62	51	70	24	21
MADRAS					
South Arcot	184	163	205	108	102
GOA, DAMAN AND DIU					
	N.A.	N.A.	125	64	44

Note : 1) To arrive at the densities area figures given by Surveyor General of India have been utilized.

ii) (a) Districts in 1961 may not be identical with those in 1951 even where the name of the district has remained the same.

(b) Combined data for Cannanore and Kozhikode districts for 1951 refers to erstwhile Malabar district. Likewise, combined data for Trichur and Ernakulam districts for 1951 refers to erstwhile Trichur district. -And, combined data for Alleppy and Quilon districts for 1951 refers to erstwhile Quilon district.

Basis : (a) 1951 : Census of India, 1951, State Volumes.

* Table C-II 'Livelihood Classes by Age Groups'. In the 1951 Census agewise distribution of population was estimated on the basis of 10 per cent sample.

** Non-working females in 1951 has been arrived at by deducting from total females in the age group 15-54 given in Table C-II: 'Livelihood Classes by Age Groups', the 'Self Supporting' persons in 'Agricultural' and 'Non-Agricultural' classes given in Table B-I: 'Livelihood Classes and Sub-Classes'.

(b) 1961 : Census of India, 1961, State Volumes.

‡ Table B-I: 'Workers and Non-workers Classified by Sex and Broad Age Groups'.

‡‡ Table B-IX: Persons Not at Work Classified by Sex and Broad Age Groups and Type of Activity.

can assume that persons already employed account for the demand from competing economic activities. Thereafter, it can be viewed that only those who were not employed were available for the processing industry. The 1951 Census however does not provide data relating to 'non-workers'; the same had to be estimated.

The 1961 Census gives the number of 'non-workers' in the economically active age group 15-59. It also gives the breakdown of 'non-workers' into categories; from this it is possible to separate a certain categories of which it can be a priori decided that they would not be available for work. The same is not possible in respect of 1951. For the broad purpose, as is attempted here, it can be assumed that number of 'non-workers' per square mile in 1951 represent the labour supply that was available for the expansion of the processing industry in 1951.

It can be seen from Table 4.6.2, column (3), that even from the point of view of number of 'non-workers' available (per square mile) the industry in Kerala was in an advantageous position.

Table 4.6.2 presents data for the year 1961 also. The industry in Kerala had a better total supply of female labour as compared with the industry in other States in the year. Even as regards the availability of 'non-working' females, the districts in Kerala were in an advantageous

position. As stated earlier, the entire number under 'non-workers' does not represent 'surplus labour' pool. It was also stated, the 1961 Census provides the breakdown of 'non-workers' into categories and it is possible to segregate some categories which it can be said a priori that they will not be available for work.

In the 1961 Census, 'non-workers' were divided into following sub-classes:

- (i) Full time students,
- (ii) Persons engaged in Household Duties,
- (iii) Dependents and persons permanently disabled,
- (iv) Retired, rentiers, persons living on agricultural or non-agricultural royalty, rent or dividend or other persons of independent means,
- (v) Beggars, vagrants, etc., women without indication of source of income and others of unspecified source of existence,
- (vi) Inmates of penal, mental and charitable institutions,
- (vii) Persons seeking employment for the first time, and
- (viii) Persons employed before but now out of employment and seeking work.

Of the above eight sub-classes among the 'non-workers' in the age group 15-59, it can be said that classes (i), (iii), (iv), (v) and (vi) would not have been available for work. Only those appearing under the sub-classes (ii), (vii) and (viii) would have been available for work.

It was observed earlier that female labour participation

could be more dependent on the availability of employment opportunities than on social factors. Thus, it can be broadly assumed that of the 'non-working' female population in the age group 15-59, 'Persons engaged in Household Duties', 'Persons seeking employment for the first time' and 'Persons employed before but now out of employment and seeking work', represent 'surplus labour'. This 'surplus' is over and above the needs of competing economic activities and could have been conveniently made use of by the processing industry. From the point of view of 'surplus labour' as defined above, whole of Kerala was in a favourable position during the year 1961 (Table 4.6.2, column 6). As compared with the industry in Kerala, the processing centres in other States had smaller 'surplus' available to them. The latter include those in Maharashtra, Goa and Andhra Pradesh, which centres had a cost advantage over Quilon (Kerala), where the processing industry is localized.

It is noticeable from Table 4.6.2 that among the districts in Kerala, Quilon, where the industry is localized, was relatively less endowed from the point of view of labour supply. Table 4.6.2 does not in any way set the absolute labour requirement per square mile, essential for the development of the processing industry. Hence it is possible that labour supply in Quilon was well above the minimum requirement. While the other centres in Kerala were relatively better endowed with labour, the growth of

the industry in Quilon might have been due to entrepreneurial initiative in the place. (It may be recalled that indigenous raw nuts were available in almost the entire stretch of the State - Table 4.3.3.)

A crude minimum requirement of labour per square mile, suitable for the processing industry, however, can be indicated. It is believed in the industry circles that a unit roasting 50 bags (75 kgs.) of raw nuts a day, employing 350 labourers, is an economic unit. The above opinion is partly supported by Table 4.6.3. Majority of the units in Kerala fall in the size group employing 100 to 500 labourers.

The processors in Mangalore and Quilon reported that the workers come to their factories from a distance of around two miles. Assuming a commutation distance of 2 miles (which seems to be realistic considering the low wages in the industry and the insufficient transport facilities available due to the semi-rural location of the industry), the minimum density of labour supply per square mile for the economic unit stated above (350 persons) would be around 90. It can be seen from Table 4.6.2 that in 1951, there were only 100 female persons per square mile falling in the economically active age group, in Ratnagiri district. However, it should be noted that not all, from the labour force actually available for work. Apart from the sociological factors which may in certain cases restrict the

Table 4.6.3 : Distribution of Cashewnut Processing Units according to the Size of Employment, Employment in Different Size Groups and the Average Size of the Units in Each Group - Kerala, 1960-65*

Year	Employment Size								
	Less than 50			50-99			100-499		
	No. of Units	Employment	Average size of the unit	No. of Units	Employment	Average size of the unit	No. of Units	Employment	Average size of the unit
1960	24 (13.3)	490	5	5 (2.8)	350	70	91 (50.6)	29,400	323
1961	28 (15.1)	444	16	6 (3.2)	370	62	88 (47.3)	29,822	339
1962	20 (10.6)	397	20	8 (4.2)	501	63	99 (52.7)	33,650	340
1963	23 (11.7)	491	21	10 (5.1)	618	62	105 (53.3)	35,110	334
1965	18 (8.6)	363	20	13 (6.2)	828	64	103 (49.3)	32,021	311

(continued)

Table 4.6.3 : (continued)

Year	Employment size								
	500-999			More than 1000			Total		
	No. of Units	Employment	Average size of the unit	No. of Units	Employment	Average size of the unit	No. of Units	Employment	Average size of the unit
1960	55 (30.5)	33,250	604	5 (2.8)	6,510	1,302	180 (100.0)	70,000	389
1961	59 (31.7)	36,778	623	5 (2.7)	6,586	1,317	186 (100.0)	74,000	398
1962	56 (29.8)	35,242	629	5 (2.7)	7,060	1,412	188 (100.0)	76,850	409
1963	54 (27.4)	35,160	651	5 (2.5)	7,586	1,517	197 (100.0)	78,965	401
1965	68 (32.5)	45,358	667	7 (3.4)	10,067	1,438	209 (100.0)	88,637	424

* Data for 1964 are not available.

Note : The figures in brackets indicate the number of units in the size class as percentage of the total number of units.

Source : An Economic Review : Kerala, Bureau of Economics and Statistics, Government of Kerala, Trivandrum, 1961, 1962, 1963, 1964 and 1966 issues.

supply of female labour, there are competing industries demanding the services of those who actually are prepared to offer themselves for work. (Accounting for the competing industries, the 'non-working' female population was only 83 per square mile in Ratnagiri during the year 1951.) To say that a particular centre had a favourable supply of labour, labour supply per square mile should be much more than 90.

From Table 4.6.2 it is noticeable that 'non-working' female population per square mile declined in 1961 as compared to 1951, in many of the districts where the processing industry is located. This phenomenon is partly due to the territorial changes; partly due to differences in the definitions of terms used in the two Censuses; is also probably due to the fact more women entered the workforce since 1951. Though more women now came forth for work, this was possibly of no avail to the processing industry. Whereas the processing industry requires a conglomeration of labour at the factory premises, others like beedi industry could operate conveniently by distributing work to women at their homes. While women opt the latter mode, in Mangalore it is found that beedi and weaving industries engage a good part of the available female labour.

In the foregoing analysis density of labour per square mile (rural and urban taken together) was used as

indicator of its supply. Labour is available in pockets. However, the demand for labour too is concentrated in such places. It is the urban areas that a high density of female labour force can be found. However, much of this belongs to higher income strata (white collared people) and may not be available as factory labour. In Mangalore and Quilon, the industry is located at the outskirts of the respective towns. Their location is semi-rural. But a large scale development of the industry, as experienced in Quilon, necessitated a wider dispersal into the rural areas.

4.6.4 Summing Up the Factors Behind the Slow Growth of the Industry in Goa, Maharashtra and Andhra Pradesh

There were two factors which could have stood on the way of smaller centres, developing their processing industry. The factors were (i) lack of entrepreneurial initiative resulting in failure to exploit the locational advantage and/or (ii) unsuitable supply of labour.

The first of the two factors could be an explanation for the slower growth of the industry in Andhra Pradesh. The processing centres in Ratnagiri and Goa were few of the earliest in India and it is difficult to accept that the processors here were not aware of their cost advantage which was persistent for long in the past. (The adverse influence of this factor on the growth of the industry in the past can be eliminated in the future easily, by State encouragement.)

The second factor also could have caused the slower growth of the industry in Andhra Pradesh. But it was probably the main factor in the case of Ratnagiri and Goa. In the case of Goa, the mining industry, which employed a great chunk of the labour force, put the processing industry at a disadvantage at least since 1950. In the case of Ratnagiri, neither the mining activity nor any other industrial activity has as yet developed to any great extent. However, the emigration of labour from this district must have caused an insufficiency of labour supply. It is possible both in the case of Ratnagiri and Goa, sociological factors too have acted in conditioning the labour supply to the industry. (Unlike as in the case of the first factor, here, the State encouragement will not have immediate effect.)

The importance of the two factors, (i) lack of entrepreneurial initiative, and (ii) unsuitable supply of labour, that caused the slower growth of the industry may vary with different centres. But it remains a fact that an uncongenial labour supply was one of the reasons which stunted the growth of the industry in certain cases. This, however, is more true of Goa and Ratnagiri. (In the next section, where the future of the industry is discussed, it is assumed that this stringency in labour supply experienced by these centres, will persist at least in the near future.)

It was stated that availability of capital could not have played a dominant role in influencing the growth of the

processing industry. The industry requires a small initial investment. Cashewnut crop being a seasonal crop, the basic raw material is held in stock for long periods. Working capital requirement of the industry thus is relatively high. Banking industry which generally provides processors the necessary short term loans, it can be said, is an offspring of industrialization. It can, however, be argued that location of industrial activities needs certain minimum banking facilities. Perhaps lack of adequate banking facilities acted as a factor limiting the progress of smaller centres. For instance, in Ratnagiri, "Development of banking in the district is of a very recent origin; as till 1914, there was not a single banking institution in the district."¹ "In 1958, there were in all eleven offices of joint stock banks in the Ratnagiri district."²

Smaller centres in Maharashtra and Andhra Pradesh had to import raw nuts and export kernels through ports located at a distance. The cumbersome process could have led to an inertia among the investors and failure to exploit locational advantage the centre had in respect of cashewnut processing industry.

1 Maharashtra State Gazetteers: Ratnagiri District (Revised Edition), 1962, p. 417.

2 Ibid, p. 418.

4.6.5 Slow Growth of the Industry in Calicut

The argument that an unsuitable labour supply stood on the way of the growth of the industry, whatever be the advantages in respect of other factors the centre possessed, does not apply to Calicut. The entire State of Kerala provided abundant labour. From the point of view of raw material supply, it was observed that the centre suffered no constraint. The industry in Calicut should have registered a faster growth on the merit of availability of indigenous raw nuts alone. What checked the growth of the industry in Calicut could only be the diversification of investments to the localized centre, Quilon. Such diversification, it is generally believed, is due to the localisation economies provided by Quilon.

The important localization economies, if they exist, have to be found in the packing material industry which in some cases represents a growth subsidiary to the processing industry. The packing materials as stated earlier are tin plate containers and packing cases (made of wood). These two are discussed separately.

Tin Plate Containers :- At present, the tin sheets for almost all the centres, are supplied from Calcutta. Purely from the point of view of its location, Calicut is no way in a disadvantageous position as compared with Quilon from the source supplying tin sheets. As regards fabricating tin sheets into containers, there are cases where the

individual processing units having their own tin fabricating plants. Bigger units both in Mangalore and Quilon and a small unit in Goa have their own tin fabricating plants. In Mangalore and Quilon there are units which are wholly engaged in tin fabricating.

There are two questions to be examined. First, what is the saving in cost which a processing unit in the localized centre may enjoy due to the existence of a subsidiary industry engaged in tin fabrication? Second, at what level of output can a centre economically have the subsidiary industry manufacturing tin plate containers?

As observed earlier, the A.S.I. data as regards packing material are not suitable for locational comparison. It was stated that the packing material used by the industry in different States differed in quality. Comparison of costs can be confined to two States, Kerala and Mysore, the former representing Quilon and the latter Mangalore; in these two cases the processed kernels were mostly exported and hence the packing material used did not differ in quality.

It can be learnt by referring to Table 4.4.3 that in 1960 the tin plate containers cost Rs.0.86 per unit more in Mangalore as compared with Quilon. The cost difference may be due to the fact that in 1960 the processing units in Mangalore did not have their own tin fabricating plants or

the centre did not have the unit now exclusively engaged in manufacturing tin containers, whereas in Quilon the subsidiary industry was in existence. With the cost difference of Rs. 0.86 per tin plate container, economies per tonne of kernels would work out to Rs. 75.68, which is not a negligible amount.

Turning to the second question raised, the kernel output required for the economic operation of a tin fabricating plant is comparatively low. The same is evidenced in the case of Mangalore, where not only a few of the processing units have their own tin fabricating plant, but also a unit which is exclusively engaged in tin fabricating. The unit, though renders its services to few other industries, is mainly dependent on the processing industry. It can be seen by referring to Table 4.4.3 that in 1964 cost difference per tin plate container between Mangalore and Quilon was negligible.

Even during the time of the survey, Calicut met its requirement of tin plate containers either from Mangalore or from Quilon. The mere existence of a subsidiary industry engaged in manufacturing tin plate containers in Quilon, however, could not have put the centre in more advantageous position as compared with Calicut from the investors' point of view. Calicut had necessary supplies of raw nuts. Individual investors could have located their units in Calicut and could have their own tin fabricating plants.

Packing Cases :- The wooden planks required to make packing cases are secured by the processors from the nearest source available; the wooden planks are nailed into boxes within the factory premises. The savings in costs, here, are more due to location. The locational advantage depends upon the availability of forest wood suitable for packing. In this respect Calicut in no way was in a disadvantageous position as compared to Quilon.

A subsidiary industry engaged in preparing the packing cases is a feature of recent years. A few units have been started in Quilon, Ernakulam, Trichur and Cannanore districts of Kerala. As compared with tin plate container, packing cases are a less important item of cost. Economies due to the existence of a subsidiary industry engaged in preparing packing cases are of a comparatively minor importance. Further, such economies for Quilon are true only of recent years; therefore, the same could not have rendered Calicut in a disadvantageous position in the past.

Quantitatively the localization economies could not have been an overriding factor at any time. But there are other facilities, it is alleged, the localized centre provided which were more of qualitative nature. Quilon is hailed to be the nerve centre of the industry. It is believed, due to the speculative nature of the industry, the processors in Quilon ^{are} in an advantageous position as compared

to those in the less localized centres. The pulse of market changes is first felt in Quilon. While there is nothing to refute the point that the localized centre provided better market information, there is but little to indicate the speculative nature of the trade (except that the kernel prices depended on price of competing nuts in America and that the price of raw nuts in Africa depended on kernel price in America).

It is understood that at present the ownership in the processing industry in Quilon does not entirely belong to the region. Though the initial development of the industry can be attributed to local entrepreneurship, in later years the centre attracted investors from outside, from other parts of Kerala and also from Mangalore. Probably the investors from Central and Northern Kerala who could as well have located their processing units in Calicut, were drawn towards Quilon. Though there is no evidence to prove the same, the fact that there has been a migration of entrepreneurial skill from a distant centre like Mangalore to Quilon is enough to suggest that Quilon must have attracted the investors from Central and Northern Kerala.

'List of Factories Registered in Kerala State as on 31st December 1964'¹ gives the number of registered factories,

1 List of Factories Registered in Kerala State as on 31st December 1964, Government of Kerala, Trivandrum, 1965.

names of the factories, and the number of people they are licensed to employ, districtwise. According to the source, in Quilon district, there were 185 registered factories owned by 82 concerns. These factories were licensed to employ a total number of 86,240 workers. Of the 185 factories, 21 were owned by eight concerns whose proprietors belonged to Mangalore.¹ The above eight concerns were licensed to employ 12,340 workers. (Some of these concerns were actually in the cashew business previously.) The percentage share of these concerns in the total number of units (11.35 per cent) and in the total licensed employment (14.31 per cent) are significant. The licensed employment of these concerns, it may be noted, is more than twice the employment provided by the industry in Mangalore, i.e., 5,870, in the corresponding year (see Table 4.1.5).

As in the case of Mangalore, there must have been a migration of entrepreneurial skill to Quilon from Northern Kerala (where Calicut is situated).

1 Survey.

4.7 : Processing of Raw Cashewnuts Available in the Future

The present section concerns the utilization of raw material available to the industry. The raw material supply to the industry has two components viz., the indigenously available raw nuts and the raw nuts imported from Africa. Sub-sections 4.7.1 and 4.7.2 discuss the indigenous component of raw nut supply; sub-section 4.7.3 deals with imported raw nuts.

4.7.1 Future Availability of Raw Nuts in Different States in India and the Main Problems regarding Processing the Indigenous Raw Nuts

There are two projections made as regards cashewnut crop in India. Both are presented in Table 4.7.1.

Table 4.7.1 : Projections of Raw Cashewnut Production in Different States in India, 1970 and 1970-71 (in Tonnes)

State	Indian Council of Agricultural Research, 1970 <u>1/</u>	Study Group on Cashew, 1970-71 <u>2/</u>
Kerala	92,580	112,349
Mysore	13,875	35,380
Maharashtra	1,323	114,430
Andhra Pradesh	3,455	13,301
Madras	17,541	29,824
Goa	N.A.	5,000
Others	N.A.	3,700
Total	132,421	313,984

Source: 1/ Working Group for the Formulation of Fourth Five Year Plan Proposal on Spices and Cashewnut, I.C.A.R., New Delhi, 1965, p. 33.
2/ Report of the Study Group on Cashew, Directorate of Commercial Publicity, Ministry of Commerce, New Delhi, 1964, pp. 5-10.

Projections of raw nut production made by the ICAR and by the Study Group differ due to two reasons. Firstly, as evidenced by Table 4.7.2, the areas under cashew on which the projections are based differ.

Table 4.7.2 : Area Under Cashewnut at the End of the Third Five Year Plan (in Acres)

State	Indian Council of Agricultural Research <u>1/</u>	Study Group on Cashew <u>2/</u>
Kerala	154,301	215,941
Mysore	177,855	180,390
Maharashtra	125,936	557,250
Andhra Pradesh	111,961	64,993
Madras	132,870	218,627
Goa	N.A.	80,000
Others	127,608	20,000
Total	830,531	1,337,201

Source : 1/ Working Group for the Formulation of Fourth Five Year Plan Proposal on Spices and Cashewnut, I.C.A.R., New Delhi, 1965, p. 25.

2/ Report of the Study Group on Cashew, Directorate of Commercial Publicity, Ministry of Commerce, New Delhi, 1964, pp. 5-11.

Secondly, according to the ICAR, new plants brought into cultivation during the Third Plan will just start bearing by about the end of the Fourth Plan, and on a conservative scale, one-fifth of this additional area would

yield at one-tenth tonne per acre.¹ In contrast to this, the Study Group assumes that the 'additional area' would yield roughly 200 kgs. per acre.²

The Study Group's projections seem to be unrealistically optimistic. Though the ICAR's projections are based on a 'conservative scale', in 1969, the indigenous production was less than 132,000 tonnes. The wide difference between the two projections, to a great extent, is due to the difference in the estimates of production in the case of State of Maharashtra. As regards the other States, the absolute magnitude of the difference is not significant.

In its report on the survey of cashewnut industry in Maharashtra State, the Cashew Export Promotion Council observes: "As the raw nuts available for the processing purpose is comparatively low there does not seem to be any scope for organizing any co-operative processing units now. However, the position will change, when the trees planted during the Third Five Year Plan start bearing. The State Government's ambition is to establish 200 or 250 processing units on co-operative basis. They hold the view that the production will be of the order of 250,000 tons per annum

1 Working Group for the Formulation of Fourth Five Year Plan Proposal on Spices and Cashewnut, I.C.A.R., New Delhi, 1965, p. 34.

2 Report of the Study Group on Cashew, p. 5.

and at the rate of 1,000 tons per factory it would be possible to establish 250 factories to process raw nuts."¹

It is almost certain that cashewnut production in Maharashtra will not reach a level that is projected by the Study Group within the next couple of years. However, as the State Government has taken the propagation of cashew seriously, the production should show a substantial increase.

As per Table 4.7.1, a major share of cashewnut production in India will be accounted for by the two States, Kerala and Maharashtra. The problem of processing the indigenously available raw nuts in India refers to raw nuts that will be available in the above two States.

In section 4.4, it was found that processing costs in Kerala, Mysore and Madras are higher as compared with the other States. Question may be raised, whether raw nuts available in the former States should be processed at the low wage centres in the States of Maharashtra, Andhra Pradesh and Goa. The quantity of raw nuts available in Mysore and Madras is small; also their processing cost disadvantage is smaller as compared with that of Kerala. Thus, the discussion of the above stated problem can be conveniently confined to raw nuts in Kerala. The cost of

¹ "Survey of Cashewnut Industry in Maharashtra State", Cashew Bulletin, Vol. III, No. 6, June 1966, Cashew Export Promotion Council, Ernakulam, Kerala, p. 8.

processing the raw nuts in Kerala in different centres has been already discussed in Section 4.5. However, in Section 4.5, costs at different centres were compared with that of Quilon. It can be noted that in respect of Northern Kerala region, Calicut is in an advantageous position as compared with Quilon, and in the case of Central Kerala, Trichur will have the advantage over Quilon. Thus, in respect of Northern Kerala, cost of processing the raw nuts should be compared with that of Calicut, in the case of Central Kerala with Trichur, and it is only in the case of Southern Kerala that the costs should be compared with that of Quilon.

In Section 4.5, the advantage of different centres for processing the raw nuts from Kerala was examined in respect of labour intensive technique. It was found that centres in States other than in Kerala, did not enjoy a suitable labour supply. This, it was stated, could be one of the possible reasons behind the slow growth of the industry in these centres. The stringent supply of labour in the above places may be due to sociological factors, apart from the others. It has to be accepted that the situation may not change at least in the near future. Hence a large scale increase in the raw nuts, if made available to the centres in States other than in Kerala, may have to be processed with the help of capital intensive technique. Thus, to process the raw nuts from Kerala, the centres in other States may have to use the mechanized processing.

As stated earlier, the centres in Maharashtra, Andhra Pradesh and Goa had comparatively lower processing costs. It can be stated, with this advantage and due to the weight losing nature of the process, to the extent possible raw nuts available in the above States should be processed in their respective centres with the existing labour intensive technique. In the case of Andhra Pradesh and Goa, the quantity of raw nuts that will be available being small, can be conveniently processed with the labour intensive technique at their respective centres. The same, however, may not be possible in the case of Maharashtra. If the target for cashewnut production, i.e., 114,430 tonnes in 1970-71 set by the Study Group, is achieved, labour required to process these raw nuts may not be easily available at the centres in the State. Thus, there may emerge in Maharashtra a 'surplus' quantity of raw nuts which it may not be possible to process at the State's centres with the labour intensive technique taking into consideration the labour shortage. There are two alternatives as regards processing the 'surplus' raw nuts available in Maharashtra. The alternatives are: (i) transport the raw nuts to Kerala where labour is available in plenty, or (ii) process the raw nuts in Maharashtra at the State's centres with the help of capital intensive technique.

4.7.2 Processing Cost by Alternative Techniques, Cost Advantage of Different Centres for Processing the Raw Nuts from Kerala, and the Problem of Processing the 'Surplus' Raw Nuts from Maharashtra

There are two main problems as regards the indigenous raw nuts, that are discussed. A pre-requisite to the discussion is the knowledge of processing costs in respect of processing costs in respect of capital intensive technique. The need for mechanized processing in States other than Kerala may arise due to an unsuitable supply of labour. Whereas in Kerala, labour is available in plenty, the need for mechanized processing may arise due to high labour costs.¹ Thus, an examination of processing costs by capital intensive technique is essential in the case of all the States. The same is done in the immediately following paragraphs. The discussion of the actual problems stated above will follow.

Comparison of Alternative Techniques in Different States :- There are certain difficulties in evaluating the processing cost advantage by alternative techniques. The capital intensive technique saves labour. For accounting the labour costs in this technique, labour costs in the labour intensive technique have to be compressed. Due to the method of compilation of data adopted in the A.S.I., it was found, the wage costs appear under two heads. It

¹ Cashew Marketing, International Trade Centre UNCTAD-GATT, Geneva, 1968, p. 5.

appears in 'Wages to Workers' paid to workers and in the cost item 'Work done by other concerns'.

The item 'Work done by other concerns' is not entirely labour costs. But as the part which constitutes labour costs and the part which consists of other expenses cannot be separated, the entire item was assumed to be referring to labour costs. The assumption, as said earlier, is fairly realistic.¹

Non-availability of authentic and comprehensive data relating to the capital intensive technique poses another hurdle. The mechanized processing plants range from an output size of 375 tonnes of kernels per year (single shift) to 1500 tonnes (single shift). The statistical information available regarding capital investment in these plants is found to be more reliable in the case of two; one of them has an annual output of 375 tonnes of kernels, the other 442 tonnes. As regards the latter only the investment in machinery is known. In the case of the former, building space required is also specified. Construction cost per

1 It can be seen from Table 4.4.2(f) that in Kerala where labour costs do not appear under the head 'Work done by other concerns', the cost per tonne of kernels due to the item is only Rs. 8.00. Whatever be the extent of variation in the cost item between the States, it cannot vary as wide as from Rs. 8.00 to Rs. 323.00 per tonne of kernels. Where the item shows high expenditure, it has to be due to labour costs. The processing industry has no other manufacturing activity than decorticating cashewnuts that need to be done by outside agencies.

unit space of building, prevalent, could be learnt. From this could be calculated the investment costs in 'building' for the plant.

In the present study, processing costs in the above-mentioned two mechanized plants are compared with processing costs in the labour intensive technique. The labour intensive plant considered is one employing 350 persons, roasting 50 bags of raw nuts per day, and producing 250 tonnes of kernels per year. The plant size is widely prevalent in India (see Table 4.6.3) and does not differ much in size from the mechanized plants with which it is compared.

For comparing the labour intensive technique with mechanized processing, it is necessary to know capital investment required for a new plant of the former type too. Capital investment for the labour intensive type plant is often estimated low. The machinery required in the case is simple and has a meagre capital requirement. Whereas the industrialists do not adhere to strict factory regulations, the 'building costs' incurred by them are low. Government agencies like Small Industries Service Units which aim at propagating small scale production units, present attractive low estimates of construction costs. Engineers, when consulted, reported that building material need not differ between techniques. Actually due to the mechanization of the process, capital intensive plants may save on building space. It is assumed here that unit cost

on land and building do not differ between techniques. Fixed capital investment in the three plants compared is given in Table 4.7.3.

Table 4.7.3 : Fixed Capital Investment Required for Processing Plants Using Alternative Techniques (in Rs.)

	Labour Intensive Technique 1/	Capital Intensive Technique	
		Type I 2/	Type II 3/
Annual capacity in terms of kernels produced (working at single shift per day)	250	375	442
Land	N.A.	74,000	N.A.
Building	N.A.	7,75,000	N.A.
Machinery *			
Before Devaluation	40,000	19,58,740	23,51,916
After Devaluation	40,000	30,86,250	37,05,750

* The mechanized processing plants have to be imported. The cost of plant Type I was given as \$411,500 and that of Type II as \$494,100. The Indian Rupee was devalued on 6th June 1966. The rupee value of the imported machinery is therefore given separately for post- and pre-devaluation periods.

Source : 1/ Swasti Cashew, Mangalore.

2/ Cashew Marketing, International Trade Centre, UNCTAD GATT, Geneva, 1968, pp. 16-17.

3/ Cashew Export Promotion Council, Ernakulam, Kerala. The Council secured the information from Cashew Trading Co., Tokyo, Japan, through Indian Embassy in Tokyo, Japan.

Due to the lack of required data, comparison of costs by alternative techniques attempted here excludes some cost items. The items excluded are: 'Material consumed for repair and maintenance', 'Consumable stores', 'Packing materials' and 'Fuel'. 'Materials consumed for repair and maintenance' is invariant over space. Between the alternative techniques it may cost slightly higher in the case of mechanized processing plants. As regards the labour intensive technique, the A.S.I. data could be utilized for the above cost item; however, corresponding data in respect of the capital intensive technique are not available. 'Consumable stores', perhaps, does not vary either between techniques or over space. The expenditure on the item is negligible and the cost item is ignored. Packing material costs do not differ between techniques, but, at present, may differ between centres. The A.S.I. data as regards the item was found unsuitable. Further, as contended, the differences in packing material costs are of temporary nature and can be evened out. Fuel used and the expenditure on the item in the case of capital intensive technique could not be obtained. The item, thus, is excluded.

The cost items included for comparing the costs in alternative techniques in and as between different States are: (i) Current cost on fixed capital, (ii) Salaries paid to persons other than workers, (iii) Non-industrial services bought, (iv) Labour costs, and (v) Power costs.

'Current cost on fixed capital' taken into account are depreciation and interest charges. Depreciation on building is 5 per cent; as the plants are assumed to be operating at two shifts a day, a depreciation of 15 per cent is charged on machinery. An interest charge of 6 per cent per annum on capital invested on land, capital and machinery is also included. (Working capital required has been left out of consideration due to absence of data. Working capital requirement per unit of output will not be dissimilar between the plants compared.)

Land and building costs do not differ between techniques. There may be some economies of scale. The three plants compared do not differ significantly by the size of their output. In the case of labour intensive plant and mechanized processing plant of Type II investment in land and building is not known (Table 4.7.3). So, interest charges on capital invested in land and building, and depreciation cost on building, calculated for the mechanized plant of Type I, (Rs. 120/tonne of kernels) have been adopted for the mechanized plant Type II and for the labour intensive plant.

'Salaries paid to persons other than workers' may vary between techniques. Due to lack of required data, the same could not be taken account of. In the present study, expenditure on the above item remains the same for either methods of production, viz., labour intensive and capital intensive.

The cost of 'Non-industrial services bought' should be more or less similar whatever be the method of production employed. It is assumed here that expenditure on the item remains the same for either techniques.

'Current cost on fixed capital' do not vary significantly over space. Similarly, the cost items 'Salaries paid to persons other than workers' and 'Non-industrial services bought', have little locational significance. On the basis of the A.S.I., 1964, the weighted average expenditure has been calculated for the entire industry in India. These estimates have been adopted for all the States (centres).

The cost items (i), (ii) and (iii), (see p. 615), it is assumed here, have little locational significance. That is, expenditure on these items will be the same for all the States (centres). The cost per tonne of kernels on these items used in the present study is presented in Table 4.7.4.

The mechanized processing plants have to be imported. The increased 'Current cost on fixed capital' in respect of capital intensive technique with the devaluation is due to the enhanced value of imported machinery.

Labour costs differ between the techniques. The processors in Mangalore reported that it requires about 350 man-days to produce a tonne of kernels with the present labour intensive technique. As compared to this, the

Table 4.7.4 : Current Cost on Fixed Capital, Salaries Paid to Persons Other Than Workers, and Cost of Non-industrial Services Bought (Rupees Per Tonne of Cashew Kernels)

Cost Item	Labour Intensive Technique	Capital Intensive Technique			
		Before Devaluation		After Devaluation	
		Type I	Type II	Type I	Type II
Current cost on fixed capital	136	668	678	984	999
Salaries paid to persons other than workers	71	71	71	71	71
Non-industrial services bought	29	29	29	29	29
Total	236	768	778	1,084	1,099

mechanized processing plant of Type I requires 117 man-days and of Type II requires 42 man-days to produce a tonne of kernels.¹ To arrive at the labour costs in the mechanized processing plant of Type I, labour costs in the labour intensive technique is compressed by three times. It is compressed by eight times for the Type II. The device is justified for the following reason. The labour used in the capital intensive technique does not differ from that used in the case of

¹ These estimates were arrived at from the information provided by the respective sources quoted for Table 4.7.3.

labour intensive technique. The mechanized process requires labour to do the final 'peeling' and 'grading' of kernels. This labour is similar to what is now employed in the labour intensive technique.¹

It was seen with the labour intensive technique, now in existence, labour costs vary widely between different States. Labour costs in the mechanized processing for any State is a fixed proportion of such costs in the labour intensive technique in that State. Costs of labour in the alternative techniques for different States are given in Table 4.7.5.

Table 4.7.5 : Labour Costs in Alternative Techniques for Different States, 1964 (Rupees Per Tonne of Kernels)

State	Labour Intensive Technique	Capital Intensive Technique	
		Type I	Type II
Kerala	781	260	98
Mysore	707	236	88
Maharashtra	400	133	50
Andhra Pradesh	309	103	39
Madras	534	178	67
Goa	508	169	63

1 Cashew Marketing, UNCTAD, GATT, Geneva, 1968, p.

The cost per unit of power differs from State to State. But the labour intensive technique uses little power, hence, the expenditure on the item per unit of output is small. Any variation in the power costs due to differences in the cost per unit of power has negligible influence on total processing costs. Thus, it was assumed that in respect of labour intensive technique, power costs as an item has little locational significance. The same assumption is maintained. Power costs per tonne of kernels calculated for the entire Indian industry on the basis of A.S.I., 1964, has been adopted for all the States.

The capital intensive technique uses electricity extensively. Any difference in the cost per unit of power does influence to an extent the processing costs in this case. The schedule of rates for the supply of electricity to the industry in different States were obtained from the respective State Electricity Boards. Unit power costs in the case of mechanized processing plants are calculated on the basis of these rates. Power costs in alternative techniques for different States are presented in Table 4.7.6.

Table 4.7.7 presents for different States the cost of processing by alternative techniques. The processing costs, as stated earlier, include (i) Current cost on fixed capital, (ii) Salaries paid to persons other than workers, (iii) Non-industrial services bought, (iv) Labour costs and

Table 4.7.6 : Power Costs in Alternative Techniques for Different States (Rupees Per Tonne of Cashew Kernels)

State	Labour Intensive Technique 1964	Capital Intensive Technique			
		1964-65		1966-67 (after devaluation)	
		Type I	Type II	Type I	Type II
Kerala	3	104	91	104	91
Mysore	3	67	59	79	69
Maharashtra	3	80	70	86	75
Andhra Pradesh	3	120	104	120	104
Madras	3	104	91	104	91
Goa	3	159	138	159	138

(v) Power costs. The Table gives in the case of capital intensive technique the processing costs (a) before devaluation and (b) after devaluation. The difference in costs between the two points of time is due to cost items 'Current cost on fixed capital' (Table 4.7.4) and 'Power Costs' (Table 4.7.6).

It is needless to state that in Table 4.7.7 costs presented for the post-devaluation period in respect of capital intensive technique are not directly comparable with those of labour intensive technique. Reasons for the same, however, need elucidation. The costs presented for the post-devaluation period in the case of capital intensive technique

Table 4.7.7 : Processing Costs* by Alternative Techniques for Different States (Rupees Per Tonne of Cashew Kernels)

State	Labour Intensive Technique	Capital Intensive Technique			
		Before devaluation		After devaluation	
		Type I	Type II	Type I	Type II
Kerala	1,020	1,132	967	1,448	1,288
Mysore	946	1,071	925	1,399	1,256
Maharashtra	639	981	898	1,303	1,224
Andhra Pradesh	548	991	921	1,307	1,242
Madras	773	1,050	936	1,366	1,257
Goa	747	1,096	979	1,412	1,300

* Excludes 'Materials consumed for repair and maintenance', 'Consumable stores', 'Packing materials' and 'Fuel costs'.

differ from those presented for the pre-devaluation only in respect of cost items 'Current cost on fixed capital' and 'Power costs'. The increased expenditure on 'Current cost on fixed capital' in mechanized processing after the devaluation is due to the enhanced value of imported machinery. The same does not apply to labour intensive technique. 'Power costs' are of insignificant importance in the labour intensive technique; the increased rates per unit of power after 1964 can hardly influence the total costs in this case. Thus, from the point of view items, 'Current cost on fixed capital' and 'Power costs', above stated comparison is permissible. In

the case of 'Salaries paid to persons other than workers', 'Non-industrial services bought' and 'Labour costs', the expenditure on the item in 1964 have been taken account of, both for post- and pre-devaluation costs, presented in respect of capital intensive technique. It can be noted that in this study, it has been assumed that the first two items do not differ between the techniques. Thus, expenditure on these items in respect of labour intensive technique and that in respect of capital intensive technique for the post-devaluation period (and also for the pre-devaluation period) is the same. Needless to say further that from the point of view of items 'Salaries paid to persons other than workers' and 'Non-industrial services bought', a comparison of costs between labour intensive technique and post-devaluation costs in respect of capital intensive technique is permissible. It can be noted that difficulty for the above comparison arises due to labour costs. In Table 4.7.7, labour costs in 1964 have been utilized for post- and pre-devaluation processing costs presented in respect of capital intensive technique. Labour costs differ significantly between techniques. Further wage costs may increase significantly over short periods. There could be an increase in the wage rates since 1964. An increase in the wage rates inflates labour costs and (therefore) processing costs in the case of labour intensive technique more than in the case of mechanized processing. Thus, for comparing the alternative

techniques during post-devaluation period, utilization of 1964 data in respect of labour costs is not fully warranted.

Thus, on the basis of Table 4.7.7, it is safer to compare the processing costs in the case of labour intensive technique with only those referring to pre-devaluation period in the case of capital intensive technique. When such a comparison made, it can be noticed from the Table that only the mechanized plant of Type II offers some savings in the case of two States, Kerala and Mysore. Mechanized processing which saves on labour is feasible where labour costs are high. As compared with the other States, the processing centres in Kerala and Mysore paid higher wages.

Wage costs in Kerala are the highest. The capital intensive technique should present the better alternative in this case more than any other. In 1967, wage costs in Quilon, in Kerala, were Rs. 970 per tonne of kernels (Survey data). Accounting for the above labour costs for the post-devaluation period, processing costs in respect of labour intensive technique can be put at Rs. 1,209, and at Rs.1,313 in respect of mechanized plant of Type II, the economical of the two mechanized plants. Thus, even in the case of Kerala mechanized processing offers no advantage after the devaluation. This being so, the case of other States where labour costs are low, need not be stated.

In India, the need for substituting the existing labour intensive technique with mechanized processing arises

not due to high labour costs, but due to stringent supply of female labour. Such an eventuality is possible in the case of the industry in Maharashtra, Goa, Andhra Pradesh and Mysore. Of these, the centres in the first mentioned three States have low labour costs at present. Purely from the cost point of view, the capital intensive technique is less economical as compared with the labour intensive processing method in these centres.

The preceding paragraphs discussed the profitability of mechanized processing as compared with processing by labour intensive technique in different States. The problems now to be examined are two: the cost advantage of different centres for processing the raw nuts from Kerala and the problem of processing the 'surplus' raw nuts in Maharashtra.

Processing the Raw Nuts Available in Kerala:- It was stated that wages in Kerala are statutorily fixed and are uniform throughout the State. Further, since labour costs account for the major part of the processing costs and as other costs are locationally less significant, it was argued, processing costs will be more or less similar in the centres in Kerala. Thus, processing costs indicated for Kerala in Table 4.7.6 are representative of Quilon in Southern Kerala, of Trichur in Central Kerala, and of Calicut in Northern Kerala.

As cautioned earlier, any large scale supply of raw nuts from Kerala to centres in other States will have to be

processed with the help of capital intensive technique. Thus the alternatives to be compared as regards the raw nuts from Kerala are: process them in Kerala with the labour intensive technique, or process them in other States with the capital intensive technique.

Processing costs by the existing technique, per tonne of kernels, is Rs.1,020 in Kerala. As compared to this the minimum cost for mechanized processing, prior to devaluation, is Rs.898 (plant Type II). Even the highest margin of Rs.122 is insufficient to compensate the cost of transporting the raw nuts (required per tonne of kernels) from any part of Kerala to the processing centres in other States. Apart from the transport cost on raw nuts there is another item of transport cost i.e., transport cost on kernels. As observed earlier the expenditure on the item is comparatively low; a small difference in the same between the centres will not tilt the total cost advantage significantly.

After the devaluation, processing costs by the capital intensive technique rise steeply. Assuming the 1964 wage costs for the post-devaluation period, the processing centres in other States are now at a greater disadvantage. Even after relaxing the above assumption, it can be found, the conclusion holds good. Wage costs in Kerala for the labour intensive technique was Rs. 781 per tonne of kernels in 1964 (A.S.I. data). As stated earlier, the same was found to be Rs. 970 in 1967 (Survey data). Accounting for a Rs.200

increase in wage costs in Kerala and assuming that wage costs in other States have remained the same, it can be learnt that there is no advantage in processing the raw nuts from Kerala in other States with the help of mechanized plants.

A few qualifications regarding the conclusions reached above may be in place. There are some cost items which are excluded in the processing costs indicated in Table 4.7.7. Expenditure on items 'Material consumed for repair and maintenance' and 'Fuel' will be higher in the case of capital intensive technique. This will put the centres outside Kerala, which have to use mechanized processing, at a greater disadvantage. 'Consumable stores' is of minor importance and can be ignored. As regards 'Packing materials' of which tin plate containers are more important an item, tin fabricating plants can be installed by individual processing units. As already discussed, there will not be much difference in the cost of packing materials between the States.

To reiterate the conclusion: It is more advantageous to process the raw nuts in Kerala within the State, with the existing method, as compared with processing them outside the State with the help of capital intensive technique.

The Problem of Processing the 'Surplus' Raw Nuts in Maharashtra:- The 'surplus' in Maharashtra arises due to non-availability of female labour. There are two alternatives open for processing these raw nuts. They can be processed in the existing centres in Maharashtra by employing the capital

intensive method or can be transported to Kerala where labour is available. The economics of processing the possible 'surplus' (raw nuts) in Maharashtra is presented in Table 4.7.8. In the Table the cost of processing the raw nuts in Maharashtra by the labour intensive technique is also presented. This enables one to demonstrate that it is always economical to process raw nuts near the base with the labour intensive technique, wherever possible.

Table 4.7.8 : Economics of Processing 'Surplus' Raw Cashewnuts in Maharashtra (Rupees Per Tonne of Cashew Kernels)

Centre	Technique	Cost of transporting raw nuts required per tonne of kernels	Processing cost	Total cost
Malwan and Vengurla (Maharashtra)	Labour Intensive	-	639	639
	Capital Intensive Type II*:			
	a) Before devaluation	-	898	898
	b) After devaluation	-	1,219	1,219
Quilon and Calicut (Kerala)	Labour Intensive	160	1,020	1,180

* Only mechanized processing plant of Type II is considered. It can be seen from Table 4.7.7 that plant Type II is more economical than Type I. / 4.7.7

It can be seen from Table 4.7.8 that it is economical to process the raw nuts available in Maharashtra at its existing centres, with the labour intensive technique, if labour is available. In case the labour is not forthcoming, the two alternatives open are either to process the raw nuts with the capital intensive technique in Maharashtra or transport them to Kerala where labour is available. For the period before the devaluation, the first alternative was economical. Since the devaluation, the value of imported machinery used in mechanized processing has enhanced. There is a marginal gain in processing the surplus raw nuts from Maharashtra in Kerala. However, as in the earlier case, labour costs used for pre-devaluation and post-devaluation periods are the same. It was stated that an increase in labour costs will inflate the processing costs in respect of labour intensive technique more than in the case of capital intensive. With a wage cost rise of nearly Rs. 200 as experienced in the case of Quilon, not only that the centres in Kerala will lose their marginal advantage stated above, they will also now be at a disadvantage to process the raw nuts in Maharashtra.

In Table 4.7.8 transport cost on kernels (exported) to the port is not included. Such costs are similar for the processing industry in Ratnagiri district in Maharashtra and the localized centre Quilon in Kerala. (It is about Rs.25 per tonne of kernels.) As regards Calicut (Kerala) the

centre does not have to incur this cost during the fair season, when the port of Calicut is open for traffic.

It can be noted, of the processing costs excluded in the analysis, 'Materials consumed for repair and maintenance' and 'Fuel' will increase the costs comparatively more in the case of capital intensive technique. It is believed that the centres in Maharashtra will still have the advantage of processing the raw nuts in the State with the help of mechanized processing plants.

4.7.3 Locational Advantage of Different Centres for Processing the Imported Raw Nuts Allowing for Alternative Techniques

Imports of raw nuts from Africa is the more important component of raw nut supply to the Indian processing industry. The cost advantage of different centres for processing the imported raw nuts was compared in respect of labour intensive technique. It was found that some of the processing centres could not possibly make use of their cost advantage due to a stringent supply of labour available to them. Below, cost advantages of different centres for processing the imported raw nuts is compared, allowing for alternative techniques.

There are certain changes in transport costs involved in processing the imported raw nuts that have taken place in respect of some of the centres. There are changes in respect of some others that are soon anticipated. These need be taken into account.

The port of Neendakara, a few miles north of Quilon, is being developed into a lighterage port. In its "Traffic Survey of Cochin Port", NCAER observes that "it would not be realistic to assume that the traffic in cashew at Cochin will expand at the rate it has been doing in the past few years. On the most optimistic assessment it may be expected only to remain static at the 1965-66 level."¹ The above comment refers to imports of raw nuts. As regards the exports of cashew kernels, the NCAER feels that the exports of kernels through Cochin may "show more or less the same growth rate as recently".² It is difficult to quantify the exact amount of future cashew trade that will be effected through Cochin, Neendakara and Quilon ports. It has been assumed here that only half of the cashew trade may have to be effected through the port of Cochin.

There are no plans in implementation for any major improvement of Calicut port. Calicut port closes for traffic during the four months of monsoon. It is assumed while calculating the transport costs that a third of the total cashew trade will be diverted through Cochin, if the raw nut supply to the centre is increased considerably.

The port of Mangalore is being developed. It is expected to be completed by 1972. The imports of raw nuts

1 Traffic Survey of the Cochin Port, National Council of Applied Economic Research, New Delhi, 1969, p. 54.

2 Ibid, p. 60.

into the place and the exports of kernels from it, henceforth can be effected through the port, throughout the year.

Previously the facilities from the port of Marmagao were not available to the industry in Ratnagiri district (Maharashtra). With the liberation of Goa, the processing industry in Malwan and Vengurla (Ratnagiri) is able to trade through Marmagao which is open for traffic throughout the year. The transport costs computation made take account of this.

For the processing industry in Vetapalem in Guntur district (Andhra Pradesh), Madras remains the nearest major port. The industry in Palasa in Srikakulam district (Andhra Pradesh) too will have to trade through Vishakapatnam as earlier.

The port of Tuticorin, south of Madras, is being developed into a major port. There are no plans envisaged (or likely to be) in respect of Cuddalore, the port conveniently located from Panruti (Madras State). The port of Cuddalore is open for traffic throughout the year, but ships usually do not touch the port during the monsoon months. Cuddalore port is an intermediate port. The ships do not come to the wharf. Any large scale increase in the production in the area may need a diversion of trade to Madras port. The port of Madras is only 110 miles from Panruti. The transport cost computations in respect of Panruti

(Madras State) assume that a third of the trade is diverted through Madras Port.

Marmagao is the convenient port for the processing industry in Goa.

Processing the imported raw nuts requires inland transit on two accounts, viz., the transportation of raw nuts from the port of entry to the processing centre and the transportation of kernels vice versa. In respect of some of the processing centres, it is assumed that a part of the trade may have to be diverted from the convenient port to a distant one. In the case of Quilon, it is assumed that such diversion will be half of the total trade, and a third each in the case of both Panruti (Madras) and Calicut (Kerala). When the industry in Quilon trades through Quilon or Neendakara, Calicut through Calicut port and Panruti through Cuddalore port, the inland transport costs are nil. The inland transport costs accounted for in the case of Quilon, thus, is half of the transport costs on raw nuts and kernels (both per tonne of kernels) between Quilon and Cochin. It is one-third of such transport costs between Calicut and Cochin in respect of the industry in Calicut. It is one-third of such transport costs again, between Panruti and Madras in the case of the processing centre in Panruti.

The processing centres in Goa and Mangalore can trade

through their respective ports throughout the year. The inland transport costs are absent here. As regards the industry in Ratnagiri district, Vetapalam, and Palasa, they have to trade through Marmagao, Madras and Vishakapatnam respectively, throughout the year. The entire inland transport costs (per tonne of kernels) have been accounted for in these cases.

The inland transport cost on raw nuts and the kernels have been based on the railway tariff. Cashewnuts and kernels at present generally are moved by road. Transport costs by road could be obtained in respect of the processing centres Quilon, Calicut and Ratnagiri which were visited by the researcher. As regards the rest no such information could be obtained. The transport costs by road as reported by the processors in Quilon and Calicut, almost resembled the transport costs computed for these centres on the basis of railway tariff. It is assumed that the same holds good in respect of other centres too. In the case of Malvan and Vengurla, there is no railway line connecting these centres with Marmagao port. Inland transport costs by road has been accounted for in respect of these centres. Table 4.7.9 presents in respect of different centres the transport costs involved in processing the imported raw nuts.

The processing costs by alternative techniques have already been calculated in respect of different centres. In Table 4.7.10 processing costs given in Table 4.7.7 and

Table 4.7.9 : Transport Costs Involved in Processing the Imported Raw Cashewnuts for Different Centres (Rupees Per Tonne of Cashew Kernels)

Centre	Transport cost on raw nuts from Africa to the port of entry <u>1/</u>		Inland transport cost (inward transportation of raw nuts + outward transportation of kernels)		Total Transport cost	
	Before devaluation	After devaluation	Before devaluation <u>2/</u>	After devaluation <u>3/</u>	Before devaluation	After devaluation
Quilon (Kerala)	291	456	59	61	350	517
Calicut (Kerala)	291	456	45	46	336	502
Mangalore (Mysore)	291	456	-	-	291	456
Malwan and Vengurla (Maharashtra)	291	456	100*	125*	391	581
Vetapalam (Andhra Pradesh)	331	518	194	200	525	718
Palasa (Andhra Pradesh)	331	518	132	136	463	654
Panruti (Madras)	331	518	40	41	371	559
Bicholim (Goa)	291	456	-	-	291	456

* Refer to road transport costs as reported by the processors.

Basis: 1/ Courtesy: Mackinnon and Mackenzie and Company Private Limited, Bombay.
2/ Transport costs given in Table 4.5.3 calculated on the basis of Indian railway goods tariff and assumptions made clear in the text.
3/ Calculated by adding 3 per cent supplementary charge to the Pre-devaluation inland transport costs. The supplementary charge was enforced with effect from April 1st, 1966.

Table 4.7.10 : Cost (Processing + Transport) of Processing Imported Raw Cashewnuts by Alternate Techniques for Different Centres (Rupees Per Tonne of Cashew Kernels)

Centre	Pre-devaluation		After devaluation	
	Labour intensive technique	Capital* intensive technique Type II	Labour intensive technique	Capital* intensive technique Type II
Quilon (Kerala)	1,370	1,317	1,537	1,805
Calicut (Kerala)	1,356	1,303	1,522	1,790
Mangalore (Mysore)	1,237	1,216	1,402	1,712
Malwan and Vengurla (Maharashtra)	1,030	1,289	1,220	1,805
Vetapalem (Andhra Pradesh)	1,073	1,446	1,266	1,960
Palasa (Andhra Pradesh)	1,011	1,384	1,202	1,896
Panruti (Madras)	1,144	1,307	1,332	1,816
Bicholim (Goa)	1,038	1,270	1,203	1,756

* Only mechanized processing plant of Type II is considered. It can be seen from Table 4.7.7 that plant Type II is more economical than Type I.

L 4.7.7

transport costs given in Table 4.7.9 have been combined to arrive at the total cost of processing the imported raw nuts for the different centres.

Table 4.7.10 shows costs calculated in respect of either techniques for all the centres. It was noted that one of the factors that possibly inhibited the growth of the industry in centres, other than those in Kerala, was unsuitable supply of labour. These processing centres will be able to absorb a large quantity of raw nuts only if they employ mechanized processing. It is only in the case of centres in Kerala i.e., Quilon and Calicut, that cost calculated for labour intensive technique has relevance. Locational advantage of different centres should be examined on the following basis: Cost of processing the imported raw nuts by labour intensive technique in Kerala as against cost of processing the imported raw nuts by capital intensive technique in centres in the States, Mysore, Maharashtra, Andhra Pradesh, Madras and Goa. With the above consideration in mind two observations can be made from Table 4.7.10. Before 1966 (that is, before devaluation) Mangalore had an advantage over other centres for processing the imported raw nuts. Since 1966, it is more economical to process the imported raw nuts in either of the two centres in Kerala. Of the two centres in Kerala, viz., Quilon and Calicut, the latter has a nominal advantage over the former.

Conclusions reached regarding the post-1966 period have more practical significance. However, these conclusions need be qualified. Cashew trade from and to Quilon at present passes predominantly through Cochin. In view of the development of Neendakara port near the processing centre, it was assumed that in future only a half of the trade may pass through Cochin. If on the other hand, the trade continues to be effected through Cochin, the inland transport cost in the case of Quilon will be increased by an amount around Rs. 60 per tonne of kernels. Even after taking into account the above possible extra costs, Quilon retains its advantage over the centres in other States for processing the imported raw nuts. When compared with Calicut, Quilon has a disadvantage. Nevertheless, considering the value of a tonne of kernels (\$1000/tonne, 1966) this disadvantage is negligible.

There is one other qualification which needs mention. Costs used for the post-1966 period, except for enhanced value of imported machinery and power costs in the case of mechanized processing and transport costs in respect of both the techniques, are those that existed before 1966. Of the processing costs, wages rise faster than other items. Also wage costs form the single important item in the processing costs. An increase in wages, as said earlier, inflates the processing costs in the case of labour intensive technique more than in the capital intensive technique. (As compared

with the wage cost of Rs. 781 per tonne of kernels in Quilon in 1964, in 1967 it was around Rs. 970.) Wages in Kerala are statutorily fixed and are similar all over the State. Thus, wages in Calicut will be the same as that prevailed in Quilon. In the case of other smaller centres in other States, it was assumed that they will be able to increase their processing capacity by a large measure only if they employ mechanized processing. A wage rise in these centres similar to that in Kerala (this is less probable) would increase the processing costs marginally. Even after taking into account the changed wage costs during the period 1964-66, Quilon will be able to retain its advantage for processing the imported raw nuts over most of the smaller centres. Processing centres in Goa and Mangalore may show a marginal advantage over Quilon.

At present more than 90 per cent of the raw nuts imported into India are processed in Quilon (Table 4.7.11). The industry in Quilon is heavily dependent on imported raw nuts; any large scale diversion of imported raw nuts to other centres would result in considerable unemployment in Quilon. As it has been found that there are no pecuniary gains in processing the imported raw nuts in other centres, the present imports of Quilon can be continued.

As regards the increased exports of raw nuts from Africa there are reasons to support these too can be directed

Table 4.7.11 : Total Imports of Raw Cashewnuts into India and Imports into Cochin and Quilon, 1960-61 to 1965-66 (in Tonnes)

Year	India ¹ (April to March)	Cochin ² (April to March)	Quilon ² (July to June)
1960-61	118,321	64,566	37,601
1961-62	101,876	75,231	18,452
1962-63	155,331	107,281	37,471
1963-64	157,450	133,612	23,454
1964-65	191,523	134,028	47,789
1965-66	160,636	112,567	50,406

Note : The entire imports into Quilon and more than 90 per cent of the imports into Cochin are utilized by the industry in and around Quilon.

Source: 1. Monthly Statistics of the Foreign Trade of India.
2. Annual Reports of the Cochin Chamber of Commerce, Cochin.

to Quilon. The reasons are the following :

(i) There are no pecuniary gains in processing the imported raw nuts in other centres.

(ii) With the existing supply of indigenous and imported raw nuts the industry in Quilon is working below full capacity.

(iii) A good portion of the raw nut crop from Northern and Central Kerala hitherto moved to Quilon. There is

advantage in processing the raw nuts from Northern Kerala in Calicut and those from Central Kerala in Trichur. With this, the supply of indigenous raw nuts to Quilon will be smaller. Increased exports of raw nuts from Africa, if any, can fill this gap.

4.8 : Prospects of the Indian Processing Industry in the International Set Up

The raw nut exporting countries in Africa could not develop their processing industry mainly due to an unsuitable labour supply. With the advancement in processing technology, labour factor has now a less dominant position. The African countries are now able to process a part of their raw nuts employing the mechanized method.

Indian industry depends on imported raw nuts to the extent of 60 per cent of its needs. A wholesale import substitution is not possible considering the achievements on the raw nut production side. It is not advisable to discourage raw nut exports from East Africa, if India aims to retain its monopoly position in kernel exports.

4.8.1 Prospects of Raw Nut Imports from East Africa

The African decision to export kernels or raw nuts to India, it may appear, depends entirely on the return on alternative choice. This should seem so as both processing capacity and export trade are in the hands of private enterprise. However, at least in Tanzania, the National Agricultural Products Board sells the country's processors, raw nuts at 'special' rates. Thus, the processing industry in Africa has a guaranteed supply; what is not required by the processing industry only is exported. Since what is not required by the African industry has necessarily to be

exported, one can ask the question, India being the only importer of raw nuts can she exploit the situation? This was possible in the past when the African countries had no alternative choice. A continuous monopsonistic buying of raw nuts hereafter, however, may induce more processing capacity in East Africa.

It is said that India has been able to retain its monopoly in the recent past because of the high prices that she paid for African raw nuts. It will be interesting (but difficult to examine) whether Indian prices for African raw nuts have been satisfactory. Analytically the problem boils down to solving the following inequality, i.e., for the African countries whether:

$$\left\{ \begin{array}{l} \text{Price of} \\ \text{(kernels} \end{array} \right. - \left. \begin{array}{l} \text{cost of} \\ \text{producing} \\ \text{kernels by} \\ \text{Mechanized} \\ \text{processing} \end{array} \right\} > \left\{ \begin{array}{l} \text{Price for} \\ \text{raw nuts} \\ \text{obtained} \\ \text{from} \\ \text{India} \end{array} \right. - \left. \begin{array}{l} \text{Cost of} \\ \text{Producing} \\ \text{Raw nuts} \end{array} \right\}$$

Raw cashewnuts are an important export item for the three African countries, Mozambique, Tanzania and Kenya. In the 'Yearbook of International Trade Statistics', raw cashewnuts appear as a separate commodity for all the three countries. Exports of kernels from Tanzania and Kenya are small; information regarding quantity exported and its value, is provided only in respect of Mozambique by the above source. However, unit value of kernel exports during 1966 could be learnt from 'Cashew Marketing'. Unit value

of kernel exports and raw nut exports for the three African countries is presented in Table 4.8.1.

Table 4.8.1 : Unit Value of Cashew Kernel Exports and Raw Cashewnut Exports: East African Countries, 1966 and 1967 (Dollars Per Tonne)

Country	Kernels		Raw Nuts ²	
	1966 ¹	1967 ²	1966	1967
Mozambique	979	957	197	191
Tanzania	1,065	N.A.	194	182
Kenya	949	N.A.	215	194

N. A. = Not Available.

Source : 1. Cashew Marketing, International Trade Centre, UNCTAD/GATT, Geneva, 1968, p. 28.

2. Yearbook of International Trade Statistics, 1967, U.N., New York.

Information regarding cost of producing kernels in East Africa is not available. Kernel production involves cost of basic material, i.e., raw nuts, and processing costs.

In the case of Tanzania, the price at which the National Agricultural Products Board sold raw nuts to exporters could be learnt. In the absence of required data, these prices can be broadly assumed as the cost of producing raw nuts to the market in the East African countries.

Table 4.8.2 presents the relevant data.

Table 4.8.2 : Average Ex-store Prices for Raw Cashewnuts
(Standard Grade) Sold for Export: Tanzania
1965-66 to 1967-68

	1965-66	1966-67	1967-68	Average
Dollars Per Tonne	184.24	178.92	180.60	181.25

Source : P. Westergaard, The Cashewnut Industry in Tanzania: Quality of Raw Product, Economic Research Bureau, University College, Dar-Es-Salam, May 1969 (mimeographed), p. 5.

As per Table 4.8.2, on an average, the cost of producing raw nuts to the market was \$180.00 per tonne in Tanzania during the years 1965-66 to 1967-68.

The cost of processing in East Africa could not be calculated. However, some important items of processing costs could be estimated. On the basis of these estimates, a crude minimum estimate of total processing costs can be put around \$165 per tonne of kernels.¹

The inequality presented in page 643 can now be translated into numerical terms for the three raw nut exporting countries. It is assumed that the price of \$180 per tonne of raw nuts and the processing cost of \$165 per tonne of kernels remained the same during the years 1965 to 1967. Table 4.8.3 presents return on kernel exports

¹ For the basis and the method of arriving at the above estimate see Table 4.8.13.

and on raw nut exports for the three African countries, Mozambique, Tanzania and Kenya.

Table 4.8.3 : Comparable Return* on Cashew Kernel and Raw Cashewnut Exports: Mozambique, Tanzania and Kenya, 1966 and 1967

Country	Year	Return on Kernel Exports (\$ per tonne)	Return on Raw Nut Exports to India (\$ per 4 tonnes)
Mozambique	1966	94	68
	1967	72	44
Tanzania	1966	180	56
	1967	N.C.	8
Kenya	1966	64	140
	1967	N.C.	56

N.C. = Could not be calculated in the absence of data.

* Return on kernel exports = Price/tonne of kernel - [Cost of basic material raw nuts (\$180x4) + Processing Cost (\$165)].

Return on Raw nut exports = Price per tonne of Raw nuts obtained from India - Cost of Producing tonne of raw nuts (\$180).

The entire raw nut exports from Mozambique, Tanzania and Kenya during the years 1966 and 1967 were destined to India (see Table 4.8.9). Unit value of raw nut exports presented in Table 4.8.1 thus represent price for raw nuts obtained from India. That raw nut exports from the East African countries are mostly destined to India is true of other years also.

The processing costs in Africa are much higher than the estimated \$165 tonne.¹ Hence actual return on kernel

¹ The above estimate includes only certain items of cost. With a kernel export value which was around \$1,000 per tonne and a raw material cost of \$720 (\$180 x 4), processing costs can be at the most \$280 per tonne of kernels.

exports may be much lower than what is depicted above. It is possible that the cost of producing raw nuts differs between the exporting countries.

Even after making allowance for the above-mentioned shortcomings, there is not much that can be inferred from Table 4.8.3. It cannot be said, on the basis of the Table, whether Indian prices for African raw nuts have been much or less rewarding than kernel exports from Africa. The situation differs for the three raw nut exporting countries. (Such a conclusion may be due to the severe shortcomings of the method used for estimating the returns.)

Table 4.8.3, however, can be put to some limited use. Tanzania presents the case where kernel exports were comparatively much more rewarding than raw nut exports to India. The maximum excess return on kernel exports in the case is \$124 per tonne of kernels (1966). In terms of raw nuts, the same is \$31 per tonne. Tanzanian instance is an extremely unrealistic one. However, it will be of interest to see whether India could afford to pay for the African raw nuts \$31 per tonne more than what she has already paid. (A higher price of that order may not necessarily guarantee raw nut supplies from Africa, for, if local processing units are installed, their requirements are met first.)

It was found that since the devaluation of the rupee, Quilon offers an advantage for processing the imported

raw nuts. The question whether India could pay higher prices for African raw nuts is examined from the point of view of the processing industry in Quilon. The researcher had conducted a survey of the units in Quilon. The survey included 20 units which employed 12,952 workers. The coverage, thus, was 8.40 per cent of the total number of units and 13.98 per cent of the employment in the industry, in Quilon district in 1967.¹ The survey data relate to 1965-66 (financial year), the period immediately preceding the devaluation of the rupee (June 1966). The cost of processing a tonne of kernels in Quilon during 1965-66 is presented in Table 4.8.4.

In Quilon, the firms engaged in cashew processing, more often, own more than one unit. Such firms centralize final grading and packing of the product in a single (or a few) unit(s). Some of the units, thus, do the processing only upto 'peeling' stage. Even as regards supervisory and managerial personnel, only a thin skeleton staff is employed at the individual units; the overall supervision is conducted from the head office. The key persons visit the units almost every day. Some of the costs, such as interest charges, are not incurred separately on individual branches. It is reasonable to look at the branches, owned

1 See Table 4.1.6.

Table 4.8.4 : Processing Costs Per Tonne of Cashew Kernels, Quilon, 1965-66 : Labour Intensive Technique (in Rupees)

Firm	Unit	Employment 1/	Output	Labour	Supervisory and Managerial Personnel	Packing Material and Consumable Stores	Plant Maintenance and Repair	Postage, Stationery and Printing	Audit Fees and Banking Facilities	Local Rates and Factory Licence	Deprecia- tion	Interest Charges 2/	Misce- llaneous	Total
A	1	297	158	857.06	111.04	397.32	49.81	19.49	29.96	4.05	20.23	21.49	16.87	1527.32
B	1	418	326	819.94	77.77	410.15	32.61	12.59	36.71	4.06	28.09	25.38	14.15	1451.45
C	1	535	395	743.60	78.77	389.06	48.24	13.96	20.19	2.08	14.82	37.79	11.13	1359.64
	2	805	456	925.89	60.39	389.06	38.39	11.47	11.84	1.23	21.92	37.79	10.59	1578.57
			851	878.79	68.92	389.06	42.96	12.63	15.71	1.62	18.62	37.79	10.85	1476.95
D	1	385	265	1223.07	30.53	365.54	10.49	8.14	17.65	6.05	21.69	-	35.83	1718.99
	2	550	398	1051.69	91.85	365.54	9.88	7.59	16.89	5.64	13.87	-	33.40	1596.35
	3	705	443	934.18	74.26	365.54	10.40	7.79	12.52	5.78	14.16	-	34.30	1458.93
			1106	1045.69	70.12	365.54	10.23	7.80	15.32	5.79	15.86	-	34.34	1570.69
E	1	676	336	951.40	74.43	381.79	41.67	14.20	10.36	2.27	11.07	32.21	16.75	1536.15
	2	721	454	681.05	61.61	381.79	42.12	14.36	10.46	2.02	12.06	32.21	16.94	1254.62
	3	769	847	646.26	42.96	381.79	38.94	13.28	9.67	2.55	20.12	32.21	15.65	1203.43
			1637	818.54	54.59	381.79	40.38	13.78	10.03	2.34	16.03	32.21	16.23	1285.92
F	1	700	478	882.46	92.55	378.66	56.03	4.97	14.38	1.79	19.44	24.27	15.07	1489.62
	2	784	495	868.68	80.80	378.66	40.00	4.11	10.37	1.61	16.90	24.27	16.09	1441.49
	3	629	544	702.98	54.50	378.66	59.05	3.41	10.51	1.85	15.10	24.27	14.84	1265.17
	4	972	672	897.48	52.43	378.66	46.38	7.46	13.51	1.60	13.28	24.27	12.67	1447.74
			2189	839.35	68.12	378.66	50.19	5.15	12.24	1.71	15.90	24.27	14.51	1410.10
G	1	602	157 ^{3/}	964.26	77.09	355.75	16.06	2.03	21.89	1.43	14.22	-	24.22	1476.95
	2	639	396	1028.50	82.12	355.75	47.94	6.23	26.42	1.70	14.54	-	27.71	1590.91
	3	661	430	1020.92	53.92	355.75	49.83	6.81	27.58	1.60	22.36	-	28.92	1567.69
	4	761	438	819.62	35.39	355.75	50.11	7.21	30.26	1.75	10.61	-	28.90	1339.60
	5	657	466	748.90	71.41	355.75	54.09	7.06	29.94	1.67	8.71	-	31.40	1308.93
	6	686	530	760.12	54.92	355.75	47.56	6.21	26.32	1.52	5.96	-	27.61	1285.97
		2417	872.38	60.28	355.75	47.70	6.39	27.68	1.63	12.19	-	28.60	1412.60	
Weighted Average (Output used as weights)				855.51	64.86	373.74	41.19	8.73	18.10	2.45	15.69	38.19		1418.46
In terms of Dollars (One Dollar = Rupees 7.50)				113.79	8.65	49.83	5.49	1.17	2.41	0.33	2.09	5.09		188.85

- Note : 1. Employment given here is the number on the rolls. It has no direct fixed relation with man-days utilized for the output of the unit. As only part of the processing is done in some of the units, the labour employed is comparatively low in such cases.
2. 'Interest charges' in the case of the units owned by Firm D and G are included under 'Miscellaneous'. The firms had a cost item 'Head-Office Expenses' which included 'Interest charges'.
3. The Unit worked only for a part of the year during 1965-66; hence the low output.

Source : Survey.

by a firm, as a single unit to calculate the cost. The same is done in Table 4.8.4. In Table 4.8.4 processing costs per tonne of kernels have also been calculated for the individual units. It can be seen that the labour costs show wide difference even among the units owned by the same firm. This is due to the fact that some of them do not include all the stages of processing.

Table 4.8.4 gives the weighted average cost of processing for the surveyed units in Quilon. The estimate is based on the data which relate to 1965-66 (financial year). Except for wages, the other costs do not change significantly over a short period of a year or two. Estimates for the year 1965-66 can be safely utilized for the immediate post-devaluation period as regards these items. Wage costs, it was felt, may show a reasonably drastic change. This is all the more so in Kerala where the labourers in the processing industry are paid a 'dearness allowance' which is tied up with cost of living index for Quilon.¹ The allowance formed a substantial part of the wages. In 1967, the daily dearness allowance was Rs.0.94, whereas the average daily wage can be put around Rs.2.25 (inclusive of dearness allowance).

Information regarding labour costs in Quilon could be obtained for a more recent period, i.e., May 1967. Some

¹ Kerala Gazette dated 11th August 1964, Part I, Government of Kerala, Trivandrum.

of the units record the 'outturn' and wages paid at every stage of processing (i.e., shelling, peeling and grading) for every 'lot' that is roasted. There were some items of labour costs which were not thus recorded and hence had to be estimated. The former formed more than 90 per cent of the total labour costs. Table 4.8.5 presents labour costs in Quilon during mid-1967 for the relevant units.

In Table 4.8.5 cost of labour engaged in the various stages of processing differed between the units. As regards 'roasting', the wages differ depending upon the capacity of the 'drum' and the height of the chimney in the case of 'drum roasting'; it depends on the height of the chimney and a few other factors in the case of 'oil bath roasting'. In the case of 'peeling', as the peelers do the preliminary grading and as the number of varieties the peelers are required to grade differ between units, 'peeling' costs differ between units. The work-load for 'grading labour' is generally fixed by mutual agreements between employers and employees of the particular firm. The work-loads and hence grading labour costs differ between the firms. Shelling labour costs also differ between the units; no reasonable explanation could be obtained in this regard.

The coverage of data presented in Table 4.8.5 is negligibly small. As the data relate to a more recent period, this estimate of labour costs in Quilon is used. In respect of other cost items, the estimates as given in

Table 4.8.5 : Labour Costs Per Tonne of Cashew Kernels, Quilon, May 1967 (in Rs.)

Firm	Unit	Lot 1/	Roast- ing	Shell- ing	Bourma	Peel- ing	Grad- ing	General Category 2/	Total	Wages inclusive of employer's contri- bution to E.S.I. and G.P.F. and compulsory bonus and leave with wages
A	1	1	24.13	335.97	24.09	323.90	69.34	23.74	801.07	943.26
		2	23.54	339.61	24.82	326.62	71.25	25.07	810.91	954.85
		3	25.82	332.82	23.65	327.24	72.06	24.15	805.74	948.76
B	1	1	22.80	327.19	21.77	313.70	67.73	21.80	774.99	912.55
		2	22.28	328.78	20.71	312.28	69.07	22.43	775.55	913.21
		3	21.33	331.57	22.01	314.67	63.62	21.94	775.14	912.73
D	3	1	31.02	359.52	26.50	358.06	79.70	25.00	879.80	1035.96
		2	28.95	363.75	27.04	350.72	76.74	26.26	873.46	1028.50
F	1	1	29.11	359.11	21.74	326.97	71.37	21.58	829.88	977.18
		2	27.46	353.25	22.61	336.25	69.86	24.91	834.34	982.44
		3	26.93	357.36	22.36	331.95	74.98	23.17	836.75	985.27
	4	1	27.11	361.11	22.81	337.30	74.24	22.48	845.05	995.05
		2	28.79	368.58	23.13	325.60	78.12	21.73	845.95	996.11
		3	28.10	364.94	23.03	328.62	72.35	22.81	839.85	988.92
Average										969.63
(In terms of Dollars										129.28)

Note : 1. In a 'lot' 50 to 60 bags (of 75 kgs. each) of raw nuts are roasted.
2. Includes wages paid to labour engaged in conveying raw nuts, roasted raw nuts and kernels, and in packing the finished product.

Source: Survey.

Table 4.8.4 have been utilized. The cost of producing a tonne of kernels in Quilon from the raw nuts imported from Africa is given in Table 4.8.6. The costs presented in the Table, it should be noted, relate to the existing labour intensive method of processing.

Table 4.8.6 : Cost of Producing a Tonne of Kernels from Imported Raw Nuts in Quilon, 1967 - Labour Intensive Method

		(in Dollars)

Raw nuts (\$200 ¹ x 4)	=	800
Freight from East Africa to Quilon (\$22 ¹ x4)	=	88
Inland Transport cost on raw nuts and kernels	=	8
Processing Costs:		
(a) Labour costs	129.28	} = 204
(b) Salaries paid to supervisory and managerial personnel	8.65	
(c) Packing material and consumable stores	49.83	
(d) Other costs ²	16.58	
Total		1,100

1. Cashew Marketing, International Trade Centre, UNCTAD/GATT, Geneva, 1968, p. 12.

2. 'Other costs' include costs other than 'Labour', 'Supervisory and managerial personnel' and 'Packing material and Consumable stores' given in Table 4.8.4.

The average price per tonne of kernels secured by Indian processors during the years 1966-68 is given in Table 4.8.7.

Table 4.8.7 : Average Price of Kernels Exported from India, 1966-68

Year	Price (\$ per tonne)
1966 (June to December)	1200.81
1967	1101.53
1968	1265.64

Basis : Monthly Statistics of ^{the} Foreign Trade of India.

During the year 1967, to which the cost data relate, the price of kernels was \$1101.53 per tonne. Unit costs during the year was \$1100 (Table 4.8.6). This should suggest that there was little scope for the Indian processors to pay for the African raw nuts a price higher than is actually paid. The above observation can be supported by a statement made by the President, South India Cashew Manufacturers Association, Quilon. Opposing the State Trading Corporation's move to take over the imports of raw nuts, he stated that the Corporation should also take over the responsibility of exporting the kernels. He further stated that the processors are satisfied if the Corporation assures them a margin of only one per cent.¹ If the industry at present is enjoying only one per cent profit, it should

1 Times of India, August 18, 1970, p. 4.

be difficult for the processors to manoeuvre higher prices for African raw nuts.

The kernel price fluctuates. It can be seen from Table 4.8.7 that kernel price during the years 1966 and 1968 was more than \$1200 per tonne; this price was higher than that prevailed in the year 1967. If \$1200 can be taken as the average price secured by Indian kernel exports, perhaps there is some latitude for the Indian industry to bid higher prices for African raw nuts.

It was stated, as an extreme case, India may have to pay \$31 more per tonne for African raw nuts. This would require a margin of \$124 per tonne of kernel exports. With the kernel price at \$1200 per tonne and unit costs at \$1100, India has a margin of \$100. It should now be recalled that the processing costs estimated for Africa are biased towards the minimum. Hence the premium price India may have had to offer for African raw nuts may be much less than what is indicated.

In the preceding section economics of mechanized processing was studied for different States. The plant sizes compared, with the existing labour intensive technique, were small, having an annual capacity of 750 and 884 tonnes of kernels when worked at double shifts. There are plants of larger size which are more economical in existence in Africa. Data regarding the latter, however, are crude.

One such plant which has an annual capacity of 3,048 tonnes of kernels when worked at double shifts, "is reported to cost about £500,000. The actual machinery alone costs about £300,000".¹ It is also said a plant of the above type "needs a labour force of only one-fourth of what is normally required for manual processing".² The data provided in respect of the above large scale mechanized processing plant is insufficient for any precise analysis. It is for this reason, the plant was not considered in the preceding Section while comparing the alternative techniques for different States in India. Its consideration in the present section is necessary as only such large scale plants are in Africa. As will be seen in the next sub-section, costs in India are compared with those in Africa. Needless to state further, costs in respect of mechanized processing compared, should refer to the same type of plant.

The capital requirement of the large scale mechanized processing plant reported above refers to one in existence in East Africa. Since the machinery has to be imported even in the case of Africa, cost of machinery would be the same for India. As regards the rest of the capital, its requirement in Africa is not applicable for the immediate purpose

1 P. Ramaswamy, "Mechanization in Cashew Processing and Its Implications for Indian Cashew Industry", Agricultural Marketing, July 1967, p. 3.

2 Ibid.

where costs have to be calculated in respect of Quilon. It may be recalled, an assumption was made earlier that 'Current cost on capital invested in land and building' does not differ between techniques; it can be further assumed that it does not differ with scale. Thus, 'Current cost on capital invested in land and building', i.e., Rs.120 or ₹16 per tonne of kernels calculated for mechanized plant of Type II in the last section can be used in respect of the large scale plant for Quilon. There are no data as regards 'Power costs' in the case of the large scale mechanized plant considered here; again 'Power costs' in the case of the mechanized plant of Type II has been utilized (Table 4.7.6). Labour costs in the large scale mechanized plant is one-fourth of that in the labour intensive technique. For Quilon, during mid-1967, the same is one-fourth of the labour costs in the labour intensive technique presented in Table 4.8.6.

Table 4.8.8 presents for Quilon the cost of producing a tonne of kernels from imported raw nuts with the help of the large scale mechanized processing plant discussed above. The data available being crude, the costs calculated represent only a crude estimate; conclusions on the basis, therefore, are broad.

A kernel price of ₹1200 per tonne would allow the Indian processors a margin of ₹121 after meeting the costs,

Table 4.8.8 : Cost of Producing a Tonne of Kernels from Imported Raw Nuts: Quilon 1967: Mechanized Processing (Plant Size 3048 Tonnes of Kernels Per Year)

	(in Dollars)	
Raw nuts (\$200 x 4)		800
Freight from East Africa to Quilon (\$22 x 4)		88
Inland transport cost on raw nuts and kernels		8
Processing Costs:		
(a) Labour costs	32.32	
(b) Salaries paid to supervisory and managerial personnel	8.65	
(c) Packing material and consumable stores	49.83	
(d) Current cost on fixed capital:		
(i) Land and building ¹	16.00	
(ii) Machinery	49.61	
(e) Power costs ¹	12.13	
(f) Other costs ²	<u>14.49</u>	183
Total		1,079

1. 'Current cost on fixed capital invested in land and building' and 'Power costs' calculated for mechanized plant type (see p. 616 and Table 4.7.6) have been imputed here.

2. 'Depreciation' given in Table 4.8.4 were included in 'Other costs' in Table 4.8.6. Here, 'Other costs' exclude 'Depreciation'.

'Labour intensive technique requires little fixed capital.

'Interest charges' in Table 4.8.4 mostly refers to that on working capital. 'Interest charges' given in Table 4.8.4 is included in 'Other costs' above.

\$1079. Perhaps by switching over to mechanized processing method now in operation in Africa, Indian processors may be able to pay better prices for African raw nuts and thus be able to maintain the present trend of imports.¹

The progress of the African industry does not depend exclusively on the gains by alternative choices of exporting raw nuts or exporting kernels. The availability of factors of production may condition their advancement in the processing industry. It is said about Tanzania that though local processing may continue to increase, "... it is likely that Tanzania in many years to come will continue to export the larger part of the harvest of raw cashewnuts to India. ..."² The projected local raw nut processing in the three raw nut exporting countries and the residue which is available as exports to India is presented in Table 4.8.9.

Local processing in Africa will continue to increase. However, they may not be able to process their entire crop. The exports of raw nuts to India should continue.³

1 The cost of processing by the above mechanized processing plant will be less in the case of centres like Mangalore, Goa as compared with Quilon. However, any large scale diversion of imported raw nuts to the former centres will create a large number of unemployed in Quilon. Though mechanized processing itself will result in some unemployment, this will have less harmful effect on Quilon's economy which depends upon cashew industry heavily.

2 P. Westergaard, op.cit., p. 24.

3 A declining trend in raw nut exports from Mozambique during 1964-67 can be attributed to fluctuations in production, for the exports in 1968 were the highest recorded (Table 4.2.4). Reduced exports of raw nuts due to increased local processing will only be gradual.

Table 4.8.9 : Sources of Raw Cashewnuts for Processing and Estimates of Local Processing (in '000 Tonnes)

Year	India			Mozambique			Tanzania		Kenya		Brazil	Other potential countries		World availability of raw cashew for processing
	Estimated local processing	Local production for processing	Imports for processing	Estimated local processing	Exports to Portugal	Exports to India	Estimated local processing	Exports to India	Estimated local processing	Exports to India	Estimated local processing	Local processing	Exports to India	
1961	197.7	66.0	131.7	4.0	-	85.8	-	40.5	-	5.4	10	-	-	211.7
1962	197.1	66.0	131.1	8.0	-	81.4	-	47.6	-	1.7	10	-	-	215.1
1963	240.6	76.2	164.4	8.5	-	102.2	-	58.1	0.5	4.1	12	-	-	261.6
1964	251.6	81.3	170.3	14.0	1.7	125.7	-	40.3	0.5	4.1	15	-	0.2	282.8
1965	257.5	82.0	175.5	16.0	7.8	102.2	0.5	65.2	1.0	6.8	15	-	1.2	297.8
1966	205.7	65.0	140.7	23.0	-	77.4	2.5	60.8	1.0	1.8	15	-	1.0	247.3
1967	N.A.	70.0	N.A.	35.0	-	N.A.	9.0	N.A.	1.2	N.A.	18	-	N.A.	N.A.
Estimate														
1971	225	100	125	70	-	80	30	40	12	0	20	3	5	350

N. A. = Not Available.

Source : Cashew Marketing, International Trade Centre, UNCTAD-GATT, Geneva, 1968, p. 13.

4.8.2 Cost Advantage When the Competing Countries Process Their Indigenous Crop

The preceding sub-section emphasized the international raw material scarcity of the processing industry. There is a rare possibility that the industry may be put on an altogether different keel--Raw nut production in Africa will continue to increase since the return on both raw nut and kernel exports have been rewarding. The acute dependence on the imported raw nuts, and the fear of competition from an emerging African processing industry which may reduce the raw nut exports to India, have drawn attention to the need for import substitution. The various State Governments have seriously taken to propagating cashew. However pessimistic the achievement of the production targets be, there could be substantial increase in the indigenous raw nut production even if only a part of the targets in the two States of Maharashtra and Kerala are achieved. The targets in the two States are fixed high.-- A substantial increase in the world cashew crop may change the problem of the industry from one of raw material scarcity to finding markets for the finished product.

"The build-up of processing capacity in East Africa and the projected domestic production increases in India, will no doubt lead to a considerable increase in production and availability of raw nuts throughout the world in the

not distant future."¹ "Upto now, India has had a predominant position as regards the processing of cashewnuts, a situation which was ideally suited to stabilizing prices. But with the growing processing capacity of Tanzania, Mozambique and Brazil, the present position could soon be altered. It might, therefore, be in the interests of the kernel producing countries to get together and discuss the possibilities of reaching an agreement in order to maintain some form of price stability and also to promote consumption of cashewnuts [kernels] and uses of cashew products."² In case the kernel producing countries fail to come to an agreement, kernels will have to be sold at competitive prices. In a buyers market, the prospects of sales will be decided by the delivered price of kernels. In the following paragraphs an attempt is made to compare the delivered price of Indian and African kernels in the main market, U.S.A., both Indian and African countries using their indigenous raw nuts. Non-availability of required data, it should be noted, pose a limitation to the analysis.

Indigenous production in India may increase in the two States of Maharashtra and Kerala. Raw nuts from Maharashtra will be processed in the centres in Ratnagiri district of the State. Due to non-availability of female

1 Cashew Marketing, UNCTAD/GATT, Geneva, 1968, p. 11.

2 Ibid, p. 5.

labour, the processors in this case may have to employ mechanized processing. As regards raw nuts grown in Kerala, these will be processed at the convenient centres in the State. Cashew crop in Kerala is well spread over the State. Districtwise projections for raw nut production is not readily available. It can be assumed that the production may show similar increase in all the districts. As wages in the processing industry are statutorily enforced in the State, they are similar everywhere. Wage cost being the major component, the cost of processing their respective local raw nuts will be more or less similar for all the centres in Kerala. Here, the case of Quilon is discussed; the same will be representative of other centres in the State. In the case of processing centres in Kerala also if the wage costs rise steeply, perhaps mechanized processing may become inevitable. The international comparison of Indian industry is made in respect of two centres, viz., Quilon and Ratnagiri.

Cost items that constitute the delivered price of kernels in U.S. are listed below:

- (1) Cost of raw nuts (Base price of raw nuts per tonne x 4)
- (2) Processing costs
- (3) Cost of transporting kernels to U.S.

The freight on the product from the originating countries to the markets in the West does not differ much

between Africa and India, as can be seen from Table 4.8.10.

Table 4.8.10 : Freight to U.S.A./Atlantic Ports - Cashew kernels

From	\$ per 40 cft.
Malabar Coast	42.48
Lourenso Marques (Mozambique)	42.75
Mombasa (Tanzania)	46.25

Source: Cashew Bulletin, Export Promotion Council, Ernakulam, July 1969, p. 6.

'Agricultural Prices in India' gives the wholesale price of imported raw nuts in Quilon and the wholesale price of local raw nuts in Calicut. Wholesale price of local raw nuts in Quilon is not known. As regards Ratnagiri, base price of raw nuts has been calculated on the basis of the A.S.I. Statistics regarding raw nut prices in East Africa are not available. For want of better alternative f.o.b. price (value/quantity) of their raw nut exports has been assumed to reflect raw nut price in East African countries. Table 4.8.11 presents the relevant data.

From Table 4.8.11 no definite pattern as regards raw nut prices in India and East Africa is perceptible. The price of local raw nuts in Calicut for some years was higher than the f.o.b. price of East African raw nuts. For some years the former was priced lower. As regards raw nuts from Maharashtra their price was higher than the f.o.b. price

of African exports during all the years for which the data are presented.

Table 4.8.11 : Price of Raw Nuts, 1956 to 1966 (Dollars Per Tonne)

Year	India		East Africa ³		
	Calicut ¹ (Kerala)	Ratnagiri ² (Maharashtra)	Mozam- bique	Tanzania	Kenya
1956	156	N.A.	135	N.A.	N.A.
1957	115	N.A.	125	N.A.	N.A.
1958	115	N.A.	92	N.A.	N.A.
1959	122	182	110	N.A.	N.A.
1960	139	157	142	N.A.	N.A.
1961	151	164	138	125	165
1962	106	144	116	109	129
1963	N.A.	144	133	131	125
1964	N.A.	181	166	162	150
1965	N.A.	217	174	179	201
1966	N.A.	N.A.	197	194	215

N.A. = Not Available.

Basis:

1 - Agricultural Prices in India.

2 - A. S. I.

3 - Yearbook of International Trade Statistics, United Nations.

As per the above Table, base price advantage in raw nuts fluctuates between the competing countries. (The higher

price throughout for the raw nuts in Maharashtra was due to the smallness of the production.) However, it should be noted that f.o.b. price of exports may not be true representatives of raw nut prices in the East African countries.

Delivered price of kernels as defined on page constitute three components, viz., cost of raw nuts (base price of raw nuts per tonne x 4), processing costs and cost of transporting kernels to the market. As regards the base price of the material, the advantage has been shifting between the countries. As regards transport cost on the product, competing countries do not have any significant advantage over each other. In the following paragraphs an attempt is made to compare the processing costs in India and East Africa.

Processing costs include the following items:

- (i) Current cost on fixed capital,
- (ii) Labour costs,
- (iii) Salaries paid to supervisory and office personnel,
- (iv) Fuel and power,
- (v) Packing material and consumable stores, and
- (vi) Other costs.

It was stated that the mechanized processing plants now in existence in Mozambique and Tanzania are larger than those discussed in Section 4.7. Comprehensive data, as said earlier, regarding the above-mentioned plant are not

available. Fixed capital requirement and labour requirement in the plant are known. In the case of India, the other costs can be imputed from existing information. In respect of African countries, the same cannot be done as data regarding cost items (iii), (iv), (v) and (vi) are totally absent.

In mechanized processing 'Current cost on fixed capital', 'Labour costs', 'Fuel and power costs', and 'Packing materials' are the most important cost items. As regards labour intensive technique, 'Labour costs' and 'Packing materials' account for a major portion of the total costs. As said earlier, packing costs in African countries are not known. With the available information, a comparison of costs in Africa and India can be made confining to the items (i) and (ii). The analytical device assumes that the other cost items are less important and hence a difference between the countries in any one of them will not significantly tilt the total processing cost advantage in favour of one of the competing countries.

Labour costs per tonne of kernels in Quilon calculated on the basis of survey data has already been presented in Tables 4.8.4 and 4.8.5. A visit to the processing industry in Ratnagiri (Maharashtra) revealed that the piece rate wages have not changed since 1964. Hence the labour costs computed on the basis of A.S.I. Report for the year 1964 can be utilized for the year 1967 in respect of Ratnagiri.

Labour costs in the processing industry in Mozambique, the chief raw nut exporting country to India, is not known. Yearbook of Labour Statistics (I.L.O.) provides information regarding wages in manufacturing in Tanzania, the second largest raw nut exporter to India. The above source does not give wage rates in different industries in respect of Tanzania. Bulletin of Labour Statistics (I.L.O.), on the other hand, provides wages in the various manufacturing activities in Dar-Es-Salam (Tanzania). The cashew processing industry, however, does not feature separately. The source gives the wages for unskilled labour in different industries. Labour costs in Tanzania's processing industry has been calculated taking ^{into} account the least wage paid to the unskilled labour in manufacturing. Such an estimate will be a minimum estimate.

The mechanized processing plants in existence in Africa, it is stated, require only a fourth of the labour used in the labour intensive technique. The labour intensive technique in India requires on an average 350 labour days to produce a tonne of kernels. Labour costs in Tanzania presented in Table 4.8.12 assume that it requires 88 labour days to produce a tonne of kernels. The assumption implies that labour productivity in Africa is in par with the productivity of labour in India. African labour, however, may be less efficient.

Table 4.8.12 : Labour Costs Per Tonne of Cashew Kernels:
Tanzania, 1965 to 1967

Year	Wages in Manufacturing 1/ per month in Shs.	Cost per tonne of kernels in \$ based on Col.(2)	Lowest wage for 2/ unskilled labour in Manufacturing in cents per hour (4)	Cost per tonne of kernels in \$ based on Col.(4)
(1)	(2)	(3)	(4)	(5)
1965	258	127	77	76
1966	293	144	87	86
1967	328	162	92	91

1/ Yearbook of Labour Statistics, 1967 (I.L.O.). To arrive at the cost of a 'labour day' monthly wages have been divided by 25.

2/ Bulletin of Labour Statistics, 1966, 1967, 1968 (I.L.O.). An eight-hour day has been assumed to calculate the daily wage of an unskilled labour.

The processing industry in Ratnagiri (Maharashtra) may not be able to increase its capacity by a large measure without shifting to mechanized processing. Labour costs in respect of the above centre presented in Table 4.8.13 relate to mechanized processing; it is equivalent to a fourth of the labour costs that prevailed in the centre. In Quilon, the processors may be forced to employ mechanized processing due to rising wages. The relevant processing costs in the case of Quilon have been presented for both the techniques (Table 4.8.13).

Table 4.8.13 : Some Important Processing Costs in India and Tanzania, 1967 (Dollars Per Tonne of Cashew Kernels)

	India		Tanzania	
	Quilon	Ratnagiri	Der-Es-Salam	
	Labour Intensive Technique	Mechanized Processing (Plant size: 3048 tonnes kernels/year)	Mechanized Processing (Plant size: 3048 tonnes kernels/year)	Mechanized Processing (Plant size: 3048 tonnes kernels/year)
Current cost on Fixed Capital :				
a) Land and Building	16 ^{1/}	16	16	24 ^{2/}
b) Machinery	2 ^{1/}	50	50	50
Labour Costs :	129	32	13	91
Total	147	98	79	165

^{1/} Current cost on fixed capital accounted here refer to a new unit. This was necessary as the costs in respect of African countries compared here refer to estimates for a new mechanized processing unit. Earlier in this section the actual costs (depreciation and interest charges, see Table 4.8.4) were used. Then, the question was whether Indian processor could have paid better prices for African raw nuts.

^{2/} Includes only 6 per cent interest charges on capital invested on land, building etc. See P. Ramaswamy, "Mechanization in Cashew Processing and Its Implications for Indian Cashew Industry", Agricultural Marketing, July 1967, p.

Assuming that expenditure on cost items (iii), (iv), (v) and (vi) (see p. 666) does not differ significantly between the competing countries, it can be seen from the Table 4.8.13 that processing costs are lower in India as compared with Tanzania. The mechanized processing enhances India's advantage. Unlike the plants discussed in Section 4.7 the above plant is less capital intensive and hence may be more suitable for Indian conditions.

A labour cost of \$ 91 per tonne of kernels, calculated on the basis of wage rates indicated for unskilled labour, is the minimum estimate of labour costs for Tanzania (Table 4.8.12). Labour in cashew processing industry in India is categorized as semi-skilled labour. Labour costs in African processing industry will be higher than that is presented in Table 4.8.13. This will be a decisive factor which will drive home the advantage for India.

It can be broadly concluded that, if in future, there is excess world supply of raw nuts and the kernel producing countries have to compete in a buyers market, India will be at an advantage. Indian kernels processed of indigenous raw nuts can be delivered in the world markets at a price lower than African kernels processed from African raw nuts.

Finally, India can also consider the possibility of agreements with East African countries for a joint development of the national industries on an agreed basis. This possibility is not explored in detail here.

CHAPTER V

CONCLUSIONS

There are two Sections in the present chapter. The first section briefly summarizes the important conclusions reached in each of the three industry studies. The second reiterates the conclusions regarding the industries in Mangalore.

5.1 The Three Industry Studies

Roofing Tiles :- Tiles are made from common clay. Common clay is ubiquitously available. Before the establishment of the organized industry, tiles were a potter's product. The local made potter's tiles were available almost everywhere. The ubiquity of the raw material and the wide dispersal of the industry when it was at cottage scale, has led to the belief that individual units of the organized type too can be located anywhere in the country.

The organized industry was first established on the West Coast in Mangalore in the year 1860. It is more than a hundred years since then. The art of tile making does not involve a complicated technology. In spite of its long tenure and the simple method of production, the industry is not widely dispersed. It is concentrated on the West Coast, in Mangalore and south of Mangalore. The tiles made here have spanned wide markets; they, at present, cover at least the entire peninsular India. The historical facts suggest that though the raw material required for tiles can be generally categorized as common clay which is ubiquitously available, the quality tiles which can stand long transit

require a particular sub-type. Such clay is available on the West Coast, where only the industry is localized.

Like roofing tiles, building bricks also are made from common clay. The building brick industry has a wider dispersal than the former. It seems, thus, though both the industries use common clay as their raw material, suitably they require different sub-types.

The clay suitable for tiles is available in the South Kanara district of Mysore State and in almost the entire stretch of Kerala State. The location of the industry, however, requires apart from the basic material, favourable supply of labour and availability of certain minimum urban amenities. Thus, even in the raw material stretch, the industry is concentrated in a few towns, viz., Mangalore, Calicut, Quilon and Trichur. Of these, the first is situated in the State of Mysore; the other three are in Kerala.

The growth of an industry in any place depends upon: (i) the availability of alternative opportunities to the investors in the place, and (ii) the competitiveness of the place as compared with others where the particular industry is located. The first aspect was outside the purview of the present study. The second requires a comparison of locational advantage of different centres in relation to various markets. The data required for the purpose are

cost data pertaining to the past and the data regarding important markets for tiles during different periods.

Historical data regarding costs are scant. There are some data which inform about the market pattern for tiles. However, in the absence of cost data no progress in the analysis could be attempted on the above lines.

A review of the market pattern for the tiles manufactured in the four centres, Mangalore, Calicut, Quilon and Trichur, during different periods, brought to light some interesting phenomena. It was found that there are some markets which have remained 'attached' to individual centres, and there are others where two or more centres compete. After a careful examination of some of the obvious market imperfections in the roofing tile industry, it could be suggested that the 'attachment' of a market to an individual centre in most cases could be due to lack of initiative on the part of rivals to venture into the market. Rivals' lack of initiative, it was indicated, could be either due to their ability to sell their product in other markets, or due to fear of consumers' preference in favour of the product already existing in the market. In the 'non-attached' markets the tiles from different centres could compete with varied prices. This could be partly due to consumers' assessment of quality of the product and partly due to their subjective valuation.

The economic justification for the 'attachment' and

'non-attachment' of markets between the centres was examined by comparing the delivered prices. The delivered price was defined as price at the place of manufacture plus transport cost. Price at the place of manufacture, apart from other influences, is mainly dependent on the cost of manufacture. The cost of manufacturing in any place could be influenced by factors both locational and extra-locational. For evaluating the advantage of competing centres in respect of different markets, it was necessary as a first step, the cost of manufacturing at different centres are calculated eliminating the influence of extra-locational factors. The cost data were collected by a survey of the industry in different centres. A preliminary visit to and discussion with the manufacturers in Mangalore preceded the actual survey of the industry in Mangalore and other centres. This provided the researcher with a knowledge of the peculiarities of the industry and influenced the decisions regarding the method of obtaining cost information. Thus it was possible to compute on the basis of survey data, manufacturing costs which are eliminated of extra-locational influences such as differences in technology, scale of operation and plant layout. The cost computations revealed that manufacturing costs in Trichur were the lowest among the four centres intensively studied here. The cost of manufacturing in Mangalore was the highest. By their manufacturing cost advantage, Quilon and Calicut ranked second and third respectively.

To evaluate the locational advantage of the big four centres, Mangalore, Calicut, Quilon and Trichur, the manufacturing cost plus transport cost to the market, in respect of some of the important tile markets, were compared. This revealed that in their local markets, the individual centres have a significant advantage. In the past, the local markets were 'attached' to the respective centres. In its traditional markets on the coast north of it, Mangalore has an advantage over others. Likewise the markets in South Madras which have been hitherto supplied by Quilon, the centre is in an advantageous position. The manufacturers in Calicut compete with those in Trichur in the rail-head markets in North Madras and Andhra Pradesh. Relatively small quantities from Calicut also reach the distant markets in Maharashtra and Central India where the bulk is supplied by Trichur. In all the rail-head markets in North Madras, Maharashtra and Central India, where the tiles from Calicut and Trichur meet, the latter have an advantage over the former, and also over the other two centres, i.e., Mangalore and Quilon, who do not compete in these markets at present.

It was found that in the 'non-attached' markets, the tiles from competing centres could sell at different prices. This casts a doubt on the conclusions regarding locational advantage of different centres arrived at by comparing the cost of manufacture plus transport cost to the market. Hence, a manufacturing centre like Calicut which has no

cost advantage over the others except in its local markets, may be actually in a happier position as compared with others. In other words, it is possible that due to consumers' preference, the tiles from a centre are able to earn a premium over the tiles from other centres. In that case, mere delivered cost advantage is of doubtful validity.

During the survey of the industry, the manufacturers in Calicut frequently complained of the severe competition from the cheaper Trichur tiles. There is some historical evidence to show that in spite of the existence of a group of buyers who are not led by the prices, the bulk opts for the cheaper varieties. Where the margin is large, the high priced brands face an unfavourable competition. The industry in Calicut whose product is priced high, remained almost stagnant during the last two decades, whereas the industry in Trichur which caters cheaper tiles, has grown rapidly during the period. Hence the conclusion, that the centres which have a cost advantage ultimately stand to prosper holds. Locational advantage of different centres inferred on the basis of costs, in this study, thus, are acceptable.

Coffee Curing :- Unlike in the other two industries, in the case of coffee curing industry there is a central body which is empowered to regulate the location of curing houses. The central regulating body, the Coffee Board, was established in 1940; thus, the years before and after 1940

presented two convenient periods for examining the progress of the curing industry. The period after 1940 was discussed mainly with reference to the policy of the Coffee Board.

Coffee growing areas in India groom the Western Ghats starting from its ranges in Mysore State upto the Nilgiris in Madras State where the Ghats steer to the east. Some coffee is grown also in Travancore-Cochin, and in Central Madras in the hills of Shevroys and Pulneys. Coffee growing areas in Mysore State contribute the major share of country's crop; the growing areas in Kerala accounting for the next largest area and crop.

The weight losing nature of coffee curing process necessitates the location of the curing houses near the plantations. However, as the required labour was not available at the plantations, the early curing houses in India were located on the plains at the foot of the coffee growing hills. While in the case of coffee growing areas which are situated inland, viz., Nilgiris, Shevroys and Pulneys, the choice was the nearest township, in the case of growing areas along the Western Ghats, the choice was dual. Curing houses in the latter case could be located either on the coast or in the immediate inland. It is here that demand factor exerted its influence. Until the present century, Indian coffee was mostly exported. To cure the coffee grown in 'Mysore', Coorg and Wynaad areas and later to export the cured coffee to the West, curing houses were

located in Mangalore, Tellicherry and Calicut respectively.

Curing capacity on the West Coast grew faster as compared with that in the inland. This to a certain extent is due to the export orientation of the demand. The concentration of curing capacity on the coast is also due to the fact that the plantations of 'Mysore', Coorg and Wynad which line the coast accounted for a larger portion of the country's crop. Of the coastal centres, Mangalore led the others. Located more conveniently from the major coffee growing areas of 'Mysore', it received more coffee.

Prior to the establishment of the Coffee Board in 1940, the planter had the choice of price and place for the sale of his coffee. Around the turn of the century, due to the ingenuity of the curers, organized coffee markets were developed in Mangalore on the coast and in Coimbatore in the inland. The planters chose to cure their coffee in the above two centres as they could secure in these two places a better price for their produce. Curing industry in Mangalore, however, grew faster as compared with the industry in Coimbatore all along the period 1900-1940. This is explained by the fact that 'Mysore' areas which sent their coffee to Mangalore accounted for nearly half of India's coffee. Coimbatore is less conveniently located from the plantations of 'Mysore'; and Nilgiris, whose coffee was cured in the centre, had comparatively very small crop.

Since the establishment of the Coffee Board in 1940, it is the licensing authority for the location of curing houses; the Board is also statutorily empowered to allocate the coffee meant for curing between the various centres. It was not possible to critically evaluate the Board's role as locationist and examine the rationality of existing flows. The Board has not effected any reallocation of coffee between the curing centres after its inception. The Board's policy as regards the location aspect of curing industry has been passive.

During the period 1953 onwards (for which years data are available) there were three difficulties which beset the Board's adoption of a conscious location policy: (i) qualitative aspect of export demand, (ii) lack of statistics relating to the spatial pattern of internal demand, and (iii) institutional factors. The first two are faced at the formulation stage; institutional factors would have intervened at the stage of implementation. Due to its fastidious quality requirement, superior coffee, wherever it is available, is utilized for export. The present practice, as contended by the Board's officials, is not only to choose superior coffee wherever available for export, but also to choose the relatively better of the coffee available at different centres. Thus, according to the Board's authorities, it is not possible to demarcate curing centres to supply either the export market or internal

markets exclusively. Further, according to the Board's officials, as relatively better coffee is chosen and as relative qualities change, it is difficult to estimate the quantity of exportable coffee that can be secured by allotting a quantity of coffee to any centre.

Internal demand in India is concentrated in the four southern States, viz., Madras, Mysore, Kerala and Andhra Pradesh. For any rationalization scheme, it is a prerequisite to identify the important market points in these States and the typewise demand for coffee at these points. There is a regrettable lacuna in the Board's knowledge in this respect. There has been no market survey. This, however, is a shortcoming of the central authority.

Examining the qualitative aspect of export demand, it could be learnt that export quality coffee is not a fixed proportion of the quantity cured. It was not possible to arrive at precise conclusions as regards the 'extent' of variation with the available data. But it could be hazarded that wide variations were not very common as to defy any policy. Approximately 50 per cent of 'Plantation' and Arabica Cherry, wherever cured, has to be utilized for exports. In the case of Robusta Cherry, the relevant percentage is around 30 per cent. These facts and the fact that there could be sometimes wide variations in the availability of export quality coffee, needs that location of curing houses should be suitable for supplying both the

internal markets and export demand.

There are two cost factors, viz., curing costs and transport costs, which may have to be taken into account for a conscious locational policy on the Board's part. The problem of allocation of coffee between the various curing centres was discussed considering (i) cost factors, (ii) spatial pattern of internal demand and (iii) qualitative aspect of export demand.

Coffee when cured can be visualized to have two components, viz., exportable and unexportable coffee. The former is exported, the latter is utilized for internal consumption. The classification of coffee into exportable and unexportable coffee is possible only after curing. Thus, to provide a certain quantity for internal consumption, it is necessary that a larger quantity be cured and that part of the cured coffee which is of exportable quality be exported. The curing industry in India is located in the three States, Mysore, Kerala and Madras. As regards the internal demand (for unexportable coffee) in each of these States and the complementary export demand (for exportable coffee) which is necessarily supplied with the former, it has been assumed that coffee presently cured in the State has an advantage. With the above assumption, it was found, in the case of Mysore and Kerala, the coffee presently cured in each of these States is not only sufficient to meet their respective internal demand and its complementary

export demand, but also that the quantity cured is more than what is warranted by the State's internal demand. The States of Mysore and Kerala are, thus, 'surplus' States. In contrast to the above two States, Madras, the third State which has curing industry, was found to be a 'deficit' State. In other words, in this case, it was found that the unexportable coffee realized from the quantity cured in the State, is less than the internal demand in the State.

At present, the 'excess demand' in Madras, and the demand in the other States where there is no curing industry, are met by supplying coffee in cured form from Mysore and Kerala. An alternative to this is to cure the coffee in the States where the unexportable coffee is demanded. Cost computations revealed that there is some cost advantage in continuing the curing of coffee in Mysore and Kerala, even when the unexportable coffee is demanded in Madras, or in the States which do not possess the curing industry. Among the curing centres in Mysore and Kerala, those which are located near the plantations possess the cost advantage as regards inter-State demand and the complementary export demand. As regards their respective internal markets and the complementary export demand, curing centres in Mysore, Kerala and Madras were justified in curing the coffee they are presently curing. Thus, it is possible to generalize that there need not be any inter-State reallocation of the coffee cured in the three States, Mysore, Kerala and Madras.

Intra-State allocation of coffee could be discussed only in respect of Mysore. Locational problem of the curing industry largely hinges upon this State. 'Mysore' and Coorg areas which account for more than 70 per cent of the coffee cured, are located in this State. Ninety per cent of the coffee from these areas is cured by the curing centres in Mysore State. Seventy per cent of the exports, the internal demand in Mysore State, a substantial part of the demand in the 'deficit' of Madras, and the demand in the States which do not possess the curing industry, have to be met from the coffee grown in 'Mysore' and Coorg areas and cured in Mysore State.

Curing centres in Mysore State can be categorized into: (i) coastal centre, i.e., Mangalore, (ii) centres located at the interior, viz., Hunsur and Mysore city, and (iii) centres located near the plantations, viz., Chikmagalur, Hassan and Kushalanagar. The centres in Mysore State cure the coffee from 'Mysore' and Coorg areas. It could be learnt, in respect of these areas, whether the unexportable coffee is demanded in Mysore State or in other States, curing centres near the plantations, viz., Chikmagalur, Hassan and Kushalanagar, possess the cost advantage. Thus, any reallocation between the curing centres in Mysore State should be in favour of the above-mentioned three centres.

At present, there is a relative concentration of

curing capacity on the coast as compared with the capacity at the plantations or at the interior centres, viz., Hunsur and Mysore. As per the cost computations, capacity at the interior centres is more than justified. Any reallocation of the type suggested above would require dismantling of the capacity on the coast and at the interior, and installation of new capacity at centres near the plantations. Apart from the capital expenditure involved, such a measure may not be practical. Hence the suggestion should be taken as a guideline for licensing of capacity in future. New curing capacity, when required, should be assigned to the centres near the plantations. There should not be any addition to the curing capacity on the coast. In addition to its cost disadvantage, the seasonal character of the industry in Mangalore imposes many other problems.

For a conscious policy on the Board's part,^a more judicious location of new curing capacity will not suffice. Considering the practical difficulties, if the existing allocation is not to be disturbed drastically, at least as regards new capacity, there should be the directive to cure a prescribed quantity from specified area(s). At present, the planter in many cases is under obligation to get his coffee cured at the curer who supplies him the necessary finances and his estate requisites. To take charge of the institutional factors would mean a considerable burden on the Board's part. The Board should strive hard to strike

a formula which will reduce the influence of institutional factors.

Cashewnut Processing :- Cashewnut decorticating is a weight losing process. Locational logic based on transport costs alone suggests a raw material orientation for the location of the processing industry. At present, the industry is almost wholly confined to India, while more than half of the raw material comes from East Africa. Moreover, the main markets for kernels are U.S.A., U.S.S.R. and U.K.

Probing into the early history of the industry, it was found that India's dependence on imported raw nuts is not a recent phenomenon. India could attain its present monopoly position in kernel exports, only with the help of raw nuts imported from Africa. The latter's failure to develop a processing industry of their own was due to non-availability of labour and skill.

Within the country, the industry is concentrated in Quilon district of Kerala. Location of the industry in Quilon and elsewhere initially was due to the availability of raw nuts in the region. Purely from the indigenous raw nut supply point of view, Quilon was in a favourable position as compared with the other centres except Calicut in Northern Kerala. However, the localization of the industry in Quilon was possible only with the help of imported raw

nuts. Nearness of Cochin port and the availability of cheap water transport facilitated the imports of raw nuts into and the exports of kernels from Quilon. During the years starting with the end of the Second World War, the demand for kernels shot high. Due to the war conditions, the smaller ports, where the processing industry is located, were closed. The port of Cochin, however, was open for traffic. This proved a great boon for the progress of the industry in Quilon.

To the processing centres located in States other than Kerala, the supply of locally available raw nuts was small. Some of these centres could have perhaps augmented their supplies of indigenous material with raw nuts from distant sources or with import supply. An examination of the processing and transport costs in the industry enabled the following observations: (i) The processing industry in Andhra Pradesh and Goa could have competed advantageously with Quilon in processing the imported raw nuts. (ii) The processing centres in Maharashtra and Vetapalam in Andhra Pradesh could have augmented their locally available raw nuts with the raw nuts from Kerala. (iii) On the basis of raw nuts that was locally available, the industry in Calicut should have registered a faster growth than was experienced. (Raw nuts from North Malabar where Calicut is situated moved to Quilon.)

The processing centres in Andhra Pradesh, Maharashtra and Goa failed to develop the industry in spite of their possessing a cost advantage over the localized centre, Quilon. Availability of capital would not have played a decisive role. As the influence of entrepreneurial factor cannot be quantified, the failure of any centre could not be entirely attributed to lack of entrepreneurial initiative. (Nevertheless, it could be learnt that the localization of the industry in Quilon was due to a favourable entrepreneurial factor.) The stunted growth of the industry in Andhra Pradesh, Maharashtra and Goa could be due to unsuitable supply of labour. The industry uses female labour whose supply is dependent on sociological factors. It was difficult to say with precision that labour supply to the industry in any place fell below the minimum requirement. It could, however, be indicated that the centres in Kerala were relatively better endowed as regards the labour factor, when compared with the centres located in other States.

The processing centre in Calicut had a good supply of indigenous raw nuts and the supply of labour in the region was suitable. The failure of the industry in the place, it is viewed here, could be due to migration of entrepreneurial skill to the localized centre, Quilon. There was evidence to show that there was a migration of entrepreneurial skill from a more distant centre, Mangalore, to Quilon; similar information in respect of Calicut could not be obtained.

The problem of processing the raw nuts in the future was discussed with the assumption that any large increase in the supply of raw nuts to centres excluding those in Kerala will necessitate mechanized processing. The following conclusions were arrived at: Indigenous raw nuts available near the existing centres can be processed in the respective centres with the help of existing labour intensive technique, except in the case of Maharashtra. In Maharashtra, if the projections made for the raw nut production come true, mechanized processing may have to be employed. It was found that it is more economical to process the raw nuts in Maharashtra employing the capital intensive technique as compared with transporting them to Kerala, where labour is available in plenty. As regards the imports, the existing supply to Quilon has to be continued considering the acute dependence of the centre on imported raw nuts and the mass unemployment that would result if any large scale diversion is effected. Even in the case of increased exports of raw nuts from Africa, these can be directed to Quilon, as the industry in the centre is working below capacity and as there are no large pecuniary gains in processing them elsewhere.

International competitiveness of the Indian industry could not be evaluated with required precision. There were two questions needed to be examined: (i) whether Indian prices for African raw nuts have been satisfactory, and (ii) whether there was any scope for the Indian processors to offer better prices for African raw nuts than those actually paid. Both the questions could not be satisfactorily

answered. If in the long run, there arises a possibility that competing countries will be processing their respective cashewnut crop, then, in such an eventuality India will have a cost advantage over the East African countries.

5.2 Prospects of Roofing Tile, Coffee Curing and Cashew Processing Industries in Mangalore

Roofing Tiles :- Roofing tile industry in Mangalore depends on the coastal markets north of the centre. A few of these markets are also catered by Calicut among the established centres. However, Mangalore has a cost advantage in all these markets as compared with Calicut, Quilon and Trichur. Such advantage over the first two is marginal.

The fear of threat of competition for the manufacturers in Mangalore is in the vicinity. Coondapur, located at the northern periphery of South Kanara district, is emerging as a new tile manufacturing centre. Coondapur has a cost advantage over Mangalore in the latter's local market and in the traditional markets of Mangalore, along the coast north of the centre. In the local markets, there is generally a strong consumers' preference in favour of the local product; the manufacturers in Mangalore fear less the threat of competition from Coondapur in these markets.

In the roofing tile industry, the established centres enjoy a premium price in certain markets. In the coastal markets north of Mangalore where tiles from both Mangalore and Coondapur sell, Mangalore tiles are priced higher.

At present, the production in Coondapur is small. It is about 2 crores of tiles per year. Thus it can be argued that in the near future the manufacturers in Mangalore need not fear any severe competition from the lower priced Coondapur tiles. However, the history of tile industry shows that though in the initial stages the higher priced tiles may be demanded because of their earlier entry into the particular market, ultimately it is the lower priced brands that stand to gain. It is probable, that a significant advantage in the coastal markets may induce a faster growth of production in Coondapur, if other factors do not impede. The manufacturers in Mangalore may face a situation similar to what the manufacturers in Calicut now face due to the rapid growth of the industry in Trichur since 1947. Lower priced Trichur tiles have flooded the markets which were catered to by Calicut before. The industry in Calicut was almost stagnant during the last many years (nearly 20 years).

Coffee Curing :- It is believed that curing industry in Mangalore developed as the export bound coffee from 'Mysore' (Bababudans and 'Other Mysore') and Coorg plantations could be conveniently cured at the centre. Curing and transport costs together form an unimportant component in the total cost of producing coffee to the market. Pure cost advantage could not have influenced the growth of curing capacity in Mangalore. At present, however, it is

not possible to earmark coffee, when in uncured form, exclusively for export. Due to the fastidious quality of export demand only a part of the cured coffee, of superior quality, can be exported; the rest, i.e., unexportable coffee, has to be utilized for some internal markets. It was found, Mangalore does not possess any cost advantage for curing the 'Mysore' and Coorg coffee whether the unexportable coffee is demanded in Mysore, in 'deficit' State of Madras, or in the States which do not possess the curing industry.

Prior to 1940, the organized (coffee) market Mangalore had developed played a role in attracting coffee to the centre for curing. The concentration of curing capacity in Mangalore has also, to an extent, its basis in certain institutional factors. Both before and after 1940 institutional factors played their role. The curers in Mangalore were in a better position as compared with their competitors located in the inland, for supplying the planter with necessary finances and his estate requisites. The planters who receive financial help and estate requisites from a curer are under (forced) obligation to get his coffee cured at the curer.

There is some operational facility gained in having a good, meant for export, at the port from where it is exported. Mangalore provides such operational facility in respect of 'Mysore' and Coorg coffee (during the months October to June). However, encouragement of the curing

industry in the centre can be only with the purpose of utilizing the cured coffee for exports. Due to the fastidious quality requirements of the export market a substantial part may not be used for the purpose. On the other hand a large part of these cured coffee in Mangalore may be utilized for those internal markets for which it is less suited.

There are natural hurdles in encouraging the curing industry in Mangalore. Intervening monsoon on the coast poses the obstacle. At present, a quantity of uncured coffee is carried over for post-monsoon curing. As cured coffee cannot be retained on the coast, whatever quantity remains unsold before monsoon sets in, is transported to the inland. The former problem can be got over by increasing the curing capacity so as to enable the centre to complete the curing of season's coffee before monsoon. The latter problem may persist. If the Board fails to dispose of the cured coffee available in Mangalore before monsoon, a larger quantity may have to be transported to the inland than at present. It is possible that the Board is able to sell all the coffee available in Mangalore before monsoon. To achieve the same, sales will have to be expedited. There will be always a relative concentration of sales over time if more coffee is found on the coast. The officials of the Board fear that expediting of sales may hamper the prices.

The Board may think it proper to restrict any increase,

or permit only a limited increase, in the flow of coffee to Mangalore. The coastal curers, however, because of their advantageous position from the point of view of institutional factors, may be able to draw a quantity larger than is envisaged by the Board. To take over the responsibility of supplying the planter his necessary finances and estate requisites will mean a considerable burden. Perhaps, the Board will have to strike a formula that will reduce the influence of institutional factors.

Cashewnut Processing :- The progress of cashew industry in Mangalore encountered a few obstacles. Firstly, indigenous supply of raw nuts in the region did not warrant a faster growth. Secondly, the centre did not have a significant cost advantage over Quilon for processing the imported raw nuts. Finally, as the processors in the region reported, the labour supply acts as a constraint on any increase in the processing capacity in the place. Thus, mechanized processing is inevitable if the raw nut supply to the centre increases considerably.

There are no prospects of substantial increase in the indigenous crop in Kanara region or in the immediate hinterland which hitherto supplied raw nuts to Mangalore. If mechanized processing has to be employed in Mangalore, the centre does not have any cost advantage over Quilon for processing the imported raw nuts. The latter has abundant supply of labour and raw nuts can be processed with the existing method.

APPENDIX

Appendix Table 1 : Output Per Worker Per Year in Tile Industry
in Different Centres, 1965-66 (Output in
Number of Tiles)

Centre	Unit	Number Employed	Output *	Output Per Worker Per Year
Mangalore	A	50	1,250,000	25,000
	B	40	1,361,000	34,025 [‡]
	C	130	2,641,000	20,315
	D	112	2,771,000	20,741
	E	110	2,800,000	25,455
	F	137	3,203,000	23,380
	G	137	3,341,000	24,387
	H	171	3,420,000	20,000
	I	217	4,660,000	21,475
	J	174	4,714,000	27,092
Weighted Average Output Per Worker Per Year				23,263
Calicut	A	60	1,353,847	22,564
	B	104	2,250,000	21,635
	C	125	2,928,068	23,425
	D	480	9,108,182	18,975
	E	513	10,790,997	21,035
Weighted Average Output Per Worker Per Year				20,617
Quilon	A	38	1,249,000	32,868 [‡]
	B	84	1,748,000	20,810
	C	264	4,518,000	17,114
	D	271	5,722,000	21,114
Weighted Average Output Per Worker Per Year				19,367

(continued)

Appendix Table 1 : (continued)

Centre	Unit	Number Employed	Output *	Output Per Worker Per Year
Trichur	A	60	1,200,000	20,000
	B	75	1,538,000	21,707
	C	47	1,575,000	33,511*
	D	90	1,590,000	17,667
	E	135	2,500,000	18,519
	F	150	4,339,000	28,927*
Weighted Average Output Per Worker Per Year				18,967

* Includes other products apart from the main product tiles, the former converted into tile equivalent.

* Number employed here refer to that recorded on the factory register. Units, B in Mangalore, A in Quilon and C in Trichur are located at the outskirts of their respective towns. As labour is not available in these localities only a small number is permanently employed and it is this number which appears on the factory register. Temporary hands are recruited frequently at these units. Further, even the small number employed works for longer hours, (for which they are paid in most cases). Actual requirement of labour per unit of output would be more than what can be learnt by relating the annual output with the number on the rolls. In other words the actual output per worker in these units will be much lower than is indicated above.

Unit F in Trichur is a lone example of its type where the job of material shifting is mechanized. There are a large number of units in the centre where such mechanisation is not done.

Units, B in Mangalore, A in Quilon and C and F in Trichur have been omitted while arriving at the average output per worker for the respective centres.

Appendix Table 2 : Exports of Tiles by Sea : Mangalore, 1966-67 (July to June) (Number in Lakhs)

Kerala		North Kanara, Karwar, Goa		Konkan		Bombay		Gujarat		Saurashtra		Other	
Port (1)	No. of Tiles (2)	Port (3)	No. of Tiles (4)	Port (5)	No. of Tiles (6)	Port (7)	No. of Tiles (8)	Port (9)	No. of Tiles (10)	Port (11)	No. of Tiles (12)	Port (13)	No. of Tiles (14)
Azhikal	8.06	Bellikere	12.01	Bhagwa	2.80	Alibag	2.17	Bellimora	3.92	Bhavnagar	7.71	Other Indian Ports	25.65
Karancode	3.05	Betul	9.53	Chiplun	0.30	Arnala	3.23	Broach	14.81	Diu	1.42	Foreign Ports	1.07
		Cancona	1.24	Devbhag	0.26	Bessin	5.25	Bulsar	2.25	Dwarka	0.86		
		Chapora	3.88	Devghad	8.51	Bankot	4.89	Dahanu	4.32	Mangpol	4.71		
		Carthingop	0.37	Jaighad	8.61	Bombay	138.11 (21.89)	Daman	4.04	Navabunder	2.92		
		Honavar	0.07	Jaithapur	11.69	Dabhol	65.10 (10.32)	Maroli	1.52	Porbunder	20.56 (3.26)		
		Karwar	1.06	Kelshi	0.75	Harnai	2.03	Matwad	2.52	Veraval	74.60 (11.82)		
		Kiranpani	2.06	Malwan	6.54	Karansa	7.27	Mora	1.38				
		Marmagosa	13.50	Palseth	0.41	Kelve	2.23	Navsari	2.81				
		Penjim	25.01 (3.96)	Puranghad	10.05	Murud	0.55	Osel	1.21				
		Sadashivgad	5.93	Ratnagiri	46.62 (7.39)	Panvel	5.54	Surat	7.66				
				Shirod	0.26	Revdanda	4.26	Umbergaon	2.82				
				Vengurla	4.65	Satpati	3.41						
				Vijaydurg	9.28	Shrivardhan	0.28						
						Tarepur	1.34						
Total	11.11 (1.76)	Total	74.66 (11.83)	Total	110.73 (17.55)	Total	245.66 (38.94)	Total	49.26 (7.81)	Total	112.78 (17.88)	Total	26.72

Total Exports of Tiles by Sea (Cols. 2 + 4 + 6 + 8 + 10 + 12 + 14) = 630.92

Note : Figures in brackets indicate percentage to the total exports by sea.

Courtesy : The Western India Tile Manufacturers Association, Mangalore.

Appendix Table 3 : Weighted Average f.o.b. Price Per 1000 Tiles for Different Centres based on Prices Quoted by the Units, in 1967* (Price in Rs.)

Centre/ Unit	Tiles sold in 1965-66	Grade I			Grade II			Grade III			Grade IV			Total Value	Price/ 1000 tiles
		Number of tiles	Price/ 1000 tiles	Value	Number of tiles	Price/ 1000 tiles	Value	Number of tiles	Price/ 1000 tiles	Value	Number of tiles	Price/ 1000 tiles	Value		
Mangalore															
B	1,318,000	856,700	165	141,355	329,500	155	51,073	65,900	145	9,556	65,900	80	5,272	207,256	157.25
C	2,480,000	1,736,000	195	338,520	243,000	185	45,880	148,800	175	26,040	173,600	150	26,040	451,236*	181.95
D	2,656,000	1,992,000	180	358,560	265,600	170	45,152	132,800	160	21,248	265,600	150	39,840	464,800	175.00
E	2,680,000	2,144,000	190	407,360	214,400	180	38,592	160,800	170	27,336	160,800	140	22,512	495,800	185.00
F	3,059,000	2,294,250	195	447,379	305,900	190	58,121	152,950	180	27,531	305,900	170	52,003	585,034	191.25
G	3,114,000	2,335,500	180	420,390	311,400	170	52,938	311,400	160	49,824	155,700	150	23,355	546,507	175.50
H	3,220,000	2,415,000	195	470,925	193,200	190	36,708	257,600	185	47,656	354,200	160	56,672	611,961	190.05
I	4,230,000	3,595,500	165	593,258	253,800	155	39,339	169,200	145	24,534	211,500	80	16,920	674,051	159.37
J	4,532,000	3,399,000	195	662,805	453,200	185	83,842	453,200	170	77,044	226,600	160	36,256	859,947	189.77
Total	27,289,000													4,896,592	179.44
Calicut															
A	1,280,933	640,467	220	140,903	128,093	190	24,338	192,140	180	34,585	320,233	170	54,440	254,266	198.50
B	1,800,000	720,000	235	169,200	360,000	225	81,000	360,000	200	72,000	360,000	160	57,600	379,800	211.00
C	2,736,932	1,779,006	235	418,066	273,693	230	62,949	273,693	200	54,739	410,540	185	75,950	611,704	223.50
D	7,559,790	2,494,731	225	561,314	1,511,958	210	317,511	3,023,916	190	574,544	529,185	150	79,378	1,532,747	202.75
E	8,376,000	5,025,600	195	979,992	1,675,200	190	318,288	1,675,200	180	301,536	-	-	-	1,599,816	191.00
Total	21,753,655													4,378,333	201.27
Quilon															
A	1,113,000	834,750	180	150,255	111,300	160	17,808	111,300	145	16,138	55,650	110	6,122	190,323	171.00
B	1,713,000	1,027,800	190	195,282	513,900	180	92,502	171,300	160	27,408	-	-	-	315,192	184.00
C	3,374,000	1,687,000	200	337,400	843,500	190	160,265	506,100	160	80,976	337,400	130	43,862	622,503	184.52
D	5,532,000	2,232,800	195	435,396	1,953,700	190	371,203	837,300	175	146,528	558,200	135	75,357	1,028,484	184.25
Total	11,782,000													2,156,502	183.03

(continued)

Appendix Table 3 : (continued)

Centre/ Unit	Tiles sold in 1965-66	Grade I			Grade II			Grade III			Grade IV			Total Value	Price/ 1000 tiles
		Number of tiles	Price/ 1000 tiles	Value	Number of tiles	Price/ 1000 tiles	Value	Number of tiles	Price/ 1000 tiles	Value	Number of tiles	Price/ 1000 tiles	Value		
Trichur															
A	1,164,000	873,000	145	126,585	116,400	115	13,386	116,400	95	11,058	58,200	75	4,365	155,394	133.50
B	1,459,000	875,400	145	126,933	145,900	125	18,238	262,620	115	30,201	175,080	75	13,131	188,503	129.20
C	1,507,000	1,130,250	155	175,189	150,700	110	16,577	75,350	100	7,535	150,700	70	10,549	209,850	139.25
D	1,540,000	847,000	175	148,225	385,000	170	65,450	231,000	90	20,790	77,000	75	5,775	240,240	156.00
E	2,411,000	1,446,600	140	202,524	482,200	120	57,864	241,100	95	22,905	241,100	75	18,082	301,375	125.00
F	3,854,000	2,890,500	175	505,838	578,100	155	89,605	192,700	135	26,015	192,700	100	19,270	640,728	166.25
Total	11,935,000													1,736,090	
Weighted Average Price															145.46

* Tile manufacturers classify tiles into grades. There is no standard rule observed by all the units in classifying the output. The specification of the grade and the percentage share of the grade in the output differs from unit to unit. Data were obtained regarding (a) f.o.b. prices quoted for the different grades during the survey period in 1967 and (b) the grade composition of unit of output i.e. 1000 tiles.

Production data for the year 1966-67 could not be obtained. Hence, with the help of data relating to sales of tiles during 1965-66 the quantity of tiles in different grades has been found out. The tiles in each grade have been valued at the f.o.b. price quoted for the grade during the survey in 1967. The next step is to calculate the value of output (comprising of all grades) for the individual units. Adding the value of output of all the units in the individual centre and dividing by the total output (i.e. tiles sold during 1965-66) the weighted average price has been arrived at for the centre.

* Unit C in Mangalore classified its tiles into five grades. The V grade consisting of 173,600 tiles priced at Rs.85 per 1000 tiles amounted to Rs. 14,756 for the grade. The total value of the product for the unit includes the value from the V grade.

Appendix Table 4 : Transport Cost Per 1000 Tiles, 1965-66 (in Rs.)

Market	State in which the Market is Located	Mangalore		Coondapur		Calicut		Quilon		Trichur			
		(By Rail)	(By Rail Via Mangalore-Hassan New Link)	(By Coast upto Bombay, Rail there-after)	(By Rail via Mangalore)	(By Rail via Mangalore-Hassan New Link)	(By Coast upto Bombay, Rail there-after)	(By Rail)	(By Coast upto Bombay, Rail there-after)	(By Rail)	(By Coast upto Bombay, Rail there-after)		
A : RAIL-HEAD MARKETS													
1) Local Markets of the Four Centres													
Mangalore	Mysore	-			20.00*		28.56		61.20		36.72		
Calicut	Kerala	28.56			68.56		-		48.48		20.40		
Quilon	"	61.20			101.20		48.48		-		40.32		
Trichur	"	36.72			76.72		20.40		40.32		-		
ii) Other Rail-head Markets													
Salem	Madras	51.84	56.64		91.84	106.64	37.20		64.24		33.12		
Madurai	"	63.12	78.48		103.12	118.48	49.92		31.92		46.80		
Tinnevely	"	71.04	87.36		101.04	117.36	59.04		24.96		55.44		
Hyderabad	Andhra Pradesh	98.04	84.48	143.52	138.04	124.48	140.52	68.80	153.52	103.20	163.52	86.40	193.92
Poona	Maharashtra	114.00	88.08	104.40	154.00	128.08	101.40	104.64	114.40	118.32	124.40	102.24	154.80
Ujjain	Madhya Pradesh	135.84	132.24	140.16	175.84	172.24	137.16	132.72	150.16	136.80	160.16	129.36	190.56
B : COASTAL MARKETS													
By Sea													
Fenjim	Goa	42.00			39.00		52.00		62.00		92.40		
Ratnagiri	Maharashtra	50.00			47.00		60.00		70.00		100.40		
Bombay	"	58.00			55.00		68.00		78.00		108.40		
Broach	Gujarat	73.00			70.00		83.00		93.00		123.40		
Veraval	"	78.00			75.00		88.00		98.00		128.40		

* Refers to transport cost by road.

* Via Calicut, upto Calicut by rail.

Note : A transshipment cost of Rs.20.00 per 1000 tiles has been added for the change in mode of transport wherever applicable.

Source : Railway Tariff - Rates given for commodity Class 30-A in the Goods Tariff No. 31-A, Part II, Goods Rate Tables, (in force from 1st April 1965), Indian Railway Conference Association, Delhi.

Railway Tariff is per Quintal. To calculate the above transport costs it has been assumed that 24 Quintals = 1000 Tiles.

**Appendix Table 5 : Weighted Average Price* Per 1000 Tiles
for Different Centres based on Sales
Data, 1965-66**

Centre	Unit	Tiles Sold (in Nos.)	Sale Receipts (in Rs.)	Price per 1000 Tiles (in Rs.)
Mangalore	C	2,480,000	347,200	140.00
	E	2,680,000	465,106	173.55
	F	3,059,000	494,854	161.77
	G	3,114,000	463,170	148.74
	H	3,220,000	540,316	167.80
	I	4,230,000	710,640	168.00
	J	4,532,000	654,557	144.43
	Total	23,315,000	3,675,843	
	Weighted Average Price			157.66
Calicut	A	1,280,933	193,421	151.00
	B	1,800,000	273,929	152.18
	C	2,736,932	419,373	153.23
	D	7,559,790	1,256,135	166.16
	E	8,376,000	1,273,989	152.10
	Total	21,753,655	3,416,847	
	Weighted Average Price			157.07
Quilon	A	1,113,000	144,601	129.92
	B	1,713,000	227,825	133.00
	C	3,374,000	475,765	141.01
	D	5,582,000	759,463	136.06
	Total	11,782,000	1,607,654	
	Weighted Average Price			136.45
Trichur	B	1,459,000	153,195	105.00
	C	1,507,000	165,770	110.00
	D	1,540,000	185,890	120.71
	F	3,854,000	501,020	130.00
	Total	8,360,000	1,005,875	
	Weighted Average Price			120.32

* Weights used are tiles sold.

BIBLIOGRAPHY

BOOKSGeneral

- Airov, Joseph, Location of Synthetic Fibre Industry : A Case Study in Regional Analysis, New York: The Technology Press of the Massachusetts Institute of Technology and John Wiley and Sons Inc., 1959.
- Berry, Brian J. L., Geography of Market Centres and Retail Distribution, Englewood Cliffs, New Jersey, U.S.A.: Prentice Hall, Inc., 1967.
- Boudeville, J. R., Problems of Regional Economic Planning, Edinburgh: Edinburgh University Press, 1966.
- Ghosh, A., Efficiency in Location and Inter-regional Flows—The Indian Cement Industry during the Five Year Plans 1950-1959, Amsterdam: North-Holland Publishing Company, 1965.
- Friedman, John, and Alonso, William, (ed.) Regional Development and Planning—A Reader, Cambridge, Massachusetts: The M.I.T. Press, 1964.
- Greenhut, Melvin L., Plant Location in Theory and Practice—The Economics of Space, Chapel Hill, U. S. A.: University of North Carolina Press, 1956.
- , Microeconomics and the Space Economy, Chicago: Scott Foresman and Co., 1963.
- Hirsch, Seev, Location of Industry and International Competitiveness, Oxford: Clarendon Press, 1967.
- Hoover, Edgar M., Location Theory and the Shoe and Leather Industries, Cambridge, U.S.A. : Harvard University Press, 1937.
- , The Location of Economic Activity, New York : McGraw-Hill Book Co. Inc., 1948.
- Hufbauer, G. G., Synthetic Materials and the Theory of International Trade, London : Gerald Duckworth and Co. Ltd., 1966.
- Isard, W., Schooler, E.W., and Victoriss, T., Industrial Complex Analysis and Regional Development, New York: The Technology Press of the Massachusetts Institute of Technology and John Wiley & Sons, Inc., 1959.

- Isard, W., et al, Methods of Regional Analysis : An Introduction to Regional Science, New York: The Technology Press of the Massachusetts Institute of Technology and John Wiley & Sons, Inc., 1960.
- Isard, W., Location and Space Economy, New York : The Technology Press of the Massachusetts Institute of Technology and John Wiley and Sons Inc., 1956.
- Karaska, G. J., and Bramhall, D. F., (ed.) Locational Analysis for Manufacturing—A Selection of Readings, Cambridge, Massachusetts: The M.I.T. Press, 1969.
- Leeman, W. A., The Price of Middle-East Oil, New York : Cornell University Press, 1962.
- Lefebvre, Louis, Allocation in Space : Production Transport and Industrial Location, Amsterdam: North-Holland Publishing Company, 1958.
- Losch, August, The Economics of Location, New Haven, U.S.A.: Yale University Press, 1954.
- Luttrell, W. F., Factory Location and Industrial Movement, 2 vols. London: National Institute of Economic and Social Research, 1962.
- Manne, Alan S., (ed.) Investments for Capacity Expansion, Size, Location and Time Phasing, London: George Allen and Unwin, 1967.
- Misra, R. P., et al (ed.) Regional Planning: Concepts, Techniques, Policies and Case Studies, Mangalore: Frasaranga, The University of Mysore, 1969.
- Needleman, L., Regional Analysis, Middlesex, England: Penguin Books Ltd., 1968.
- Richardson, Harry W., Elements of Regional Economics, Middlesex, England: Penguin Books Ltd., 1969.
- Smith, David M., Industrial Location : An Economic Geographical Analysis, New York: John Wiley & Sons, Inc., 1971.
- Weber, Alfred, Theory of the Location of Industries (translated by Friedrich, C.J.), Chicago: Chicago University Press, 1929.

Allied to the Present Study

- Buchanan, Daniel H., The Development of Capitalistic Enterprise in India, New York: The Macmillan Company, 1934.
- Duffy, James, Portuguese Africa, Cambridge, Massachusetts, U.S.A.: Harvard University Press, 1959.
- Figueiredo, Antonio de, Portugal and Its Empire: The Truth—A book that will help people to understand Angola, London: Victor Gollancz Ltd., 1961.
- Gadgil, D. R., The Industrial Evolution of India, Calcutta: Oxford University Press, 1948.
- Hailey, Lord, An African Survey, A Study of Problems Arising in Africa South of Sahara, London: Oxford University Press, 1938.
- Hammond, R. J., Portugal and Africa 1815-1910: A Study in Economic Imperialism, Stanford, California, U.S.A.: The Food Research Institute, Stanford University, 1966.
- I.L.O., African Labour Survey, Geneva: I.L.O., 1958.
- International Trade Centre, UNCTAD/GATT, Cashew Marketing, Geneva: 1968.
- Langley, W.R. (ed.), Century in Malabar: A History of P. L. and Co., Cochin: Peirce Leslie and Co.
- Leubuscher, C., Tanganyika Territory, A Study of Economic Policy Under Mandate, London: Oxford University Press, 1944.
- Menon, C. Achutha, Cochin State Manual, 1911.
- Nairn, Bryce T. M., Portuguese East Africa (Mocambique), London: Her Majesty's Stationery Office, 1955.
- Rao, P. R., Portuguese Rule in Goa, Bombay: Asia Publishing House, 1963.
- Raychaudari, S. P., Land Resources of India, New Delhi: Committee on Natural Resources, 1963.
- United Nations, Food and Agriculture Organization, Coffee in Latin America: Productivity Problems and Future Prospects: I - Columbia and El Salvador, New York, 1958.

United Nations, Food and Agriculture Organization, Coffee in Latin America: Productivity Problems and Future Prospects: II - Brazil, State of Sao Paulo. Part I. The State and Prospects of Production, Mexico, 1960.

Westergaard, P., The Cashewnut Industry in Tanzania: Quality of Raw Product, Dar-Es-Salam: Economic Research Bureau, University College, May 1969 (mimeographed).

ARTICLES

General

- Dunn, E. S., "The Market Potential Concept and the Analysis of Location," Papers and Proceedings of the Regional Science Association, Vol. 2, 1956, pp. 183-94.
- Harris, Chauneey D., "The Market as a Factor in Localization of Industry in the U.S.," Annals of the Association of American Geographers, Vol. 44, No. 4, 1954, pp. 315-48.
- Hotelling, H., "Stability in Competition," Economic Journal, Vol. 39, No. 153, March 1929, pp. 41-57.
- Isard, Walter, "Location Theory and Trade Theory : A Short-Run Analysis," Quarterly Journal of Economics, Vol. 68, No. 2, May 1954, pp. 305-20.
- Isard, W., and Peck, M.J., "Location Theory and International and Interregional Trade Theory," Quarterly Journal of Economics, Vol. 68, No. 1, February 1954, pp. 97-114.
- Losch, August, "The Nature of Economic Regions," Southern Economic Journal, Vol. 5, No. 1, July 1938, pp. 71-78.
- Moses, L.N., "A General Equilibrium Model of Production, Interregional Trade and Location of Industry," Review of Economics and Statistics, Vol. 42, No. 4, November 1960, pp. 373-97.
- , "Location and the Theory of Production," Quarterly Journal of Economics, Vol. 72, No. 2, May 1958, pp. 259-72.
- North, Douglass C., "Location Theory and Regional Economic Growth," Journal of Political Economy, Vol. 63, No. 3, June 1955, pp. 243-58.
- Predohl, Andreas, "The Theory of Location in Its Relation to General Economics," Journal of Political Economy, Vol. 36, No. 3, 1928, pp. 371-90.

Tiebout, C.M., "Exports and Regional Economic Growth," North, D.C., "A Reply", Tiebout, C.M., "Rejoinder", Journal of Political Economy, Vol. 64, No. 2, April 1966, pp. 160-69.

Allied to the Present Study

Almeida, Jose C., "The Cashew Industry in Goa," Indian Cashew Journal (Cashew Export Promotion Council, Ernakulam), August 1962, pp. 2-3.

Arkadie, B. Van, and Ghai, D., "The East African Economies: Kenya, Uganda and Tanzania," in Robson, P., and Lury, D.A., (ed.) The Economies of Africa, London, George Allen & Unwin Ltd., 1969, pp. 316-83.

Division of Rural Economics of the Economic Department, Reserve Bank of India, "Financing of Coffee Industry," Reserve Bank of India Bulletin, Vol. 18, No. 2, February 1964, pp. 149-58.

Jain, L.C. and Jain, V.K., "Bricks and Tile Research in India," Souvenir, All India Seminar on Ceramic Industries Trichur, May 1966, Central Kerala Tile Manufacturers' Association, Trichur, pp. 1-9.

Kamat-Helekar, G.V., "A Resume of the Goan Economy," in Shah, A.B. (ed.) (for Indian Committee for Cultural Freedom) Goa : The Problems of Transition, Papers Presented to the Seminar Convened at Margao, Goa on November 28-30, 1964. Bombay: Manaktalas, 1965, pp. 33-52.

Laud, G.M., "Economic Problems of Goa," in Shah, A.B. (ed.) (for Indian Committee for Cultural Freedom) Goa: The Problems of Transition, Papers Presented to the Seminar Convened at Margao, Goa on November 28-30, 1964. Bombay: Manaktalas, 1965, pp. 53-72.

Madappa, P.P., "Location and Role of Coffee Curing Works in Relation to Coffee Plantations," Artha Vikas, Vol. 4, No. 2, July 1968, pp. 40-66.

Murthy, M. Rajashekara, "Progress of Industries in Canara Region," The Economic Times, June 16, 1969.

Poornam, P., "Survey of Ceramic Industries in India," Souvenir, All India Seminar on Ceramic Industries, Trichur, May 1966, pp. 70-107.

Ramaswamy, P., "Mechanization in Cashew Processing and Its Implications for Indian Cashew Industry," Agricultural Marketing, Vol. 10, No.2, July 1967, pp.1-4.

Sedalia, B.M., "Roofing Tile Industry in Gujarat," Souvenir, All India Seminar on Ceramic Industries, Trichur, May 1966, pp. 63-69.

"Survey of Cashewnut Industry in Maharashtra State," Cashew Bulletin (Cashew Export Promotion Council, Ernakulam), Vol. III, No. 5, May 1966, pp. 4-6; Vol. III, No. 6, June 1966, pp. 6-8; Vol. III, No. 8, August 1966, pp.5-6.

REPORTS

Government of India

Accounts Relating to the Inland (Rail and Riverborne) Trade of India, Department of Commercial Intelligence and Statistics, Calcutta, 1960-61 to 1968-69.

Directorate of Economics and Statistics, Ministry of Food and Agriculture, Agricultural Prices in India, New Delhi, 1960 to 1962.

Agricultural Statistics of India for the Years 1901-02 to 1905-06, Vol. I, Department of Revenue and Agriculture, Calcutta, 1907.

Annual Survey of Industries, Central Statistical Organization, Calcutta, 1959 to 1965.

Census of India, 1901, Vol. XX, Cochin, Part I - Report.

Census of India, 1901, Vol. XV-A, Madras, Part II - Imperial Tables.

Census of India, 1901, Vol. XXVI-B, Travancore, Part III - Provincial Tables.

Census of India, 1911, Travancore.

Census of India, 1931, Vol. XXI, Cochin, Part I - Report Part II - A and B - Tables.

Census of India, 1931, Vol. XII, Madras, Part I - Report.

Census of India, 1951, Vol. IV, Bombay, Saurashtra and Kutch, Part II-B - Tables.

Census of India, 1951, Vol. III, Madras and Coorg, Part II-A - Tables.

Census of India, 1951, Vol. III, Madras and Coorg, Part II-B - Tables.

Census of India, 1951, Vol. XII, Travancore-Cochin, Part II - Tables.

Census of India, 1961, Vol. II, Andhra Pradesh, Part II-B(ii) - Economic Tables.

Census of India, 1961, Vol. II, Andhra Pradesh, Part II-B(i) - Economic Tables.

Census of India, 1961, Vol. VII, Kerala, Part II-B(i) - General Economic Tables (Tables B I to B IV).

Census of India, 1961, Vol. VII, Kerala, Part II-B(ii) - General Economic Tables (Tables B V to B IX).

Census of India, 1961, Vol. IX, Madras, Part II-B(ii) - General Economic Tables.

Census of India, 1961, Vol. IX, Madras, Part II-B(i) - General Economic Tables.

Census of India, 1961, Vol. X, Maharashtra, Part II-B(i) - General Economic Tables.

Census of India, 1961, Vol. XI, Mysore, Part II-B(ii) - General Economic Tables.

Census of India, 1961, Vol. XI, Mysore, Part II-B(i) - General Economic Tables.

Census of India, 1961, Vol. XXVII, Goa, Daman and Diu, Part II-B - General Economic Tables.

Census of India, 1951, District Census Handbook: Srikakulam, Madras.

Census of India, 1961, District Census Handbook: South Kanara, Mysore.

Census of India, 1961, District Census Handbook: Ratnagiri, Maharashtra.

Census of India, 1961, District Census Handbook: Srikakulam, Andhra Pradesh.

- Census of India, 1961, District Census Handbook: Guntur, Andhra Pradesh.
- Handbook of Commercial Information, Vol. I, Department of Commercial Intelligence and Statistics, Calcutta, 1963.
- Indian Coffee Statistics, Department of Commercial Intelligence and Statistics, Calcutta, 1927-28 to 1940-41.
- Indian Coffee Statistics, 1943-44 to 1947-48, Ministry of Agriculture, New Delhi, 1950.
- Large Industrial Establishments in India, Department of Commercial Intelligence and Statistics, Calcutta, 1917 to 1944.
- Large Industrial Establishments in India, Labour Bureau, Ministry of Labour and Employment, Simla, 1944 to 1958.
- Monthly Statistics of the Foreign Trade of India, Director General of Commercial Intelligence and Statistics, Calcutta, 1958-59 to 1969-70.
- Report of an Enquiry into Conditions of Labour in the Cashew-nut Processing Industry in India, Labour Bureau, Simla, 1954.
- Report of the Intermediate Ports Development Commission, April 1960, Ministry of Transport and Communication, New Delhi, 1960.
- Report on the Marketing of Coffee in India and Burma, New Delhi, 1940.
- Report of the Plantation Inquiry Commission 1956, Part II - Coffee, Delhi.
- Report of the Study Group on Cashew, Ministry of Commerce, New Delhi, 1965.
- Report on the Survey of the Minor Ports in India, Ministry of Transport, New Delhi, 1952.
- Report of the Working Group for the Formulation of Fourth Five Year Plan Proposals on Spices and Cashewnut, Indian Council of Agricultural Research, New Delhi, 1965.
- Statistics of the Coasting Trade of India, Department of Commercial Intelligence and Statistics, Calcutta, 1960-61 to 1964-65.

Statistics of Factories, 1965, Labour Bureau, Ministry of Labour, Employment and Rehabilitation, Simla.

Study on Cashewnut in India, Committee on Natural Resources, Planning Commission, New Delhi, 1964.

The National Sample Survey, Thirteenth Round : September 1957-May 1958, Number 71, Consumer Expenditure by Levels of Household Expenditure, 1962.

The Wealth of India—A Dictionary of Indian Raw Materials and Industrial Products, Raw Materials, Vol. II-C, Council of Scientific and Industrial Research, 1950.

State Governments

Government of Kerala:

An Economic Review - Kerala, Bureau of Economics and Statistics, Trivandrum, 1963 to 1966.

An Economic Review, Kerala, 1967, State Planning Board, Trivandrum.

Economic Review - Kerala, 1968, State Planning Board, Trivandrum.

Kerala Gazette, 11th August 1964, Part I, Trivandrum.

List of Factories Registered in Kerala State as on 31st December 1964, Trivandrum, 1965.

Report of the Minimum Wages Advisory Committee for Cashew Industry, 1959, Trivandrum, 1959.

Report of the Minimum Wages Committee for Cashew Industry, 1953, Trivandrum, 1959.

Report of the Minimum Wages Committee for Employment in Tile Industry, Kerala, Trivandrum, 1958.

Report of the Minimum Wages Committee for Revision of Minimum Rates of Wages Fixed for Employment in Tile Industry, Kerala, Trivandrum, 1964.

Season and Crop Report, Kerala State, Trivandrum, 1956-57 to 1964-65.

Season and Crop Report of the Travancore-Cochin State for the Years 1952-53 to 1955-56, Trivandrum, 1958.

Chireyath, J.T. A Study on the Cashew Industry in Kerala, Labour and Industrial Bureau, Trivandrum, 1965.

Traffic Survey Report on Inland Navigation in Kerala, Kerala P.W.D., Irrigation Branch, Trivandrum, 1960.

Other State Governments:

Statistical Yearbook, Goa Daman and Diu, General Statistics Department, Government of Goa, Daman and Diu, Panjim, 1963 to 1968.

Madras District Gazetteers, Malabar and Anjengo, Vol. I, Government of Madras, Madras, 1915.

Maharashtra State Gazetteers : Ratnagiri District (Revised Edition), Directorate of Government Printing, Stationery and Publications, Maharashtra State, Bombay, 1962.

Report on Ratnagiri District, Development Commission, Small Scale Industries, Government of Maharashtra, Bombay, 1962.

Area Production and Yield Per Acre of Principal Food and Non-Food Crops, Department of Statistics, Government of Mysore, Bangalore (mimeographed).

Report of the Industrial Survey of Travancore, Government of Travancore, Trivandrum, 1919.

Statistics of Travancore, Government of Travancore, Trivandrum, 1938-39, 1941-42, 1942-43.

Trade Statistics of Travancore, Government of Travancore, Trivandrum, 1937-38 to 1946-47.

Travancore Economic Depression Enquiry Committee Report, 1931, Government of Travancore, Trivandrum, 1932.

Other

Annual Report of the Basel Mission Society, Mangalore 1870-71.

Annual Report of the Calicut Chamber of Commerce and Industry, Calicut, Kerala, 1955-56 to 1967-68.

Annual Report of the Cochin Chamber of Commerce, Cochin, 1889-90 to 1966-67.

Annual Report of the Coffee Board, Bangalore, 1962-63, 1966-67.

Annual Report—Development of Agriculture, Kenya Council Protectorate, 1937.

Annual Report for the Year Ending 31-3-1963, The Central Kerala Tile Manufacturers Association, Trichur.

Coffee Statistics, 1964-65 to 1966-67, Coffee Board, Bangalore.

Coffee Statistics Relating to India, Coffee Board, Bangalore, 1954-55 to 1957-58.

Cashew Exports, Seminar Conclusions and Recommendations, Ernakulam, 1964, Indian Institute of Foreign Trade, New Delhi (mimeographed).

Cashewnut Industry in India, Supplement to the United Commercial Bank Review, May 1953, Calcutta.

Cashewnut Shell Liquid, Seminar Conclusions, Recommendations, Ernakulam, 1969, Indian Institute of Foreign Trade, New Delhi (mimeographed).

East Africa Royal Commission 1953-55 Report, Her Majesty's Stationery Office, London, 1955.

Economic Conditions in East Africa (Uganda Protectorate, Kenya Colony and Protectorate, Zanzibar and Tanganyika Territory), His Majesty's Stationery Office, London, 1934.

Encyclopaedia Britanica, Vol. 22, 1964.

Indian Coffee Statistics, Coffee Board, Bangalore, 1958-59 to 1963-64.

I.L.O., Bulletin of Labour Statistics, Geneva, 1966, 1967, 1968.

-----, Year Book of Labour Statistics, Geneva, 1969.

National Council of Applied Economic Research, Regional Traffic Survey of Kerala, New Delhi, 1969.

-----, Techno-Economic Survey of Kerala, New Delhi, 1962.

-----, Traffic Survey of Cochin Port, New Delhi, 1969.

Statistical Abstract for British India, H. M. S. O., London,
1865 to 1940.

The Economies of East Africa—A Study of Trends, East
African Railway and Harbours Administration, Nairobi,
1955.

United Nations, Yearbook of International Trade Statistics,
New York, 1961 to 1968.

Unpublished Material

Karat, B. G., "History and Development of Tile Industry in Mangalore," Thesis submitted to the University of Bombay for the Degree of M.A., 1954 (unpublished).

Pankajakshan, T., "An Economic Study of the Port of Cochin," Thesis submitted to the University of Poona for the degree of Doctor of Philosophy, 1963 (unpublished).