

**REPORT ON
TECHNO-ECONOMIC SURVEY
OF
NILGIRIS TEA INDUSTRY**

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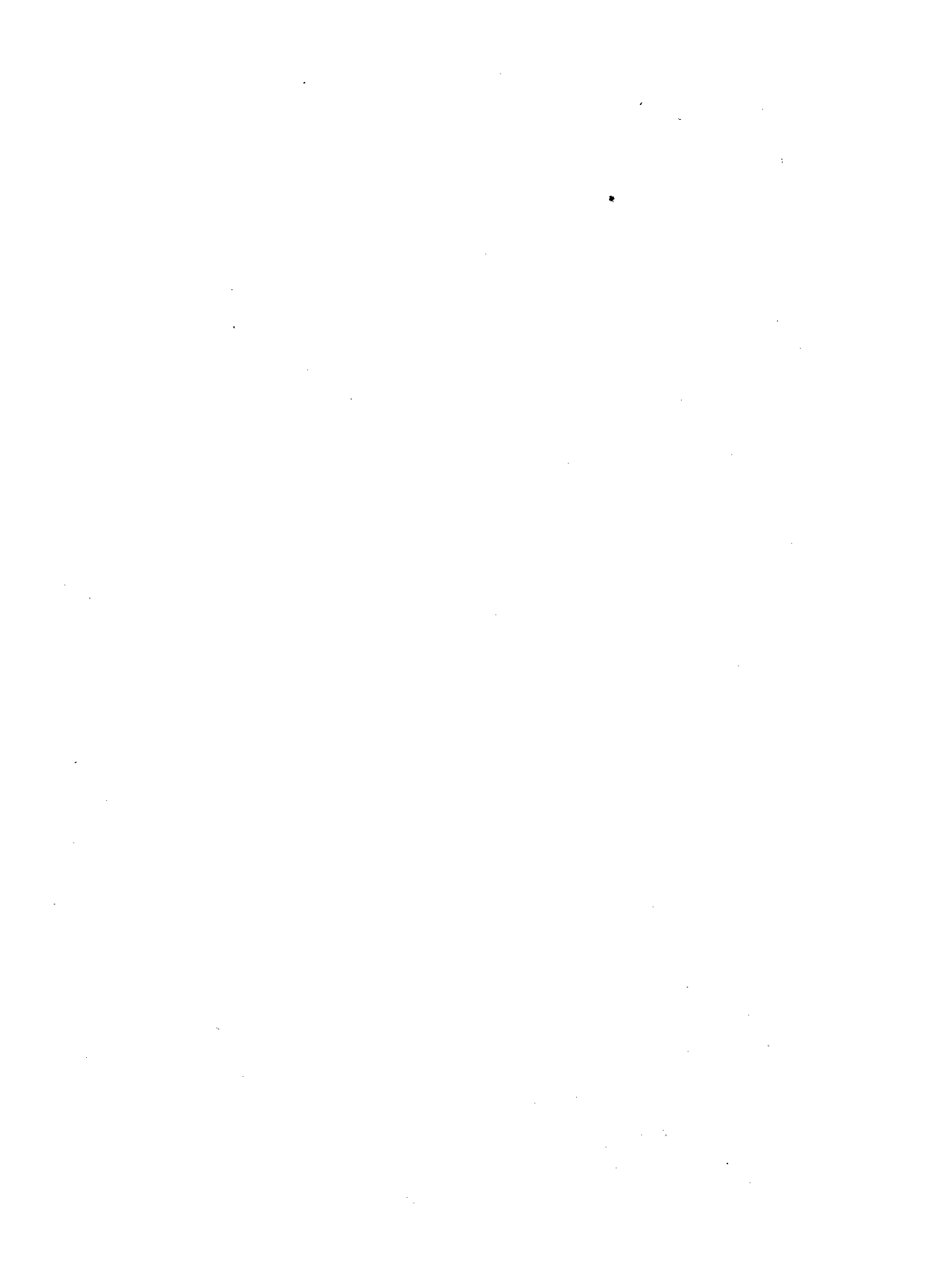
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Foreword

The Techno-Economic Report of Nilgiris Tea Industry is the fourth of the series of reports brought out by the Tea Board in this regard. A special feature of this survey report is that each sector of the industry in the region viz., large tea estates, small growers, bought leaf factories and co-operative factories has been treated separately so that problems peculiar to a sector can be easily identified with a view to formulating remedial measures. Because of the nature of data involved our investigators had to sift through a plethora of information. They have, however, tried to present as precise data as was possible under the circumstances. I hope the tea industry and those connected with it will find the report useful.

September , 1980
Calcutta

B. K. Goswami
Chairman
Tea Board

Introduction

Techno-Economic Survey Reports published by the Tea Board so far had brought out techno-economic conditions of the large tea estates in Tripura as well as for small growers in Kottayam and Idukki and Himachal Pradesh. Survey report on Nilgiris tea industry has, however, achieved the speciality in this respect in as much as it covers the four sectors viz., large tea estates, small growers, bought leaf and co-operative factories.

Tea Board's Investigators collected information on the basis of structured questionnaire from all the nine co-operative tea factories functioning during the period of the survey, and from the samples selected from total large estates with factories, small growers having tea area upto 8.09 hectares, and bought leaf factories.

During the course of field investigation the survey team experienced a number of difficulties in collecting the information. However, every attempt was made to collect data from individual sector as precisely as possible. Analysis and interpretation of the data have also been made carefully and perspectively. Suitable recommendations have also been made on the basis of survey findings for each sector.

It is hoped that findings of the survey and recommendations made would be of immense help to the tea industry in the country as a whole and Nilgiris in particular.

In conclusion I must put on record the services rendered by the survey team of the Board, the officials of the State Government and Producers' Association, Research Officer and co-operation of the Controller of Licensing of the Board for bringing out the survey report.

September , 1980
Calcutta.

R. N. Mondal
Statistician

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PART - I

GENERAL

CHAPTER—I

Nilgiris Tea Industry-

A Synopsis

1.1. Nilgiris district has an area of 2549 sq. kms. and a population of 494 lakhs (1971). It is land-locked by Karnataka State on the North, Kerala State on the West and Coimbatore district on the East and South. The district consists of a plateau of about 65 kms. long, 32 kms. broad and 1980 meters height. This hilly district of Tamil Nadu is well connected with transport and communications. Other infrastructural facilities including power supply are also fairly satisfactory. The principal agricultural products of the district are potato, cabbage, ragi, ginger, tea, coffee and rubber.

1.2. The district can be broadly classified into two natural tracts; Nilgiris-wynaad and Coonoor-Ootacamund. The former, being at a lower elevation of below 900 metres, enjoys semi-tropical climate and the latter ranging from 900 to 2,200 metres in altitude has salubrious climate. The geographical position of the district is such that the Western part receives major rainfall during the South-West monsoon while the other part during the North-East monsoon. The average rainfall of the district is 214 cms. The soil of Nilgiris is formed of finely grained rocks containing good amount of acid, alumina and iron. Vegetation throughout the year helps accumulation of organic matters. Organic acid is also maintained in the soil suitable for plantation.

1.3. Tea plantation in Tamil Nadu is mainly concentrated in Nilgiris district due to favourable agro-climatic conditions. Originally

the district was a coffee growing region and tea was introduced around 1835 following the recommendations of a Committee appointed by the then Madras Government.

1.4. According to information available with the Tea Board there are 221 large estates having an area of more than 8.09 hectares, in the entire Nilgiris District. Out of this, 186 estates are located in Nilgiris comprising Coonoor & Ootacamund taluks which are producing comparatively better quality teas than those produced in the remaining 35 tea estates situated in Gudalur Taluk. Nilgiris is known to have the largest concentration of small growers, numbering around 15,000. Unlike small growers in other tea growing regions of the country, the small growers in Nilgiris are serviced both by the private owned bought-leaf factories numbering around 75 and Government owned co-operative factories numbering 11.

1.5. The total area under tea in Coonoor & Ootacamund taluks of Nilgiris district was 18,186 hectares in 1976 with a production of nearly 26 m.kgs. In respect of Gudalur Taluk the figures were 5,693 hectares and 9 m.kgs. respectively. The yield rate per hectare, thus, worked out to 1,419 kgs. for Coonoor & Ootacamund and 1,666 kgs. for Gudalur. Out of the total production of 35 m.kgs. in Nilgiris district, as much as 15 m.kgs. were manufactured by bought leaf and co-operative factories from the green leaf produced by the small growers in the region. The bought leaf factories manufactured 11 m.kgs. of tea in 1976. For co-operative factories it was 4 m.kgs. The yield rate of small growers, as per survey, was estimated at 790 kgs. per hectare.

1.6. As for Nilgiris' contribution in the tea economy of South India, it may be stated that the area under tea plantation in Nilgiris constitutes 32% of total area under tea in South India. In respect of production also Nilgiris contributes 32% of total South Indian production of tea. Nilgiris' percentage of total production and area would be 7% of all India figures for the above two parameters. The small growers of Nilgiris contribute 14% of the total South Indian tea production while their percentage of contribution to all India tea production is around 3%. It may be mentioned in this context that a little over 6,000 small tea

gardens in Nilgiris are registered with the Tea Board covering an area of over 7,000 hectares against an All India figure of 12,000 with an area of nearly 13,000 hectares.

Favourable factors :

The Nilgiris tea Industry is endowed with certain favourable factors like suitable agro-climatic conditions, large existence of tea bushes in the economic age group of "below 50 years", better application of fertilisers, wider use of pesticides, weedicides, etc., more or less satisfactory conditions in the factories, better transport facilities, comparatively better yield rates, good labour welfare measures etc.

Problems :

Notwithstanding the favourable factors enumerated above, Nilgiris tea industry is also beset with problems like lack of finance, non-availability of good planting materials, scarcity of water, difficulty in digging on high slopes, incidence of pest and plant diseases etc. To identify the problems of Nilgiris tea industry and to suggest remedial measures the survey carried out by dividing the entire tea industry of the region into four sectors viz., large estates, bought leaf factories, co-operative factories and small growers so as to focus attention on the problems faced by each sector and to suggest remedial measures. The problems faced by the industry are briefly enumerated below sector-wise :-

(i) Large estates :

The survey revealed that the percentage of area covered by the bushes which are over 50 years old were 31% for Coonoor & Ootacamund and 67% for Gudalur. However, the area covered by the bushes of more than 50 years old was found to be maximum at 45% within the gardens above 400 hectares in Coonoor & Ootacamund and 72% in Gudalur. None of the estates had facilities for artificial irrigation. Non-availability of pure Urea and Ammonia based fertilisers had been reported. Attack of weeds had also been reported by 83% of the estates in Gudalur while this was 35% in Coonoor & Ootacamund. 80% of the gardens in the

case of former area were affected by pests as against 50% in the case of latter. Plant diseases were also prevalent. Natural calamities like frost, drought, soil erosion and hailstorm are also frequent. Factories in Nilgiris were not found to be well equipped with sophisticated machinery to cope up with the changing pattern of demand for different grades of tea.

(ii) Bought leaf factories :

Majority of the bought leaf factories did not possess adequate machinery for processing the green leaf purchased from the small growers. They required driers, rollers, shifters, graders, fermenting drums etc. Double firing was not resorted to by many of the factories. Packing of the manufactured teas was undertaken manually. In view of these factors the teas produced by the bought leaf factories were found to be of lower quality with consequential reflection on price realisation.

(iii) Co-operative factories :

Almost all the co-operative factories required additional machinery like CTC driers, fermenting drums, troughs, sorters, fibre extractors, shifters etc. in order to cope with the huge arrivals of green leaf and thereby to maximise the capacity utilisation and hence to increase the production. These factories required necessary machinery for switching over from the Orthodox method to CTC method in order to take advantage of the changing market conditions. None of the co-operative factories resorted to double firing. In marketing their teas at auctions, the co-operative factories were encountered with the problem of drawal of sample of 2 kg. per lot which appears to be on the high side. The prices realised by co-operative factories at auctions were lower than prices of Nilgiris teas as a whole following the manufacture of lower quality tea as compared to large estates in Nilgiris.

(iv) Small Growers :

Existence of 'Joint Patta' system precludes many of the small growers from getting their gardens registered with the Tea Board. In Gudalur taluk considerable area had been found to be lying fallow which could be utilised for extending the tea area. In spite of infilling

operations undertaken by small gardens the vacancy ratio had been estimated at around 25% on an average. Small gardens were, however, finding it difficult to step up infilling programmes due to inadequate availability of good planting materials and lack of sufficient finance. Plant diseases and weeds were found to be widely prevalent. Small growers in general did not follow any scientific methods of plucking and pruning.

To mitigate the problems of Nilgiris tea industry as a whole, measures like setting up of nurseries by large estates, apart from the clonal multiplication centres recently set up by the Tea Board, increased utilisation of Tea Board's financial assistance schemes, intensification of advisory and other facilities rendered by U.P.A.S.I., improvement in the method of manufacture by the factories etc. have been suggested.

CHAPTER—II

Background of Nilgiris Tea Industry

General :

2. 1. This chapter deals with the background of Nilgiris Tea Industry as a whole, based on published data available. The analysis of data collected in respect of surveyed large estates, small estates, bought leaf factories and co-operative factories has been made separately and is dealt with in Parts-II to V.

2. 2. Nilgiris has 6,475 tea estates (1976) covering an area of 23,879 hectares with a production of about 35 m. kgs. It accounts for 66% of the total area under tea in Tamil Nadu and 59% of the production. Production in Nilgiris constituted 32% of South Indian production of 111 m. kgs. in 1976 and 7% of all India production. The yield of the region was 1,478 kgs. per hectare against 1,658 kgs. for Tamil Nadu and 1,499 kgs. for South India. The table below shows the area, production and yield rate in respect of Nilgiris, Tamil Nadu and South India as a whole :—

TABLE 1
Area, Production and Yield of Tea

Year	Nilgiris			Tamil Nadu			South India		
	Area (Th. Hect)	Production (M. Kgs)	Yield (Kg/Hect)	Area (Th. Hect)	Production (M. Kgs)	Yield (Kg/Hect)	Area (Th. Hect)	Production (M. Kgs.)	Yield (Kg/Hect)
1967	21.9	28.5	1304	33.9	46.8	1380	75.0	91.1	1215
1968	22.0	34.5	1566	34.0	54.1	1594	74.7	97.2	1302
1969	22.3	31.9	1426	34.4	52.1	1514	74.3	96.0	1292
1970	22.5	34.8	1521	34.6	55.6	1606	74.0	101.2	1367
1971	22.7	36.5	1601	34.6	57.5	1661	73.8	103.1	1398
1972	22.8	34.3	1513	34.7	55.1	1586	74.0	103.3	1397
1973	23.0	34.3	1490	35.0	56.0	1599	74.1	103.8	1402
1974	23.2	33.0	1423	35.3	54.7	1546	74.2	99.7	1344
1975	23.4	38.9	1662	35.6	60.5	1698	73.8	106.6	1444
1976	23.9	35.3	1478	36.1	59.8	1658	74.2	111.2	1499
Note :									
Provisional figures for									
1978	24.3	48.1	1970	36.6	75.8	2071	74.6	130.4	1749

It will be seen from the above table that area under tea in both Nilgiris and Tamil Nadu registered marginal increase during the decade from 1967 to 1976 while that in South India remained somewhat constant. Production in both Nilgiris and Tamil Nadu increased by 24% and 28% respectively as against 22% in the whole of South India.

Size-wise distribution of tea estates :

2.3. It will be observed from the table below that in Nilgiris, tea estates belonging to the size group of upto 5 hectares constitute about 25% of the total tea area, while 16% belongs to the estates within the size group of 5 to 50 hectares. Estates within the size-group of 50 to 100 hectares were only 5% and those belonging to the

sizegroup of 100 to 400 hectares nearly 37%. Estates above 400 hectares constituted 17%. The table below gives the details :

TABLE—2
Size-wise distribution of tea estates
in Nilgiris in 1976.

Size-Group (in hect.)	Number of Tea estates	Total Area (in hect.)	%age to Total Area
Upto 5	6,060	5,857	24.53
Above 5 to 50	347	3,863	16.18
Above 50 to 100	17	1,215	5.09
Above 100 to 200	28	4,368	18.30
Above 200 to 400	15	4,393	18.40
Above 400	8	4,183	17.50
Total	6,475	23,879	100.00

2.4. It will be useful to examine the relationship between the size of the estate and yield rate. The following table gives the details :—

TABLE—3
Size groups and yield rate in 1976.

Size-group (in hect.)	Yield rate (Kg./hect.)
Upto 5	N. A.
Above 5 to 50	406
Above 50 to 100	1,116
Above 100 to 200	1,218
Above 200 to 400	1,562
Above 400	1,558
Total	1,478

It can be observed from the above table that there is a positive correlation between the size of the estates and yield per hectare ; the productivity increased with the increase in the size of the estates. In the case of estates above 400 hectares the yield has, however, shown a "levelling off" tendency primarily because of existence of large area under uneconomic bushes in tea estates of "above 400 hectares" as compared to tea estates of "above 200 hectares but below 400 hectares."

Age-group of bushes :

2.5. As would be evident from the table given below 73.5% of the area in Nilgiris contained tea bushes in the economic age group of less than 50 years, as compared to 68.3% in Tamil Nadu and 61.6% in South India :—

TABLE 4
Age-group of bushes during 1976

Age-group	Area covered (in hect.)	%age to total area
Below 5 years	1951	8.20
6 to 10 years	3435	14.44
11 to 20 years	2707	11.38
21 to 30 years	1886	7.93
31 to 40 years	3169	13.32
41 to 50 years	4339	18.24
Above 50 years	6297	26.49
Total	23784	100.00

(Area figure will not tally with the figures given in Table-2 due to incomplete coverage)

TABLE 5.
Primary marketing of Nilgiris tea

(Figures : %age to total production)

Year	Cochin	Coonoor	Total	London	Total auction	Ex-factory	Gross Total
1972	49.0	24.7	73.7	2.5	76.2	23.8	100.0
1973	49.5	30.1	79.6	2.1	81.7	18.3	100.0
1974	48.0	32.8	80.8	2.5	83.3	16.7	100.0
1975	46.4	34.3	80.7	2.9	83.6	16.4	100.0
1976	45.4	37.2	82.6	2.1	84.7	15.3	100.0
Note :							
Provisional							
Figures for							
1978	43.6	39.8	83.4	0.8	84.2	15.8	100.0

2.6. It may be observed from the above table that there has been a considerable improvement in primary marketing of Nilgiris teas through public auctions over the passage of time. However, it may be interesting to point out that the marginal decline in sale through Cochin auction has been more than offset by diversion of considerable quantities of tea for sale through Coonoor auction. Another point that may be worth mentioning here is the gradual and progressive decline in sale of teas ex-garden both for domestic and export markets. It may also be relevant in this context to point out that out of the total South Indian teas sold at public auctions in India, as much as 77% is sold at Cochin auction and 23% at Coonoor auctions. Moreover, at Cochin auctions, sale of leaf teas is more than that of dust. The position is, however, somewhat reverse for Coonoor auctions.

TABLE 6
Average price of Nilgiris teas at auctions

(Rs./Kg.)

Year	South Indian teas		Nilgiris teas	
	Cochin	Coonoor	Cochind	Coonoor
1972	6.26	5.24	6.76	5.25
1973	5.99	4.69	6.68	4.68
1974	8.53	7.55	9.34	7.49
1975	9.71	8.26	9.52	8.15
1976	11.17	10.17	11.76	10.16
Note : Provisional Figures for 1978	12.32	10.90	12.97	10.73

2.7. It is clear from the above table that the price of Nilgiris teas sold at Cochin auction was higher than that of overall price of South Indian teas sold at the same auction centre. This has been due to the fact that Nilgiris teas were comparatively better in quality than the teas produced in other tea growing regions of South India. However, the prices of Nilgiris teas at Coonoor auction were more or less at par with the overall price of South Indian teas fetched at the same auction centre, which has, perhaps, been due to the fact that the comparatively better quality of Nilgiris teas was not diverted for sale through Coonoor auctions.

CHAPTER III

Designing of the Survey :

3.1. The field work relating to the survey was undertaken by the Techno-Economic Survey Cell of the Statistics Branch of the Board in the year 1977. The samples for the survey of Nilgiris tea industry were designed in such a way so as to have a complete cross-section of the industry as far as feasible and practicable. For this purpose, the entire industry was divided into four sectors viz. large estates, co-operative factories, bought leaf factories and small growers. The questionnaires in regard to the surveys of different sectors were framed by the Board and data were collected by a team of investigators.

Large estates :

3.2. A sample of 26 estates was chosen from a total number of 221 large estates in this region. Of this, 20 estates belonged to Coonoor & Ootacamund (out of a total of 186 estates), while 6 estates belonged to Gudalur (out of a total of 35 estate). The selection of the sample was made in such a way as to represent estates in each size-group with varying types of ownership viz; proprietary, private limited and public limited. One large estate owned by a co-operative society was also selected in Gudalur for study. The sample was confined to those estates which had factories.

Co-operative and Bought leaf factories :

3.3. The survey covered complete enumeration of all the 9 co-operative factories out of a total of 11 which were functioning at the time of the survey. In case of bought leaf factories, the survey

covered a sample of 20 factories (out of a total of 75). The selection of the sample of bought leaf factories was made in such a way as to represent fairly the tea growing zones at varying elevations.

Small growers :

3.4. The survey of small growers in Nilgiris was faced with many difficulties. The main difficulty was that the small growers did not keep any record of their tea area and location. The 'joint patta' system under which land was fragmented into tiny holdings without individual title deeds added to the difficulties in undertaking the survey. This created difficulties in adopting any systematic sampling procedure for selection of the small gardens for the survey. Moreover, a large number of small growers in Nilgiris precluded the possibility of the survey team to attend individual gardens for collecting data and other ancillary information. The plausible way left out under such circumstances was to choose 600 small gardens for the purpose of the survey.

3.5. The questionnaires prepared by the Board were distributed to the small growers through co-operative tea factories and bought leaf tea factories. The team of investigators met the small growers also and collected data through detailed investigation. Every effort had, however, been taken to collect the data as precisely and meticulously as possible. Attempt had, also been made to analyse the data carefully and interpret the result perspectively.

PART-II

LARGE ESTATES

CHAPTER—I

Field practices and factory operations

1.1. Nilgiris district, comprising of Coonoor & Ootacamund and Gudalur had 221 large estates, each estate having an area of more than 8.09 hectares. Of this, 186 estates were situated in Coonoor & Ootacamund while the remaining 35 estates, in Gudalur. Moreover, only 64 tea estates had got the factories—49 in the case of Coonoor & Ootacamund and 15 in respect of Gudalur. The distribution of 221 large estates in Nilgiris according to the ownership was as follows :—

TABLE 7
Distribution according to type of ownership

Type of ownership	Coonoor & Ootacamund	Gudalur	Total
Proprietary	151	16	167
Public Limited	27	10	37
Private Limited	6	3	9
Sterling	2	4	6
Co-operative Society	—	1	1
Government	—	1	1
Total	186	35	221

The total area covered by the large estates in Coonoor & Ootacamund was approximately 10,943 hectares. The figure in respect of Gudalur was around 5,259 hectares. The large estates in Coonoor & Ootacamund covered as much as 46% of the total area under tea in Nilgiris (Coonoor & Ootacamund and Gudalur), while it was about 22% in respect of Gudalur.

1.2. An attempt has been made in this chapter to analyse the data collected in respect of field practices and factory operations of the sample large estates chosen for the survey.

Sample estates selected for the survey :

1.3. The survey covered 20 large estates in Coonoor & Ootacamund and 6 in Gudalur. The sample was selected in such a way so as to represent gardens in each size group with varying types of ownership viz., proprietary, private limited and public limited. One large estate owned by a co-operative society was also chosen for the survey. The number of sample estates classified according to different types of ownership is given in the table below :—

TABLE 8
Number of sample tea estates according to
type of ownership in Coonoor & Ootacamund and Gudalur during 1976

Type of ownership	Coonoor & Ootacamund	Gudalur
Proprietary	8	1
Private Limited	2	2
Public Limited	10	2
Co-operative Society	—	1
Total	20	6

Out of 20 sample estates in Coonoor & Ootacamund, 19 tea estates belonged to Rupee Company and 1 to Sterling Company. In Gudalur, the distribution was — 5 Rupee Company and 1 Sterling Company.

1.4. The size wise distribution of the sample estates in Coonoor & Ootacamund and Gudalur is as follows :-

TABLE 9
Number of sample estates classified
according to size-group.

Size-Group (in hect.)	Number of estates	
	Coonoor & Ootacamund	Gudalur
Above 8.09 to 50	1	—
Above 50 to 100	4	—
Above 100 to 200	8	1
Above 200 to 400	5	4
Above 400	2	1
All groups	20	6

The samples were confined only to the tea estates with factories. And because the tea estates in Gudalur upto the size of 100 hectares did not own any factory; this report, therefore, does not contain any information on the techno-economic conditions of the tea estates in Gudalur upto 100 hectares.

1.5. Classification of tea estates according to year of commencement of production is shown in the table below :-

TABLE 10

Sample estates classified according to
year of commencement of production.

Year	Number of Tea Estates	
	Coonor & Ootacamund	Gudalur
1870-1880	2	—
1881-1890	—	1
1891-1900	2	1
1901-1910	1	—
1911-1920	2	1
1921-1930	7	—
1931-1940	—	3
1941-1950	1	—
Unspecified	5	—
Total	20	6

In Coonor & Ootacamund, the majority of the estates started production during 1870 to 1930. Estates in the Gudalur started production during 1881 to 1940. Five estates in Coonor & Ootacamund could not, however, specify the year of commencement of production.

1.6. The pattern of utilisation of the total grant area of the surveyed estates in Coonor & Ootacamund and Gudalur is shown in the table below :-

TABLE 11
Utilisation of grant area of surveyed
tea estates

Sl. No.	Category	Total grant area of 20 sample estates in Coonoor & Ootacamund.		Total grant area of 6 sample estates in Gudalur	
		Area (Hect.)	%age to total	Area (Hect.)	%age to total
1.	Area under tea	4262.50	67.83	1668.59	22.44
2.	Area under nursery				
	(a) Seedlings	0.30	0.01	—	—
	(b) Clones	7.71	0.13	2.21	0.03
3.	Fallow	53.31	0.85	—	—
4.	Area under rice	—	—	101.64	1.36
5.	Area under other crops				
	(a) Coffee	52.71	0.84	212.67	2.86
	(b) others	13.26	0.22	—	—
6.	Forest & Waste land	1155.13	18.35	4965.19	66.76
7.	Other areas	739.34	11.77	486.75	6.55
Total area under grant		6284.26	100.00	7437.05	100.00
Area suitable for extension from forest and other areas (i. e. col. 6 & 7)		287.98	4.59	460.75	6.12

From the above table, it is observed that total area under grant in respect of Coonoor & Ootacamund was lower than that for Gudalur. On the contrary, area under tea in respect of former (67.83%) was higher than that for latter (22.44%). This has been due to the fact that Gudalur taluk possessed more area under forest and waste land (66.76%) as compared to that for Coonoor & Ootacamund (18.35%). The area under coffee plantation in Gudalur taluk was four times more than that in

Coonoor & Ootacamund (52.71 hectares). There was no area under rice cultivation in Coonoor & Ootacamund like that occupied by tea estates in Gudalur. It thus, appears from the above that the tea economy in Gudalur was not found to be that important as it was in the case of Coonoor & Ootacamund, though there were more areas suitable for extension for tea cultivation in Gudalur as compared to that in Coonoor & Ootacamund. Moreover, it is also observed that the area under nursery appears to be inadequate to feed back the requirements of new planting materials of the tea estates in both the regions. It is, therefore, recommended that the tea estates in both the areas should bring adequate area under tea nursery to raise more planting materials for the tea estates, apart from the help rendered by the Board in this direction.

1.7. A further analysis of the area suitable for extension by size group is attempted in the following tables :-

TABLE 12
Area suitable for extension by size-group
in Coonoor & Ootacamund

Size-group (in hect)	Number of estate	Total grant area (hect)	Land utilised for tea		Land suitable for extension	
			Area (hect)	%age of grant area	Area (hect)	%age of grant area
Above 8.09 to 50	1	48.96	29.71	60.68	5.90	12.04
Above 50 to 100	4	395.64	331.84	83.88	26.31	6.65
Above 100 to 200	8	1472.91	1077.85	73.12	81.65	5.54
Above 200 to 400	5	1928.61	1391.91	72.17	32.79	1.70
Above 400	2	2438.14	1431.19	58.70	141.33	5.80
All groups	20	6284.26	4262.50	67.83	267.93	4.58

TABLE 13

Area suitable for extension by size-group in Gudalur

Size group (in hect)	Number of estates	Total grant area (Hect.)	Land utilised for tea		Land suitable for extension	
			Area (Hect.)	%age of grant area	Area (Hect)	%age of grant area
Above 8.09 to 50	—	—	—	—	—	—
Above 50 to 100	—	—	—	—	—	—
Above 100 to 200	1	358.71	125.53	35.00	20.23	5.64
Above 200 to 400	4	6174.30	1120.91	18.16	240.52	3.90
Above 400	1	904.04	422.15	46.70	200.00	22.12
All groups	6	7437.05	1668.59	22.44	460.75	6.20

It appears from the tables above that there was a progressive decline in the utilisation of grant area for tea cultivation over the increase in the size of the tea estates (except tea estates above 8.09 hectares to 50 hectares) in Coonoor & Ootacamund. The utilisation is maximum at 83.88% for tea estates in the lower size group of 50-100 hectares and minimum at 58.70% for tea estates in the highest size group of above 400 hectares. The picture was somewhat different in respect for tea estates in Gudalur taluk where the utilisation never exceeded even 50% of total grant area amongst the tea estates in different size groups. This has been primarily due to the fact that in Gudalur taluk more areas were occupied by forest and waste land and also more areas were available for tea cultivation. Moreover, the utilisation of land for purposes other than tea cultivation was found to be 37% for tea estates above 400 hectares in Coonoor & Ootacamund and 78% for tea estates above 200-400 hectares in Gudalur taluk. This had resulted in availability of comparatively lesser areas suitable for tea cultivation in the above mentioned two size groups of tea estates.

Extension, Replanting and Replacement planting

1.8. Of the 20 sample estates in Coonoor & Ootacamund 10 estates had undertaken replanting during the period 1972/76. One estate undertook replacement planting. And 8 estates undertook extension. In Gudalur, however, none of the estates was reported to have undertaken extension or replacement during 1972/76. Replanting was undertaken by 2 estates. The following table shows the extent of new plantings :-

TABLE 14
Extent of New plantings carried out in Coonoor & Ootacamund and Gudalur during 1972/76

Nature of new Planting	Coonoor & Ootacamund			Gudalur		
	Number of estates undertaken	Area covered in 5 Yrs. (Hect.)	%age of new planting to total planted area	Number of estates under taken	Area covered in 5 Yrs. (Hect.)	%age of new planting to total planted area.
Extension	8	36.66	0.85	—	—	—
Replacement	1	1.01	Neg.	—	—	—
Replanting	10	64.00	1.51	2	2.50	0.15

It was observed during the course of the survey that out of the 20 surveyed estates in Coonoor & Ootacamund only 7 estates had availed of subsidy from the Tea Board under Replantation Subsidy Scheme. In Gudalur out of the 6 estates 2 estates had availed of such scheme. The reasons for not availing the Replantation Subsidy Scheme were reported to be (i) lack of sufficient funds and (ii) non-availability of quality planting materials, The difficulty in digging in high slopes and scarcity of water were also reported. However it is felt that the large estates may come forward to avail of the Replantation Subsidy Scheme, Plantation Finance Scheme and Rejuvenation & Consolidation Scheme of the Tea Board.

*Size-group, yield rate, age composition
of the bushes and vacancies :*

1.9. The following table shows the yield rate, age composition of the bushes and average number of bushes per hectare in different size groups of the surveyed estates :

TABLE 15
**Yield rate, age composition of bushes and number
of bushes per hectare of planted area in
Coonoor & Ootacamund**

Size-group (in Hect)	No. of estates	Age of bushes (area in %age)					Total	Avg. no. of bushes /hect.	Avg. pluck- ing of green leaf/ bush (Kg)	Yield per hect. (Kgs)
		Upto 5 Yrs.	6-10 Yrs.	11-30 Yrs.	31-50 Yrs.	Above 50 Yrs.				
Above 8.09 to 50	1	—	—	45.8 (2.7)	54.2 (1.0)	—	100.0 (0.7)	6173	0.44	598
Above 50 to 100	4	3.8 (21.2)	6.7 (9.2)	13.7 (9.0)	50.4 (10.1)	24.4 (4.7)	100.0 (7.8)	7423	0.74	1221
Abvoe 100 to 200	8	3.2 (56.9)	6.9 (30.4)	27.4 (58.2)	19.3 (12.6)	43.2 (25.9)	100.0 (25.2)	9788	0.74	1609
Above 200 to 400	5	1.6 (3.8)	3.4 (19.7)	8.9 (24.3)	44.4 (37.4)	41.7 (33.3)	100.0 (32.7)	6958	1.22	1886
Above 400	2	0.8 (18.1)	6.9 (40.7)	2.1 (5.8)	44.9 (38.9)	45.3 (36.1)	100.0 (33.6)	9576	0.84	1787
All groups	20	1.4 (100.0)	5.7 (100.0)	11.9 (100.0)	38.8 (100.0)	42.2 (100.0)	100.0 (100.0)	9053	0.82	1649

It may be seen from the table that in the size group of above 100 hectares, percentage of area covered by the tea bushes above 50 years

ranged from 41.7% to 45.3%. It was only 24.4% in the tea estates of size group of 50-100 hectares. In this size group nearly 50.4% of the area had a bush population of 31-50 years old. In the tea estates of size above 200 hectares nearly 45% area was found planted with 31-50 years old bushes. It was only 19% in the tea estates of size 100-200 hectares. In overall size group as much as 42.2% area was covered by bushes of above 50 years and 38.8% by bushes of 31-50 years age. In other words it means, a little below 60% of the area of tea estates in Coonoor & Ootacamund had a bush population of less than 50 years old. Another interesting point that may be mentioned in this context was that percentage of area with bushes of above 50 years had shown a progressive increase with the increase in the size of the tea estates. The same trend was also noticed for the bushes of 31-50 years age. Immediate conclusion that could perhaps be drawn from such a behaviour of the bush population vs. size group was that tea estates of size above 200 hectares have started their plantation long time back and that they were not perhaps adopting a systematic programme in up-rooting the bushes of 50 years old and replacing them with the new ones. However, because of favourable percentage of area under tea bushes below 50 years old there had not been any wide variation in the bush population from the overall average of nearly 9,000 bushes per hectare. Moreover, the average yield per hectare for the tea estates above 100 hectare did not show any significant deviation from the average level of yield of 1649 kgs. per hectare made from own green leaf, comprising nearly 85% of total manufactured by the factory. Further, yield per hectare had shown an increase over the increase in the size group of tea estates and 'levelling off' tendency was noticed in the tea estates of above 400 hectares.

TABLE 16

Yield rate, age composition of bushes and number of bushes per hectare of planted arer in Gudalur

Size-group (in hect)	No. of tea estates	Age of bushes (area in %age)					Total	Avg. no. of bushes/ hect.	Avg. plucking of green leaf/ bush (kg)	Yield per hect. (Kgs)
		Upto 5 Yrs.	6-10 Yrs.	11-30 Yrs.	31-50 Yrs.	Above 50 Yrs.				
Above 8.09 to 50	—	—	—	—	—	—	—	—	—	
Above 50 to 100	—	—	—	—	—	—	—	—	—	
Above 100 to 200	1	—	2.7 (8.8)	0.8 (0.5)	31.2 (12.7)	65.3 (7.3)	100.0 (7.5)	7417	1.14	1829
Above 200 to 400	4	0.6 (50.2)	2.8 (83.3)	9.3 (55.0)	21.8 (79.9)	65.5 (65.5)	100.0 (67.2)	6329	1.20	1679
Above 400	1	1.5 (49.8)	0.7 (7.9)	20.0 (44.5)	5.7 (7.9)	72.1 (27.2)	100.0 (25.3)	6600	1.37	2046
All groups	6	0.8 (100.0)	2.3 (100.0)	11.3 (100.0)	18.5 (100.0)	67.1 (100.0)	100.0 (100.0)	6479	1.24	1783

It may be seen from above that as much as 67.1% of tea area was reported to be covered by the bushes above 50 years old. Within all the tea estates of sizes above 100 hectares percentage hovered around 65% to 72%. Across the size of tea estates the incidence of occurrence of bushes more than 50 years old was nearly 65% in the size group of above 200 to 400 hectares. There had not been found much variation in the average number of bushes per hectare in the sample tea estates when compared to average level of bush population of around 6,500 bushes per hect. In spite of the fact that more areas were

covered by the bush population of above 50 years old in Gudalur the average plucking of green leaf from each bush appeared to be higher than that in Coonoor & Ootacamund. One of the reasons that may be attributable is to resort to course plucking by the tea planters in Gudalur as compared to those in Coonoor & Ootacamund which are on the higher elevation. This had resulted in realisation of lower price per kg. following the decline in quality which has been dealt separately under the 'marketing chapter'. The coarser plucking in Gudalur had also been reflected in comparatively higher yield rate per hectare of 1783 kgs. of tea made from own green leaf, representing little over 85% of the total manufactured by the tea factories.

1.10 Due to lack of information about different spacings adopted by the tea estates of different size groups, it was found very difficult to make an assessment of the vacancy ratio as precisely as possible. Enquiries had brought out the fact that a spacing of 4' X 4' was popular in 60% of the surveyed tea estates, About 12% of the area was found to be under a spacing of 4' X 3'. The area under spacing of 4' X 3.5' was nearly 8%. The balance of 20% of area was found to be under a variety of spacings. Based on these figures an estimate was made in working out the overall vacancy ratio in the surveyed tea estates. The vacancy ratio was found to vary between 10% to 15% in a majority of the tea estates. In tea estates of size upto 200 hectares ratio was found to be 10%. For tea estates of sizes of above 200 hectares the figures stood at 15%. In certain surveyed tea estates the figure was, however, reckoned at as high as 40%.

1.11. The estates in Coonoor & Ootacamund as well as in Gudalur had been reported to have undertaken infilling during the period from 1972-76. The rate of such infilling was found to be 2.63% in the case of former and 2.04% in the case of latter. The particulars are given in the table below :

TABLE 17

**Infilling in Coonoor & Ootacamund and Gudalur
during 1972-76**

Coonoor & Ootacamund				Gudalur			
Number of estates under-took the operation	Number of plants infilled (Lakhs)	Estimated no of bushes in sample tea estates (Lakh)	Percentage of infilling to total bushes	Number of estates undertook the operation	Number of plants infilled (Lakhs)	Estimated no of bushes in sample tea estates (Lakhs)	Percentage of infilling to total bushes
16	10.12	385.86	2.63	3	2.20	108.11	2.04

1.12. Taking into account the results of the survey in respect of percentage of area under bushes more than 50 years old, the percentage of vacancy as well as percentage of infilling, it may be recommended that the large tea estates in Coonoor & Ootacamund and Gudalur should take appropriate step to increase the bush population of economic age group coupled with the programme of increasing the rate of infilling as well as planting of new bushes in between the rows, so as to achieve the increase in productivity per bush and per hectare of planted area. This will, perhaps, help in reduction of cost per kg. of made tea and consequently improve the economies of scale of the tea estates as a whole.

Cultural practices :

1.13. Irrigation :

The average rain fall of Nilgiris is reported to be around 214 cm. Both the areas of this district receive summer as well as winter rain fall. Rain fall seems to be fairly heavy in Kotagiri and Coonoor areas. The district is also endowed with natural advantages like presence of Moyar river on the north and Bhabani river in the South. Moreover, these rivers have several tributaries flowing within the district. It thus, appears that natural resources provide sufficient water for tea in this region. However, during the survey it was noticed that some of the sample tea estates resorted to using of stored water through gravitational channels and spraying the same with the sprinklers. It is, therefore, recommended that for meeting the situation in the event of necessity, a suitable scheme of irrigation in the tea estates, where natural resources are not adequate to supply sufficient water, may be evolved by the tea gardens in consultation with the State Government so as to further the production.

Application of fertilisers :

1.14. All the surveyed tea estates in Coonoor & Ootacamund were found to apply chemical fertilisers. In Gudalur, all the tea estates, except one, were also reported to use chemical fertilisers. The most popular fertiliser used by the tea estates was NPK, followed by NK. Pure Urea and Ammonia based fertilisers were not available. During the survey it was found that NPK fertiliser was usually applied in higher dosage as compared to NK fertiliser in Coonoor & Ootacamund, while the dosage was almost equal in Gudalur. On an average, the rate of application of fertiliser per hectare worked out to 549 kgs. for NPK and 326 kgs. for NK in Coonoor & Ootacamund. In respect of Gudalur, the figures were 472 kgs. and 469 kgs. respectively. This would be evident from the table below :-

TABLE 18
Application of fertilisers per hectare in the sample
estates of Coonoor & Ootacamund and Gudalur during 1976

(Figures in kgs.)

Size-group (in hect.)	Coonoor & Ootacamund				Gudalur			
	NPK	NK	Urea	S.O.A.	NPK	NK	Urea	S.O.A.
Above 8.09 to 50	370	—	—	—	—	—	—	—
Above 50 to 100	327	—	—	—	—	—	—	—
Above 100 to 200	590	220	—	—	468	275	—	—
Above 200 to 400	427	610	227	—	468	495	79	—
Above 400	634	356	—	—	480	407	—	483
All groups	549	326	227	—	472	461	79	483

It is, therefore, recommended that a suitable scheme should be evolved by UPASI to supply pure Ammonia and Urea based fertiliser to the tea estates. Not only that an extension service should also be organised and strengthened by UPASI to look into the problems of over utilisation or under utilisation of fertilisers, apart from prescribing the suitable fertilisers for a particular area to increase the production.

Weeds, pests & plant diseases

1.15. 7 estates in Coonoor & Ootacamund and 5 estates in Gudalur

were found to be affected by weeds. The percentage of area affected by weeds, to total area under tea, was found to be 13% in the case of the former and 42% in the case of the latter. The common weeds were Kutch grass, *Borreria osymoides*, *Paspulum* sp., *Emila sonchifolia*, Chundigrass, *Achyranthes aspera* etc. The most common measure adopted for control of weeds was sickling 2 to 3 rounds a year and hoeing. A few estates were found to be applying chemical weed-icides like Ansar, Dalapon, Grammaxone etc.

1.16 As much as 50% of the estates in Coonoor & Ootacamund and 80% of the estates in Gudalur were affected by pests. Thrips, scarlet mites, purple mites, red spider and shot hole borer were the common pests. The common pesticides used were ethion, Zolone, Malathion, Thiodan etc.

1.17. Plant diseases were also found to be prevalent in the gardens. Seven of the surveyed estates in Coonoor & Ootacamund and 2 in Gudalur were reported to be affected by plant diseases. The most common plant diseases were Blister blight, black rot, hypoxylon *S. repens*. The estates affected by plant diseases were reported to be using chemicals to control the diseases.

It is, therefore, recommended that a suitable programme may be evolved by UPASI, in consultation with Tea Board, to minimise the attack of pests and diseases and to remove weeds so as to promote the growth of tea production in these regions.

Frost, soil erosion etc. :

1.18. Production in a majority of the surveyed estates was reported to be adversely affected by natural calamities like drought, frost, soil erosion and hailstorm over the period from 1974 to 1976. In Coonoor & Ootacamund 10 estates were affected by frost and production was reported to be reduced substantially. However, only 7 estates in this area were affected by drought. In Gudalur one estate each was affected by frost and drought. Four estates were affected by soil

erosion. The possibility of supplying frost resistant clones to the tea estates in Nilgiris may, therefore, be explored. The Soil Conservation Department of the State Government may evolve suitable scheme for prevention of soil erosion in the tea growing estates of Nilgiris district.

Plucking :

1.19. For maintaining the quality of tea the standard of plucking is of utmost importance. In Coonoor & Ootacamund the estates in the size group of upto 50 hect. were found to be adopting the plucking standard of two leaves and a bud to the extent of 65% but with the increase in the size of the estate the proportion of fine plucking was found to be decreasing progressively and in the highest size group it stood at 30%. The over-all percentage of fine plucking adopted in Coonoor & Ootacamund was, however, found to be around 37%. three leaves and a bud constituted as much as 53% and the rest by other standards. In Gudalur, the same trend was noticed. The over-all percentage of two leaves and a bud worked out to 27% followed by around 56% for three leaves and a bud. The distribution in percentage is given below :-

TABLE 19
Standard of plucking in Coonoor & Ootacamund
and Gudalur during 1976

(Green leaf plucked in %age)

Size-group (Hect.)	Coonoor & Ootacamund				Gudalur			
	Two and a bud	Three and a bud	others	Total	Two and a bud	Three and a bud	others	Total
Above 8.09 to 50	65.00	20.00	15.00	100.00	—	—	—	—
Above 50 to 100	39.48	25.30	35.22	100.00	—	—	—	—
Above 100 to 200	41.07	46.03	12.90	100.00	40.97	35.00	24.03	100.00
Above 200 to 400	36.36	53.75	9.89	100.00	25.45	65.31	9.24	100.00
Above 400	30.00	70.00	—	100.00	—	100.00	—	100.00
All groups	36.62	52.85	10.53	100.00	27.01	55.69	17.30	100.00

It is, therefore, recommended that the tea estates should take the service of UPASI as well as Brokers for maintaining a balance between finer and coarse plucking with a view to taking the best advantage of the market conditions for betterment of economies of scale of the garden.

Plucking rounds :

1.20. Plucking round was found to vary between 8 to 12 days during different seasons. During January to June while the rounds are quicker, the days were extended at the later part of the seasons.

Task :

1.21. While in majority of the estates plucking task was fixed at 10 kgs. of green leaf, this varied between 10 to 12 kgs. depending on the characteristics of the jat as well as age and sex of the plucker, Incentive given for plucking green leaf more than the scheduled quantities was 11 paise per kg.

Shade trees :

1.22 Grevillia Robasta was found to be the most common shade tree in this region. This is generally within the age of 20 years.

Factory operations :

1.23 Amongst the surveyed tea estates in Coonoor & Ootacamund, as many as 8 estates had availed of Hire Purchase Scheme of the Board. The figure was found to be 2 in the case of Gudalur. Perhaps, owing to this, during the survey, it was noticed that the machinery installed and the condition of such machinery were reported to be adequate and satisfactory in most cases. Arrangements for withering were fairly satisfactory with the exception of one or two factories. Fermenting on floor was found to be very common. Three factories in Coonoor & Ootacamund and two in Gudalur possessed fermenting drums. One factory each in Coonoor & Ootacamund and Gudalur had throughs. The factories were found to have adequate arrangements for controlling humidity and temperature. Since fermenting with the help of drums is advisable to ensure better quality, large estates may consider the feasibility of installing them. Not only that, a suitable programme may be chalked

out by the tea estates to replace the worn-out machinery with new ones in a phased manner so as to increase the production as also to improve the quality. For this, the tea estates should take the help of the Tea Board's Tea Machinery & Irrigation Equipment Hire purchase Scheme subject to compliance of terms and conditions laid down for the operation of the said scheme.

The following table shows the production of different types of tea in the selected estates during 1972-76 :-

TABLE 20
Production of different types of tea in the
selected estates during 1972-76

(Figures in Th. kgs.)

Year	Coonoor & Ootacamund				Gudalur			
	Black	Green	Tea waste	Total	Black	Green	Tea waste	Total
1972	7,550	350	126	8,026	3,006	—	85	3,091
1973	8,125	386	124	8,635	2,828	—	90	2,918
1974	8,224	431	139	8,784	2,907	—	107	3,014
1975	8,684	325	139	9,148	3,102	—	112	3,214
1976	8,696	141	151	8,988	3,335	—	124	3,459
Avg. of 5 yrs.	8,254	327	136	8,717	3,036	—	104	3,140
Percen- tage to total	94.69	3.75	1.56	100.00	96.69	—	3.31	100.00

Method of manufacture :

1.24. It may be seen from the table below that in the surveyed tea estates of Coonoor & Ootacamund as much as 98% of the total production was of orthodox manufacture. The corresponding figure for

Gudalur was nearly 40%. No CTC teas were reported to be produced in the surveyed tea estates of Coonoor & Ootacamund. In Gudalur CTC manufacture of teas was found to be 60% of the total production. A small quantity of green tea amounting about 2% was produced by the surveyed tea estates in Coonoor & Ootacamund during the period under survey.

TABLE 21
Method of manufacture in Coonoor &
Ootacamund and Gudalur

Method	Coonoor & Ootacamund	Gudalur
	%age of total production	%age of total production
Orthodox	98.28	40.21
C. T. C.	—	59.79
Green tea	1.72	—
Total	100.00	100.00

CHAPTER—II

Marketing

2.1. It may be seen from the tables 23 and 24 below that as much as 78.9% of the total production of the surveyed tea estates in Coonoor & Ootacamund was sold through public auctions at Cochin and Coonoor —64.6% at Cochin and 14.3% at Coonoor. Small quantity of 4.5% was sent to London for auction. The figures in respect of export under private sale and ex-factory sales were 6.4% and 10.1% respectively. A negligible quantity (0.1%) was retained for the consumption of the tea estates. Though there had not been any appreciable change in the percentage of quantity sold through both the auctions in India over the years under reference, a diversion was noticed in sending the teas for auctioning at Cochin and Coonoor. While the percentage of teas sold through Cochin auction had shown a decline over the years, the corresponding increase in percentage was found for Coonoor auction. As for London auction and export under private sale, no significant change in percentages had occurred during the period from 1972 to 1976. In the case of ex-factory sale for domestic consumption, the percentage showed

a marginal increase over the years of study. But taking into account ex-factory sale both the export and domestic markets, there had been progressive decline in sales from 18.3% in 1974 to 16.1% in 1975 and further to 15.8% in 1976.

TABLE 23
Primary marketing of teas of
Coonoor & Ootacamund

(Figures in %age of total production)

Year	Sold through auctions at				Export under private sale	Ex-factory sale	Quantity retained for consumption	Total
	Cochin	Coonoor	Total	London				
1972	74.3	9.6	83.9	3.4	3.6	8.9	0.2	100.0
1973	69.5	10.6	80.1	4.7	5.4	9.7	0.1	100.0
1974	62.7	15.2	77.9	3.7	9.1	9.2	0.1	100.0
1975	62.4	16.2	78.6	5.2	6.1	10.0	0.1	100.0
1976	59.5	24.6	84.1	---	3.2	12.6	0.1	100.0
Avg. of 5 yrs.	64.6	14.3	78.9	4.5	6.4	10.1	0.1	100.00

As for primary marketing of teas of the selected tea estates in Gudalur, it may be stated that nearly 98% of the production was sold through public auction in South India. Auction-wise, the figure was 83.3% for Cochin and 14.7% for Coonoor. The trend in diversion of teas from Cochin to Coonoor auction, as noticed in the case of Coonoor & Ootacamund, was more or less prevalent in the case of Gudalur. No teas were sold through London auction during the period of study. The figure was also insignificant (0.2%) for export under private sale. For ex-factory, the figure stood at 1.6%. Only 0.3% was retained for the consumption in the tea estates.

TABLE 24
Primary marketing of teas of Gudalur

(Figures in %age of total production)

Year	Sold through auctions at				Export under private sale	Ex-factory sale	Quantity retained for consumption	Total
	Cochin	Coonoor	Total	London				
1972	87.4	11.9	99.3	—	0.1	0.4	0.2	100.0
1973	82.4	17.3	99.7	—	—	0.2	0.1	100.0
1974	83.1	15.4	98.5	—	—	1.3	0.2	100.0
1975	82.7	15.1	97.8	—	0.3	1.7	0.2	100.0
1976	80.8	14.2	95.0	—	—	4.8	0.2	100.0
Avg. of 5 yrs.	83.3	14.7	98.0	—	0.2	1.6	0.2	100.0

2.2. Prices realised by the surveyed estates according to various channels of sale are given below :-

TABLE 25
Average prices realised by teas of Coonoor & Ootacamund

(Figures in Rs. / Kg.)

Year	Sold through auctions at				Export under private sale	Ex-factory sale	Overall
	Cochin	Coonoor	Total	London			
1972	6.87	5.31	6.69	9.20	8.59	5.79	6.76
1973	7.86	5.56	7.56	11.18	9.84	6.75	7.76
1974	9.77	6.95	9.22	12.44	11.48	7.03	9.33
1975	11.01	8.65	10.52	11.28	11.47	8.61	10.43
1976	11.79	8.99	10.97	—	11.69	10.21	10.85
Avg. of 5 Yrs.	9.18	7.43	8.86	11.10	10.70	7.79	9.67

TABLE 26
Average prices realised by teas of Gudalur

(Figures in Rs./Kg.)

Year	Sold through auctions at				Export under private sale	Ex-factory & private sale	Overall
	Cochin	Coonoor	Total	London			
1972	6.28	5.71	6.21	—	7.08	7.22	6.20
1973	5.94	4.94	5.77	—	—	5.88	5.77
1974	7.96	6.88	7.79	—	—	8.78	7.80
1975	9.78	8.30	9.56	—	11.62	8.41	9.54
1976	11.04	9.12	10.76	—	—	10.47	10.74
Avg. of 5 yrs.	8.23	7.02	8.05	—	10.40	9.52	8.09

It is observed that average price of tea realised by the surveyed tea estates in Coonoor & Ootacamund at Cochin auction (Rs. 9.18 per kg.) was higher than that at Coonoor auction (Rs. 7.43 per kg.). Over the years it was found that the Cochin auction price had always a wide-edge over Coonoor auction price. It may be due to the fact that better quality teas are being sold at Cochin auction while comparatively inferior quality teas were sent to Coonoor auction for sale. Not only that, the price realised by sale of tea ex-factory was found to be marginally higher than the teas sold at Coonoor auction, though it was always found lower than the price realised at Cochin auction. This has been due to the fact that the teas offered for sale through ex-factory and Coonoor auction appeared to be of the same quality, keeping other forces influencing the market conditions remained unchanged. Another interesting point that emerged from the analysis of survey results was that the average price realised by sale through London auctions was more or less at par with that for export sale under private contracts.

As for average price realised by the surveyed tea estates in Gudalur. it may be stated that the trend in price for selling the teas

through Cochin and Coonoor auctions, as was evinced in the case of Coonoor & Ootacamund, was also noticed in respect of Gudalur. Comparison between the prices of ex-factory sales ~~in India~~ and auction prices would be misleading because of negligible volume of sale through the former channel of marketing. Same was the case also with export under private sale and forward contracts.

It may also be relevant in this context to point out that the average prices of surveyed tea estates in Coonoor & Ootacamund was found to be always higher than that for Gudalur because of the fact that the tea produced by the former area was of better quality as compared to that produced by the latter.

It is, therefore, recommended that though the ex-factory sales have got both advantages and dis-advantages, producers may be persuaded to bring more and more teas for sale through public auctions for ensuring better return, specially, for better quality teas and particularly, for medium or common quality teas.

CHAPTER III

Labour

3.1. The tea plantation industry in Nilgiris employs 43,979 labourers per day on an average (separate figures in this regard are not readily available for Gudalur). Of this 40,746 (92.6%) are engaged in field and 3,233 (7.4%) in factory. Out of the total labour employed, permanent labour constitutes 89.0% and the remaining casual. The average labour per hectare employed in Nilgiris is estimated at 1.84 which is lower than the Tamil Nadu average of 2.00, South Indian average of 2.07 and all India average of 2.13. as regards productivity per labour, it is 802 kgs. for Nilgiris which is lower than the Tamil Nadu average of 826 kgs. but higher than South Indian average of 722 kgs. and all India average of 659 kgs. The table below shows the labour per hectare and productivity per labour during 1976 :-

TABLE 27
Labour per hectare and output per labour
during 1976.

Region	Labour per hectare	Output per labour (Kg.)
Nilgiris	1.84	802
Tamil Nadu	2.00	826
South India	2.07	722
All India	2.13	659

3.2. Regarding categories of plantation labour, male workers constitute 43.7%, female 53.8%, adolescent 1.7% and children 0.8%. Labour employed in field and factory according to different categories is shown in the table below :-

TABLE 28
Distribution of labour employed in field and factory according to
different categories 1976

(Figures in %age)

Category	Field	Factory	Total
Male	40.5	84.1	43.7
Female	56.9	14.2	53.8
Adolescent	1.9	0.7	1.7
Children	0.7	1.0	0.8
Total	100.0	100.0	100.0

3.3. The following table gives the distribution of different categories of labour employed in the surveyed estates during 1976 :-

TABLE 29

Distribution of different categories of labour in Coonoor & Ootacamund and Gudalur as on 31.12.1976

(Figures in %age)

Category	Coonoor & Ootacamund			Gudalur		
	Permanent	Casual	Total	Permanent	Casual	Total
Male	41.6	34.9	41.0	42.9	25.5	39.4
Female	57.8	41.0	56.3	57.1	74.5	60.6
Adolescent	0.6	8.9	1.3	—	—	—
Children	Neg.	15.2	1.4	—	—	—
Total	100.0	100.0	100.0	100.0	100.0	100.0

In the surveyed tea estates located in Coonoor & Ootacamund, it was found that the proportion of male and female under the permanent work force was not maintained while deploying the casual labour. Under this category, more children and adolescent were employed as compared to negligible percentage under permanent category. In the case of Gudalur, the trend in deploying permanent and casual labour from male and female forces as was noticed in the case of Coonoor & Ootacamund, was also prevalent. The proportion was found to vary significantly between male and female under casual force. No adolescent and children were employed either as a casual or permanent workers in Gudalur.

3.4. The table below indicates the distribution of mandays employed in different types of field operation of the sample estates :-

TABLE 30

**Distribution of mandays by different types
of field operations during 1976**

(Figures in %ege)

Field operations	Coonoor & Ootacamund	Gudalur
Plucking	71.82	67.80
Manuring	2.00	4.05
Weed control	15.23	8.42
Disease & Pest control	0.99	3.32
Pruning	1.94	2.54
Transportation of green leaf	0.02	—
Others	8.00	13.87
Total	100.00	100.00

It will be seen that in field operations, the plucking accounted for 71.82% of the total mandays employed in the estates in Coonoor & Ootacamund while this was 67.80% in the case of the estates in Gudalur. Weed control was considered as the next important operation sharing 15.23% of the total mandays in Coonoor & Ootacamund and 8.42% in Gudalnr.

3.5. The distribution of mandays by different types of factory operations in selected estates of Coonoor & Ootacamund and Gudalur is given in the table below :-

TABLE 31
Distribution of mandays by different types of
factory operations during 1976

(Figures in %age)

Factory operations	Coonoor & Ootacamund	Gudalur
Withering	—	23.28
Rolling	—	14.29
Fermenting	—	4.95
Drying	—	13.31
Weighing/sorting/cutting and binning.	—	23.36
Packing	—	7.63
others	—	13.18
Total	—	100.00

It may be seen that in the surveyed tea estates in Coonoor & Ootacamund, 'Rolling' took the largest percentage of the total mandays spent in conducting the various operations in the factory. The second largest (21.22%) appeared in favour of the operations like Weighing/Sorting/Cutting/Binning. As much as 15.52% was accounted for by Withering operation, followed by 10.59% by 'Drying'. In respect of Gudalur, the largest percentage of the mandays spent in running different operations of the factories, however accounted for by Weighing /Sorting etc. (23.36%), followed by Withering (23.28%) and Rolling (14.29%) and Drying (13.31%). The reading of this table along with the table 21 (where the percentage of production by different methods of manufacture, is shown) would help in drawing a conclusion that operations like Weighing / Sorting / Cutting / Binning appear to be equally important operation in both the method of manufacture. For factories, producing only orthodox manufacture, as in the case of Coonoor & Ootacamund, rolling seems to be the most important operation and withering and drying take the third and fourth position respectively. But for factories, manufacturing both CTC and Orthodox type of teas in a ratio of 60:40 as in respect of Gudalur, the second important operation appears to be the Withering. The third one

would be Rolling and fourth one, Drying. The prioritywise position of the major operations is given below :-

Ranking	For factories producing only orthodox type	For factories producing both CTC (60%) and Orthodox (40%)
1st*	Rolling (21.61%)	Weighing/sorting/ cutting/binning (23.36%)
2nd	Weighing/sorting/ cutting/binning (21.22%)	Withering (23.28%)
3rd	Withering (15.52%)	Rolling (14.29%)
4th	Drying (10.59%)	Drying (13.31%)

* Variation between 1st and 2nd insignificant.

Labour-Wages and other benefits :

3.6. The average daily wages of labour employed in both field and factory operations of Tamil Nadu tea industry in 1976 are given in the following table :-

TABLE 32
Average daily wages of labour for tea plantation workers in Tamil Nadu

(Figures in Rs.)

Category	Tea Estates above 100 Acrs.	Tea Estates below 100 Acrs.
Grade I	6.00	5.86
Grade II	5.50	5.35
Adolescent	3.59	3.43
Children	2.82	2.82

(Factory workers are paid a differential of 25 paise per day)

Note : (i) Above rates of wages are inclusive of D.A., D.A. is subject to four monthly adjustment on 1st January, 1st May and 1st September for variation from 1536 points in the average current price Index number for Coimbatore Centre (1936-100) at the rate of 1.8 paise for adults, 1.1 paise adolescent and 0.9 paise for children for every unit of 5 points.

(ii) The incentive rates to tea pluckers are as follows :

District	Base output	Rate per Kg. plucked above base.
1. Aenamallais Madurai & Tirunelveli	12 kg.	9 paise
2. Nilgiris Wyanad	12 kg.	11 piase
3. Nilgiris	12-15kg.	10 paise

(Note : Average daily wage during 1979 in tea estates above 100 acres for adults, adolescents and children was Rs.7.33, Rs.5.11 and Rs.4.40 respectively and in estates below 100 acres Rs. 7.13, Rs. 4.97 and Rs.4.28 for respective categories of workers.

3.7. The distribution of wages and other benefits to plantation labour of the surveyed estates during 1974-76 is given in the table below :-

TABLE 33
Distribution of wages and other
benefits to labourers

(In %age)

Item	Coonoor & Ootacamund			Gudalur		
	1974	1975	1976	1974	1975	1976
Wages & D. A.	67.95	67.91	67.14	68.06	75.88	74.23
Bonus	10.44	9.31	9.39	8.15	5.90	4.16
Provident Fund	6.02	6.01	7.50	6.58	5.88	5.16
Others	15.59	16.77	15.97	17.21	12.34	16.45
Total	100.00	100.00	100.00	100.00	100.00	100.00

It may be seen that Wages and D.A. constituted nearly 67% of the total labour bills paid in surveyed tea estates in Coonoor & Ootacamund. Nearly 33% of the total bills was paid in the shape of bonus, provident fund and medical expenses, recreation facilities, housing etc. Another important point that may be noticed in this regard is that there had not been any significant change in the proportion of the benefits given to the labourers in the various forms over the years of study. This may be due to the fact that the rate of bonus, provident fund etc. Has perhaps not undergone a change over the years under reference. In respect of Gudalur, Wages and D.A. accounted for as much a 73% of the total wage bill. Bonus and provident fund each covered nearly 6%. It was around 15% for others. It may be relevant in this context to point out that the proportion of bonus amount in Gudalur was lower than that for Coonoor & Ootacamund, while the proportions of provident fund and others were more or less equal in both the regions.

3.8 Regarding housing facilities, all the 20 surveyed estates in Coonoor & Ootacamund provided both the staff as well as labour quarters. As regards staff quarters, there were 309 pucca houses containing 1644 rooms while the number of semi pucca houses were 12 with 48 rooms.

Regarding labour quarters, there were 5241 pucca houses consisting of 12,663 rooms. The estates also provided 353 semi pucca houses and 10 kutcha houses as labour quarters. In Gudalur, out of 6 estates surveyed information from 1 estate was not available and the other 5 estates provided both staff and labour quarters. For staff quarters there were 79 pucca houses having 403 rooms. For labour there were 1,236 pucca houses with 4,296 rooms and 292 semi pucca houses with 669 rooms, and 76 kutcha houses with 76 rooms.

3.9. In Coonoor & Ootacamund drinking water facility was provided by 10 estates from surface well. In addition to this almost all the estates had arrangements for supply of water through pipe lines collected from spring/stream. Similar arrangements for supply of water were noticed in the tea estates of Gudalur as well.

3.10. As regards medical facilities, in Coonoor & Ootacamund 11 estates had hospitals having on an average 16 beds each. Nine estates had dispensaries. Again 16 estates had arrangements for education upto primary level and 1 estate upto middle school. Labour clubs existed in almost all the estates where arrangements for indoor and outdoor games were made. In addition, occasional film shows were being arranged in some estates. In Gudalur all the 5 estates had dispensaries and hospitals with 40 beds on an average. Facilities for education upto primary level were available in the estates. The estates had also provisions for labour club and indoor & outdoor games.

CHAPTER IV

Cost of production & profitability

4.1. The break up of cost by different items of expenditure in surveyed tea estates of both Coonoor & Ootacamund and Gudalur is shown in the table below :-

TABLE 34
Break up of cost of production in Coonoor & Ootacamund and Gudalur in 1976

(Figures in %age)

Expenses classifications	Coonoor & Ootacamund		Gudalur	
1. Cultivation	16.17	(1.41)	16.66	(1.18)
2. Plucking	22.40	(1.95)	22.66	(1.60)
3. Manufacturing	10.34	(0.90)	14.28	(1.01)
4. Maintenance and repair of Machinery, factory building etc.	1.35	(0.12)	0.82	(0.06)
5. Packing	6.44	(0.56)	7.52	(0.54)
6. Freight and Transport charges	1.64	(0.15)	2.31	(0.17)
7. Duties, taxes etc.	15.62	(1.36)	12.96	(0.92)
8. General charges :				
(a) Labour welfare	12.26	} 19.29 (1.68)	11.36	} 14.64 (1.04)
(b) Interest on loan	0.60		-	
(c) Establishment at gardens	6.43		3.28	
9. H. O. and selling expenses	6.75	(0.59)	8.15	(0.58)
Total	100.00	(8.72)	100.00	(7.10)

(Figures in brackets indicate the estimated cost in Rs/Kg.)

In the surveyed large estates in Coonoor & Ootacamund, the overall cost of production averaged to Rs. 8.72 per kg., while it was Rs. 7.10 per kg. in respect of Gudalur. One of the reasons for the latter area to have a comparatively lower cost of production than that for the former may be attributable to higher productivity per hectare which, as per survey, worked out to 1783 kgs. as against 1649 kgs. for Coonoor & Ootacamund. As for distribution of cost over the different items of expenditure, it may be stated that the most important cost item in both the areas was plucking expenditure, constituting 22.40% for Coonoor & Ootacamund and 22.66% for Gudalur. This has been due to the fact that the mandays spent in plucking was found to be the maximum amongst all the operations conducted in the field. While expenditure under general charges held the second position (19.29%) in Coonoor & Ootacamund, it occupied the third position (14.64%) in Gudalur. The second position in Gudalur occurred for cultivation (16.66%) though this item appeared in the third position (16.17%) in respect of Coonoor & Ootacamund. Because of manufacturing of both CTC and Orthodox type of teas by the surveyed tea estates in Gudalur, the proportion of manufacturing cost was as high as 14.28% as against 10.34% in Coonoor & Ootacamund where only orthodox type of teas were found to be manufactured. Moreover, duties and taxes, paid by the surveyed tea estates in Coonoor & Ootacamund were, reported, to be higher than those paid by Gudalur, which has been due to the fact that the tea estates in Coonoor & Ootacamund are paying zonal excise duty at higher rate, for being situated in zone-IV (Rs.1.10 per kg.) as compared to zonal excise duty at a lower rate by tea estates in Gudalur, for being situated in zone-I (Rs. 0.40 per kg.). Furthermore, it may not be out of place to mention that the cultivation and plucking expenses for tea estates in Coonoor & Ootacamund were significantly higher than Gudalur because of former areas lying at higher elevation.

4.2. Further it will be interesting to examine how the actual cost varies with the variation in size group :-

TABLE 35
Cost of production per kg. of made tea in Coonoor & Ootacamund during 1976

(Figures in Rs./Kg.)

Expenses Classification	Size group (in hectare)					Overall
	* Above 8.09 to 50	Above 50 to 100	Above 100 to 200	Above 200 to 400	Above 400	
1. Cultivation	—	1.69	1.54	1.15	1.65	1.41
2. Plucking	—	2.34	1.61	2.17	1.91	1.95
3. Manufacturing	—	1.10	0.91	0.95	0.76	0.90
4. Maintenance and repair of machinery, factory, building etc.	—	0.12	0.09	0.10	0.21	0.12
5. Packing	—	0.70	0.61	0.54	0.52	0.56
6. Freight and transport	—	0.13	0.18	0.17	0.07	0.15
7. Duties and Taxes	—	1.78	1.69	1.14	1.23	1.36
8. General charges	—	2.12	1.96	1.55	1.45	1.68
9. H.O. and selling expenses	—	0.31	1.07	0.61	0.90	0.59
Total	—	10.29	9.66	8.38	8.70	8.72

(*Data in respect of this size group were not available)

TABLE 36
Cost of production per kg. of made tea in Gudalur during 1976

(Figures in Rs./Kg.)

Expenses Classification	Size-group (in hectare)					Overall
	Above 8.09 to 50	Above 50 to 100	Above 100 to 200	Above 200 to 400	Above 400	
1. Cultivation	—	—	0.50	1.29	1.21	1.18
2. Plucking	—	—	1.19	1.80	1.43	1.60
3. Manufacturing	—	—	0.94	1.18	0.78	1.01
4. Maintenance and repair of machinery factory building etc.	—	—	0.15	0.07	0.03	0.06
5. Packing	—	—	0.45	0.60	0.48	0.54
6. Freight and transport	—	—	0.06	0.15	0.22	0.17
7. Duties and taxes	—	—	1.07	0.80	1.05	0.92
8. General charges	—	—	0.99	1.20	0.81	1.04
9. H. O. and selling expenses	—	—	0.07	0.37	1.03	0.58
Total	—	—	5.42	7.46	7.04	7.10

It may be seen from the table 35 that while the overall cost for the surveyed large tea estates in Coonoor & Ootacamund averaged to Rs. 8.72 per kg., the cost of production was found to be higher in the smaller size tea estates and declined with the increase in the size of tea estates, barring the size group above 400 hectares. This has been due to the fact that the unit cost of production is, primarily related to productivity per hectare; the productivity per hectare increases with the increase in size of tea estates. The tea estates of size 50-100 hectares were, reported, to have yield rate of 1221 kgs. per hectare and the cost of production, worked out to Rs. 10.29 per kg. For the next size group i.e. 100-200 hectares, the yield rate was 1609 kgs. per hectare and cost of production, averaged to Rs. 9.66 per kg. In the size group of 200-400 hectares, the yield rate and cost of production were 1886 kgs. per hectare and Rs. 8.38 per kg. However, in the size group of above 400 hectare at a yield rate of 1787 kgs. per hectare, the cost of production worked out to Rs. 8.70 per kg. Under the normal circumstances, the yield rate in the size group of above 400 hectares, would have been more than the tea estates of lower size group, with a consequential relative decline in per unit cost of production. It may not be out of place to mention that the surveyed tea estates in Coonoor & Ootacamund, falling with the size group of above 400 hectares, were found to have more uneconomic tea bushes (above 50 years), thereby reducing the yield rate per hectare than expected and pushing up the unit cost of production. Furthermore, at the yield rate of 1787 kgs. per hectare for tea estates of above 400 hectares, the per unit cost of production would have been likely to be more than what had been worked out (Rs. 8.70 per kg.) but for substantial reduction in expenditure towards duties and taxes, general charges, freight etc., compared to others.

4.3. In the surveyed large estates in Gudalur, the average cost of production was found to be Rs. 7.10 per kg. Size groupwise, it was Rs. 5.42 for 100-200 hectares, Rs. 7.46 for 200-400 hectares and Rs. 7.04 for above 400 hectares. Because of negligible coverage, the cost of production of tea estates under the first group appeared to be on the low side. At a yield per hectare of 1679 kgs. for tea estates of size

group 200-400 hectares, the cost of production averaged to Rs. 7.46 per kg. For size group of above 400 hectares, the cost of production was Rs. 7.04 at a yield rate of 2046 kgs. per hectare. The cost would have been further reduced, had the expenditure under item 'H.O. and selling expenses' been economised.

Profitability :

4.4. In Coonoor & Ootacamund out of 20 surveyed estates the balance sheets were available in respect of 12 estates and 2 out of 6 in Gudalur for the period 1973 to 1976 and these had been utilised for analysing the profitability. The analysis is based on certain profitability ratios which may throw some light on the economic viability of the estates. The following ratios had been worked out : (i) ratio of gross profit to net sales (net of rebate, discounts, excise duty and cess) (ii) ratio of gross profit to net assets (excluding intangible and mis. non-current assets). (iii) ratio of net profit after tax to net worth. The following tables show the profitability ratios of the surveyed estates in Coonoor & Ootacamund and Gudalur :

TABLE 37
Profitability ratios of 12 selected estates
in Coonoor & Ootacamund

Profitability ratios	Coonoor & Ootacamund			
	1973	1974	1975	1976
Gross profit as percentage to net sales	7.52	30.94	23.62	19.85
Gross profit as percentage to net assets	4.84	23.63	20.73	19.40
Net profit after tax as percentage to net worth	1.02	14.75	11.57	20.48

TABLE 38
Profitability ratios of 2 selected estates
in Gudalur

Profitability ratios	Gudalur			
	1973	1974	1975	1976
Gross profit as percentage to net sales	10.68	44.56	45.14	32.66
Gross profit as percentage to net assets	8.00	19.50	19.63	18.54
Net profit after tax as percentage to net worth	0.96	18.59	19.35	16.68

It may be seen from above tables that the profitability ratios showed a remarkable improvement during the years from 1974 to 1976 as compared to those in 1973. Owing to the fact that the slump in tea economy, as the industry saw for a long time, wiped away since 1973. However, during 1976, there had been some decline in some of the profitability ratios in both the areas of survey.

PART - III

Bought leaf factories :

1.1. 'Bought leaf factories', as the name goes, are those factories which purchase green leaf from outside for manufacture. The existence of bought leaf factories is a special feature of the tea growing states of South India particularly Tamil Nadu and Kerala. These factories in the nature of partnership or public limited firms came into existence in the state of Tamil Nadu after 1963-64. Prior to 1963-64, there were a few bought leaf factories but they had gone out of production due to some reasons or other.

1.2. There are at present 75 bought leaf factories in the three sub-divisions of Nilgiri district viz. Coonoor & Ootacamund (74) and Gudalur (1). These are situated at elevations ranging from 1,600 to 2,200 metres. Unlike the co-operative factories which are formed with the small growers as their members, the bought leaf factories do not have any members. They are, therefore, free to purchase green leaf from any grower. The total production of these factories in 1976 had been to the tune of 11.00 million kgs. This constituted about 9% of South India production and around 2% of all India production. The Survey covered 20 bought leaf factories, located in Coonoor & Ootacamund.

1.3. Although the bought leaf factories are at liberty to purchase green leaf from any source, the major share of their purchase was reported to have from small growers.

Collection and transportation of green leaf :

1.4. The bought leaf factories, usually, sent jeep, truck, or tractor to small growers for collection of green leaf. But carrying of green leaf by head load was also found common. Nearly 46% of the green leaf was carried by head load to the bought leaf factories by small growers while 8% by jeep and the rest 46% by tractor or truck. While the bought leaf factories collect green leaf from the growers, they usually did not charge any discount on account of water content in green leaf. But during the rainy season a discount at the rate varying from 5% to 10% depending on the quality of the green leaf was made on the weight of the green leaf.

Purchase of green leaf :

1.5. The quantum of green leaf purchased and the total value paid to the tea growers by the surveyed factories during the last three years are shown in the following table :-

TABLE 1
Total quantity of green leaf purchased and value paid by the bought leaf factories during 1974-76

Year	Total Quantity of green leaf (in th. kgs.)	Total value of green leaf (in th. Rs)	Average price per kg. of green leaf (Rs./Kg.)	Average Quantity of green leaf purchased by each factory (in th. kgs.)
1974	14,400	14,688	1.02	720
1975	17,580	24,436	1.39	879
1976	15,800	25,438	1.61	790
Average of 3 yrs.	15,927	21,521	1.36	796

It may be seen from above that the average price of green leaf paid by the bought leaf factories to the small growers increased from Rs. 1.02 per kg. in 1974 to Rs. 1.39 in 1975 and further to Rs. 1.61 in 1976. Moreover, there had not been any significant change in purchase of green leaf by individual bought leaf factory over the years of reference. This has perhaps, been either due to limited capacity of the factory or due to non-availability of green leaf of own choice or due to both. The bought leaf factories may consider the possibility of expansion of factory capacity.

1.6. Bought leaf factories often make advance payments to the growers against future supply of green leaf. The advance was usually utilised by the small growers for purchasing manures.

Proportion of made tea to green leaf :

1.7. About 85% of the bought leaf factories utilised medium and coarse leaf for manufacturing tea, while the rest utilised poor and sub-standard quality green leaf owing to non-availability of quality leaf in their vicinity. The proportion of green leaf to made tea, however, worked out to nearly 4:1.

TABLE 2

Proportion of made tea to green leaf

Year	Total quantity of green leaf (in th. kgs.)	Total quantity of made tea (in th. kgs.)	Proportion	Production of made tea by each factory (in th. kgs.)
1974	14,400	3,349	23.24	168
1975	17,580	4,242	24.13	212
1976	15,800	3,931	24.88	197
Average of 3 years	15,927	3,841	24.08	192

1.8 In order to encourage fine plucking the bought leaf factories may consider giving better prices for better quality of green leaf.

Factory operations :

1.9. As many as 12 out of the 20 bought leaf factories surveyed did not possess adequate machinery for processing the green leaf. These factories required driers, rollers, shifters, graders, fermenting drums etc.

As regards arrangements for withering, while shortage of space was not reported, all the factories did not possess rack or trough for withering. Of the 20 factories, 14 possessed wood racks or troughs for withering while the remaining factories resorted withering on the floor. For ensuring better quality of processed tea it is necessary to improve the facilities for withering by installing withering troughs. For fermenting, 8 factories used drums while the remaining used floor. Since fermenting with the help of drums is advisable to ensure better quality, the bought leaf factories may consider the feasibility of installing them. It is also essential to have arrangements for control of humidity and temperature in withering and fermenting processes. It was found that only 5 factories were having such arrangements. Double firing was not resorted to by the majority of the factories. While coal was the most common fuel the factories were faced with problems like irregular and inadequate supply of this item. Almost all factories possessed generators thereby reducing the dependence on the general electric supply.

1.10. It may be mentioned here that under the tea machinery hire Purchase Scheme, the Tea Board provides machinery to the tea factories under convenient terms and conditions. The bought leaf factories in Nilgiris should take advantage of the scheme which would go a long way in improving the processing of the tea and thereby the quality.

Method of manufacture :

1.11. The following table shows the quantum of tea manufactured according to different methods by the bought leaf factories :-

TABLE 3
Method of manufacture during 1974-76

Year	Method of manufacture		
	Orthodox (in th. kgs.)	C. T. C. (in th. kgs.)	Total (in th. kgs.)
1974	1228 (38.46)	2061 (61.54)	3349 (100.00)
1975	1470 (34.67)	2772 (65.33)	4242 (100.00)
1976	1237 (31.47)	2694 (68.53)	3931 (100.00)
Average of 3 Years	1332 (34.68)	2509 (65.32)	3841 (100.00)

(Figures in bracket indicate percentage to total)

It may be seen from the above table that two-thirds of made tea was manufactured by C. T. C. method while the rest by Orthodox method. It is also seen that the proportion of tea manufactured by CTC method had been increasing during the three years under reference with a corresponding decrease in manufacture of tea by Orthodox method.

Gradewise production :

1.12. Bought leaf factories produced all principal grades of tea viz. leaf, brokens, fannings and dusts.

The major grades were leaf and dust which together constituted 78% of the total, while broken and fannings together constituted 22% in 1976. The position is brought out in the following table :-

TABLE 4
Gradewise production during 1976

Grade	Total production (in th. kgs.)	%age of total production
Leaf	1 193	30.37
Broken	449	11.43
Fannings	401	10.18
Dust	1,888	48.02
Total	3,931	100.00

1.13. After manufacture, the teas were packed either in plywood chests or plythene bags by manual labour.

1.14. The manufactured teas were marketed through different channels. The following table illustrates the pattern of marketing :-

TABLE 5
Primary marketing of teas

(Figures in %age)

Year	Cochin Auction	Coonoor Auction.	Total Auction	Private sale	Total
1974	12.21	37.62	49.83	50.17	100.00
1975	13.52	39.23	52.75	47.25	100.00
1976	14.21	44.05	58.26	41.74	100.00
Average of 3 yrs.	13.35	40.43	53.78	46.22	100.00

1.15. It may be seen that, on an average, sales through auctions constituted 53.78%—13.35% for Cochin auction and 40.45% for Coonoor auction. Although the mode of disposal through private sale had been showing a steadily declining trend during 1974 to 1976, it

formed a sizeable percentage of 46.22% on an average which was, incidentally, slightly higher than sold through Coonoor auction. Asked about the reasons for substantial private sale, the bought leaf factories reported that, due to certain disadvantages which they had to face when teas were sold through auctions, private sale was often resorted to by them. These disadvantages were reported to be (i) higher amount of sales tax at auction, (ii) the drawal of large sample amounting to 2 kgs. per lot with a consequential reduction in sales outturn, (iii) considerable time lag involved in auction sale for realisation of sale proceeds and (iv) the higher cost of packaging in auction sale than in private. It is, therefore, recommended to reduce the size of sample to encourage the sale of more teas of bought leaf factories through auctions.

1.16. The prices fetched by the bought leaf factories for different modes of sale during the last three years are shown in the following table :-

TABLE 6
Average price realised during 1974-76

(Figures in Rs. per Kg.)

Year	Cochin Auction	Coonoor Auction	Total Auction	Private Sale	Overall
1974	6.48	4.74	5.17	5.78	5.48
1975	9.08	7.79	8.12	8.11	8.12
1976	9.88	8.54	8.86	9.16	8.99
Average of 3d yrs	8.63	7.18	7.57	7.65	7.59

It may be seen from above that prices realised at private sale were higher than that fetched at Coonoor auction, but lower than Cochin auction, though the overall combined auction prices fetched by teas of bought leaf factories were more or less comparable with those fetched at private sale. This has been due to the fact that only the

better quality teas and that too of smaller quantity are being sent to Cochin for sale, and that reasonable quantity of good quality teas are being sold privately at a relatively lesser price. The overall price realisation would, perhaps, have been more, had a reasonable percentage of good quality teas, as sold privately due to some reasons or other, was diverted to Cochin auction for sale for better return.

It is, therefore, recommended that proper advice and guidance should be given to the owners of bought leaf factories by brokers, field advisory officials of the Board and UPASI, in respect of adoption of proper channel of marketing of the produce so as to take the best advantage of the market condition for an improvement of economies of scale of the unit.

1.17. It would be of interest to show the extent of price spread of Nilgiris teas vis-a-vis teas manufactured by bought leaf factories in the same auctions during the last three years. The table below illustrates the position.

TABLE 7
Average price realisation of bought leaf teas
vis-a-vis Nilgiris teas.

(Rs. / Kg.)

Year	Cochin auction		Coonoor auction		Overall	
	Nilgiris	Bought leaf	Nilgiris	Bought leaf	Nilgiris	Bought leaf
1974	9.34	6.48	7.49	4.74	8.59	5.17
1975	9.52	9.08	8.15	7.79	8.94	8.12
1976	11.76	9.88	10.16	8.54	11.04	8.86
Average of 3 yrs.	10.18	8.63	8.67	7.18	9.53	7.57

On an average, the prices realised by bought leaf factories during 1974-76 were lower by Rs. 1.55 than Nilgiris teas at Cochin auctions. At Coonoor auctions the price differential was Rs. 1.49. The price differential had been due to the lower quality of teas manufactured by bought leaf factories. Bought leaf factories may, therefore, improve the quality of teas manufactured by them in order to ensure better price realisation. For this, apart from taking the help of the Tea Board's Hire Purchase Scheme for installation of new machinery by the bought leaf factories, the services of expert tea makers are also imperative for improvement in the manufacture of quality teas so as to ensure better appreciation of the price realisation.

Labour :

1.18. The bought leaf factories employ both permanent and casual labour. The table below shows the composition of labour in the factories :-

TABLE 8
Distribution of different categories of labour
in ~~beet~~ in bought leaf factories
(Figures in %age)

Category	Permanent	Casual	Total
Male	69.0	71.8	70.0
Female	31.0	28.2	29.7
Total	100.0	100.0	100.0

It may be seen that taking both permanent and casual labour into consideration, the male labour constituted 70.3% of the total labour force, while female labour constituted 29.7%.

1.19. Table below throws light on the distribution of mandays in different types of factory operations :-

TABLE 9

**Distribution of mandays by different types
of factory operation**

(Figures in %age)

Factory operation	Mandays worked
Withering	11.59
Rolling	23.71
Fermenting	6.51
Drying	13.78
Weighing, Sorting, Cutting and Binning	21.71
Packing	11.52
Others	11.18
Total	100.00

It may be seen that rolling operation constituted about 24% of the total mandays employed in the factory. Next came weighing, sorting, cutting and binning which together accounted for nearly 22% of the total mandays. Withering and Packing constituted 12% each.

1.20. As regards wages of labour, none of the bought leaf factories furnished the data relating to basic, dearness allowances and other perquisites etc, separately. However, 19 factories out of 20 surveyed, had reported the rate of daily wages paid to the factory workers. The rates of daily wages for males varied from Rs. 3.00 to Rs. 6.25 while in the case of female it varied from Rs. 3.00 to Rs. 4.00

Labour dispute :

1.21. There was no labour dispute encountered by the factories except in one case where 'go slow' was adopted by the workers in 1975.

Advisory service :

1.22. Out of 20 surveyed bought leaf factories only 2 factories received technical advice from UPASI. UPASI may, therefore, extend their advisory service to cover more bought leaf factories.

Cost of production :

1.23. Out of 20 surveyed bought leaf factories, the balance sheets of 14 bought leaf factories were made available to the survey team during the course of field investigation. On the basis of expenditures indicated in the balance-sheets and the production recorded in the questionnaires, the overall cost of production of made tea worked out to Rs. 9.46 per kg. In certain cases it was found to be as high as Rs. 12.96 per kg. and in certain cases as low as Rs. 6.92 per kg.

Similar was the behaviour of price realised by these 14 surveyed bought leaf factories. It ranged from Rs. 6.79 per kg. to Rs. 11.12 per kg. and the overall averaged to Rs. 8.81 per kg. Certain bought leaf factories (4) showed a profit while others (10) showed the loss. On balance, the cost-price relationship weighed on the negative side. The break-up of cost of production in Rs. per kg. for the year 1976 for bought leaf factories is given below :-

TABLE 10
Cost of production during 1976

Expenses classification	Average cost per kg. (in Rs.)	%age
Establishment	0.20	2.15
Manufacturing	6.85	72.38
Maintenance of factory building	0.31	3.41
Packing	0.41	4.31
Freight	0.17	1.75
Duties & Taxes	1.09	11.53
Selling expenses	0.15	1.59
General charges	0.28	2.88
Total	9.46	100.00

It may be seen from above that manufacturing cost constituted nearly 72% of the total followed by 11.5% for duties and taxes and 4.3% for packing. Since the manufacturing cost included the price of green leaf paid by the bought leaf factories to the small growers, the reduction in the manufacturing cost does not appear to be desirable; lest it hits the small growers. However, the possibility of reduction in packing, general charges, establishment and maintenance expenditures cannot be ruled out. It is also found desirable that duties and taxes for the bought leaf factories should be reduced to a considerable extent. The bought leaf factories, being located in excise zone IV will have to pay by and large a basic excise duty at 80 paise per kg. under certain conditions. The substantial reduction in the rate of excise duty would help the bought leaf factories to bring down the overall cost of production considerably. It is, therefore, recommended that excise duty for bought leaf factories should be reduced substantially. Moreover, the bought leaf factories should also consider the possibility of minimising the expenditure under other heads so as to economise the scale of operation for the betterment of the unit.

PART - IV

Co-operative Tea Factories :

1.1. The idea of setting up co-operative factories for improving the economic viability of small tea growers was first stressed by the Plantation Enquiry Commission in 1956. A large concentration of small tea growers exists in Nilgiris of Tamil Nadu. The Government of Tamil Nadu made the pioneering work in this regard by formulating a scheme for small growers in 1958 on a co-operative basis. The first industrial co-operative tea factory in India was thus started at Kundah (Yedakkadu) in Nilgiris district. The factory received encouragement and financial assistance from the Government of India, the State Government and the Tea Board. The objectives of the co-operative factories included extension services for the cultivation of tea as well as its manufacture. Prior to the setting up of co-operative factories, the small tea growers were depending solely on private bought leaf factories for the sale of green leaf grown in their garden. Due to lack of funds and ignorance of scientific ways of maintaining the gardens by proper manuring, control of pests, regular plucking and pruning, the small growers very often

did not get the maximum yield per hectare. Also because of the poor quality of leaf they failed to get remunerative prices for their green leaf. The first industrial co-operative tea factory at Yedakkadu proved to be a success and this encouraged the small tea growers in other areas to approach the Government for the formation of more industrial co-operative tea factories. As a result, by 1976, a total of 9 industrial co-operative tea factories was set up in Nilgiris District : all of them engaged in the manufacture of tea from the green leaf produced by the small growers. Two more industrial co-operative tea factories were under construction at the time of the survey in 1977. These were at Kaikatty (Melur) and Kattabettu. The 9 co-operative factories are situated in the three sub-divisions of Nilgiris district viz., Gudalur (1) Ootacamund & Coonoor (8) at elevations ranging from 900 to 2,300 metres. Of the total co-operative factories, 1 each was established in the years 1958, 1966 and 1974 and the remaining 6 in 1965. The particulars of the 9 co-operative tea factories in regard to their year of commencement of production, membership, area covered, production etc are given below :

TABLE 1
List of co-operative factories
with some major details

Sl. No.	Name of Co-operative factory	Year of commencement of production	Membership as on 1.1.1977	Area Covered in 1976 (hect)	Production in 1976 (Th. kg)
1.	Kundah	20-9-1962	411	417.81	554
2.	Kotagiri	19-5-1965	492	493.31	587
3.	Karumbalam	27-12-1966	206	289.51	293
4.	Kilkotagiri	26-12-1966	443	425.91	489
5.	Marcunad	20-5-1967	456	461.59	250
6.	Mahalinga	16-5-1967	482	472.47	388
7.	Manjoor	10-9-1967	574	575.53	626
8.	Ithalur	15-9-1967	470	403.24	364
9.	Gudalur	21-10-1974	319	323.89	338
Total			3,853	3863.26	3,879

These co-operative factories have benefitted the small grower members in many ways. Manure is distributed on credit. On account of the distribution of manures, clones etc., small growers had reportedly been able to improve the yield per hectare in terms of green leaf. Plant protection measures have also been made available to the small tea growers under the Hill Area Development Programme. The State Government have deployed the necessary staff for undertaking spraying work in the tea growing regions. These factories have also been inculcating the habit of thrift among the members for which the members are required to subscribe at the rate of 6 to 10% of the value of the green leaf sold by them to the factory.

1.2. There is a Central Service Society functioning at Coonoor under the Chairmanship of the collector of Nilgiris. This Society renders service facilities to the affiliated tea factories and co-ordinate their activities. The society has been making bulk purchase of tea manure mixture over the years and has been distributing it to the small tea grower-members through the factories. During the first three years the Central Society was supplying manure on a subsidised basis, the quantum of subsidy being equal to 50% of the cost of the manure. The subsidy involved in this context was borne by the Tea Board. An amount of Rs. 8.65 lakhs was sanctioned as subsidy under this scheme. At present, however, manure is supplied without any subsidy. The Central Society has also been undertaking direct marketing of tea.

1.3. The Nilgiris Small tea Growers' Service Industrial Co-operative Society Limited (INCOSERVE) is a pioneer organisation as an apex society of all the Co-operative tea factories in Nilgiris district. The INCOSERVE undertakes various measures like supply of manure, plant protection etc. for the benefit of the small growers. In order to facilitate better storage of tea produced by the co-operative tea factories INCOSERVE has constructed tea warehouses at Coonoor with the assistance of Tea Board in the form of loan to the tune of Rs. 2.50 lakhs,

Collection and transportation of green leaf :

1.4. Most of the co-operative factories in Nilgiris directly collected

the green leaf from the member gardens. Small gardens which were near to the co-operative factories sent the green leaf direct to the factories by head load. The co-operative factories usually send jeep, truck, tractors to the small gardens and collect the green leaf. Jeep, truck and tractors carried 83% of the total green leaf collected by the co-operative factories while the rest was collected by head load.

Purchase of green leaf :

1.5. The quantum of green leaf purchased and the total value paid by the co-operative factories during the last three years are shown in the following table :-

TABLE 2
Total quantity of green leaf purchased and value paid by the co-operative factories during 1974-76

Year	Total quantity of green leaf purchased (Th. kgs.)	Total value of green leaf (Th. Rs.)	Average price per kg. of green leaf (in Rs.)	Purchase of green leaf per factory (Th. kgs.)
1974@	9,573	8,041	0.84	1,197
1975	12,163	16,541	1.36	1,352
1976	14,794	20,119	1.36	1,644
Average of 3 yrs.	12,176	14,900	1.22	1,397

(@Figures relate to eight co-operative factories)

It will be seen from above that average price paid per kg. of green leaf in 1974 was 84 paise which increased to Rs. 1.36 in the subsequent two years. As compared to this, the price of green leaf paid by the bought leaf factories to the small growers was found to be higher as indicated in the Part III dealing with bought leaf factories. Due to starting of co-operative tea factories in Nilgiris the small tea

grower-members, who were getting as low a price as 30 paise per kg. earlier, now received an average price of Rs. 1.22 per kg. of green leaf. In certain cases or in certain seasons the price even has gone up to Rs. 2.00 per kg. Had not the co-operative factories been started in Nilgiris the plight of small tea growers would have been the same as before, if not worse. A large number of small bought leaf factories had also been reported to be closed, with bigger ones forced to pay higher rates for green leaf to the small tea growers. Another advantage of the small growers brought under the umbrella of co-operative movement is to award a series of benefits like supply of manure on credit, financial loans at the time of necessity etc. This has been due to the non-existence of a seller—buyer relationship, unlike bought leaf factories.

Another point that may be worth mentioning here is that the co-operative factories encourage the habit of thrift among the members for which the grower members are required to subscribe at the rate of 6 10% of the value of the green leaf sold by them to the factory. This has been designed in the greater interest of the co-operative factories where small growers are members by themselves.

It was also found that co-operative factory made advance payment to the small growers against their green leaf. Such advances were adjusted against future purchase of green leaf. The rate varied from 50 paise to Rs. 2.00 per kg. depending on the quality of the green leaf. Most of the small growers were reported to have utilised such advances for the purchase of manure. The survey result had also revealed that there had been a considerable improvement in the purchase of green leaf by the co-operative factories over the years of study. The increase in the capacity of the factory and/or fuller utilisation of existing capacity are attributable to this.

1.6. While the co-operative factories purchased the green leaf, they usually did not make any discount for water content etc. on the weight of the green leaf. But during the rainy season such discount were made ranging from 5 to 10% depending on the quality of the green leaf.

Proportion of made tea to green leaf :

1.7. The type of green leaf used by the co-operative factories in the manufacturing process was generally medium or coarse. During the peak plucking season, however, a few co-operative factories used fine quality green leaf for manufacture. The proportion of green leaf to made tea was found to be 3.85 : 1. The table below gives the details :-

TABLE 3
Proportion of made tea to green leaf

Year	Total quantity of green leaf (Th. kgs)	Total quantity of made tea (Th. kgs)	Proportion of made tea to green leaf	Production of made tea per factory (Th. kgs)
1974	@9,573	2,527	26.40	316
1975	12,163	3,216	26.44	357
1976	14,794	3,879	26.22	431
Average of 3 yrs.	12,176	3,207	26.34	368

(@ Figures relate to 8 co-operative factories)

Factory operations :

1.8 All the nine co-operative tea factories were reported to have required machinery to process the green leaf by orthodox method. It was also reported that only one co-operative factory, had availed of the Tea Machinery Hire Purchase Scheme of the Board. It was also noticed that a small percentage of the production was of CTC type. In order to have a switch over from orthodox method to CTC method with a view to taking advantage of changing market conditions, and to have a flexibility in the production system, the co-operative factories may like to consider the installation of adequate machinery for manufacturing of CTC teas on a large scale basis. For this, it is imperative that co-operative factories should avail of the facilities given under the Tea Machinery Hire Purchase Scheme of the Board as per suitable terms and conditions laid down for the operation of the said scheme.

1.9. As regards withering arrangements, all the co-operative factories surveyed had been undertaking withering operations either on rack/trough or on the floor. The average number of troughs possessed by a factory was 6. Depending on the capacity of the factory the size of the trough varied from 60' X 6' to 84' X 6'. The troughs were reported to be in good condition. None of the surveyed factories reported shortage of withering space.

1.10. For fermenting arrangement 7 factories used floor while 1 factory used trough and 1 used drum. Seven factories had arrangements for controlling both temperature and humidity. One factory had arrangement for controlling temperature only while another had no such arrangement.

1.11. Double firing was not adopted by any of the Co-operative tea factories. The fuel used has been mainly coal and firewood. Of the 9 Co-operative factories, 4 factories used coal and the rest used firewood. Shortage of coal and firewood was not reported by any of the factories.

1.12. As regards availability of power, 7 factories had Generator Sets while the other 2 were dependent on general supply. Loss of production due to power shortage had therefore, been reported to be insignificant.

Method of manufacture of green leaf to made tea :

1.13. The quantum of tea manufactured according to different methods is shown below :-

TABLE 4
Method of manufacture during 1974-76

(Figures in th. kgs.)

Year	Method of manufacture		
	Orthodox	C. T. C.	Total
1974	2,527 (100.00)	—	2,527 (100.00)
1975	3,148 (97.89)	68 (2.11)	3,216 (100.00)
1976	3,541 (91.27)	338 (8.73)	3,879 (100.00)
Average of 3 yrs.	3,072 (95.79)	135 (4.21)	3,207 (100.00)

(Figures in brackets indicate percentages to total)

It will be seen that the entire quantum of tea manufactured in 1974 was of the orthodox type. During the years 1975 and 1976 some quantities of tea were also manufactured by CTC method constituting 2.11% and 8.73% respectively of the total production. On an average as much as 96% of the production constituted orthodox type and 4% CTC type.

Gradewise production :

1.14. The production of tea according to different grades is shown in the table below :-

TABLE 5
Gradewise production during 1976

Grade	Total production (Th. kgs.)	Percentage to total production
Leaf	161	4.15
Brokens	1,155	29.77
Fannings	1,238	31.92
Dust	1,325	34.16
Overall	3,879	100.00

It will be seen that brokens and fannings constituted 62% of total production while leaf and dust accounted for 38% of the total.

Packing :

1.15. The graded teas are usually packed either in chests or polythene bags. The method of packing tea was found to be mostly mechanical. Out of 9 Co-operative factories surveyed, only 1 factory resorted to manual packing to the extent of 10% of the total production. Out of 9 factories, 2 factories were reported to be facing shortage of packing materials.

Marketing :

1.16. As much as 99.65% of the teas manufactured by the Co-operative factories was sold through auctions at Coonoor and Cochin. A negligible quantity was sold through private sale. The following table shows the details :-

TABLE 6
Primary marketing of tea

(Figures in %age of total production)

Year	Cochin Auction	Coonoor Auction	Total Auctions	Private sale	Total
1974	36.89	63.01	99.90	0.10	100.00
1975	31.41	68.51	99.92	0.08	100.00
1976	30.10	69.20	99.30	0.70	100.00
Average of 3 yrs.	32.31	67.34	99.65	0.35	100.00

On an average, the proportion of tea sold through Coonoor auction was 67.34% while the remaining 32.31% was sold through Cochin auction. It may also be seen that the percentage of tea sold through Coonoor auction had been gradually increasing, while in the case of Cochin auction, the quantum had registered a decline.

1.17. The major difficulty faced by the Co-operative factories in selling their teas at auction was reported to be the one relating to withdrawal of samples of 2 kgs. per lot which appears to be on the high side. The Auction Committee may consider the feasibility of reducing the size of the sample per lot for teas which are offered for sale at auctions by the co-operative factories.

1.18. The prices fetched by co-operative factories at different points of sale during the last 3 years are shown in the table below :-

TABLE 7
Average price realised during 1974-76

(Figures in Rs. / Kg.)

Year	Cochin Auction	Coonoor Auction	Total Auctions	Private sale	Overall
1974	6.09	5.13	5.49	6.13	5.49
1975	9.08	7.92	8.29	8.37	8.29
1976	9.32	8.10	8.47	7.82	8.47
Average of 3 yrs.	8.27	7.31	7.63	7.73	7.63

It may be seen that, on an average, prices realised at Cochin auctions were higher than the prices realised at Coonoor auctions and private sales. This may, perhaps, be due to sale of better quality teas at Cochin auction.

1.19. The comparative position of the prices realised by teas manufactured by co-operative factories and the prices realised by Nilgiris teas as a whole is given below :-

TABLE 8
Average price realised by Nilgiris teas and teas manufactured by co-operative factories

(Figures in Rs./kg.)

Year	Cochin Auction		Coonoor Auction		Overall	
	Nilgiris Co-operative		Nilgiris	Co-operative	Nilgiris	Co-operative
1974	9.34	6.09	7.49	5.13	8.59	5.49
1975	9.52	9.08	8.15	7.92	8.94	8.29
1976	11.76	9.32	10.16	8.10	11.04	8.47
Average of 3 yrs	10.18	8.27	8.67	7.31	9.53	7.63

Although the prices fetched by co-operative factories had been showing a gradually increasing trend at both the auctions in line with the trend for Nilgiris teas as a whole during 1974-76, these remained always lower than the prices of Nilgiris teas as a whole. In order, therefore, to improve the quality of tea manufactured by co-operative factories so as to fetch prices more or less at par with the Nilgiris teas as a whole, United Planters' Association of Southern India may take necessary steps to ensure that small growers adopt better plucking standards which will enable the co-operative factories to procure better quality of green leaf. Note only that the services of expert tea makers are imperative for improvement of the quality of teas, the deployment of whom may be considered by INCOSERVE.

Labour employment and wage :

1.20. The co-operative factories employed labour both on permanent and casual basis. The table below shows the composition of labour in factory :-

TABLE 9
Distribution of different categories of labour in
co-operative factories in 1976

(Figures in %age)

Category	Permanent	Casual	Total
Male	75.88	81.33	78.59
Female	24.12	18.67	21.41
Total	100.00	100.00	100.00

It will be seen that taking both the permanent and casual labour into account, male workers constituted 78.59% of the total labour force while female workers constituted 21.41% in 1976.

1.21. Table below throws light on the distribution of mandays in different types of factory operations :-

TABLE 10
Distribution of mandays by different
types of factory operations.

(Figures in %age)

Factory operation	Mandays employed
Withering	11.09
Rolling	19.09
Fermenting	4.37
Drying	9.37
Weighing, sorting, cutting and binning	24.48
Packing	12.50
Others	19.10
Total	100.00

It may be seen that weighing, sorting, cutting and binning jointly accounted for nearly 25% of the total mandays spent while rolling, packing and withering constituted 19%, 13% and 11% respectively.

1.22. As regards wages of labour, none of the co-operative factories was in a position to furnish the break up of wages into basic pay and dearness allowances. Only the rate of daily wages given by them was reported. Out of the nine co-operative factories, three factories followed the rate of daily wages according to Minimum Wages Act at the rate of Rs. 5.25. Two factories followed the rate fixed by the Directorate of Industries, Tamil Nadu, while the one followed the rate of Rs. 4.50 arrived at on the basis of Minimum Wages Act and the minimum wagea fixed for agricultural labour. The remaining three factories did not report the wages paid by them.

Industrial dispute :

1.23. The co-operative factories did not report any loss of production or mandays due to industrial disputes in the year 1976.

Advisory services :

1.24. The co-operative factories in Nilgiris receive technical advice both from Tea Board and United Planters' Association of Southern India. Out of 9 surveyed factories, 4 factories received such advice from Tea Board and U.P.A.S.I. in the year 1976. It is desirable that more members of co-operative factories should be brought under the technical advice of UPASI and Tea Board for the betterment of the units.

Cost of production :

1.25. On the basis of the balance sheets provided to the survey team by the 9 co-operative tea factories, the overall cost of production averaged to Rs. 8.17 per kg. of made tea. It ranged from Rs. 6.86 to Rs. 8.99. The average price realisation of the co-operative tea factories was in the range of Rs. 7.32 to Rs. 9.80 per kg. and the overall average price, thus worked out to Rs. 8.47. Prima facie, it appears that all co-operative factories had shown a profit in 1976. However, detailed analysis indicates that, out of 9 co-operative factories, only 4 factories had shown the profit while others (5), the loss. Not only that, because of incurring marginal loss by the losing co-operative factories and considerable profit by the profit making units, the overall cost-price relationship sided with the profit.

The break up of the cost of production of made tea per kg. of the co-operative tea factories for the year 1976 is given below :-

TABLE 11
Cost of production during 1976

Expenses classification	Average cost per kg. (in Rs.)	%age
Establishment	0.24	2.89
Manufacturing	5.63	68.90
Maintenance of factory building etc.	0.09	1.16
Packing	0.25	3.06
Freight	0.26	3.14
Duties & Taxes	1.24	15.15
General charges	0.31	3.87
Selling expenses	0.15	1.83
Total	8.17	100.00

The manufacturing cost, which includes the price of the green leaf paid by the co-operative factories to the small growers, constituted as much as 69% of the total cost, followed by duties and taxes (15.15%). Establishment, packing and freight accounted for nearly 3% each.

The question of further reduction in the manufacturing cost seems to be undesirable because any reduction of this cost would have an adverse effect on the price of green leaf paid by the co-operative factories to the small growers. Though there is a room for reduction in the expenditure towards establishment, packing, freight, general charges etc., to a negligible extent, enough possibility exists for substantial slashing down of the expenditure incurred towards payment of duties and taxes. The co-operative factories, being located in Nilgiris, will have to pay under certain conditions an excise duty of 72 paise per kg. of made tea, which covers nearly 60% of the total cost expended.

by the co-operative factories under the heads duties and taxes. It is, therefore, recommended that Government may consider the possibility of substantial reduction of the amount of excise duty paid by the co-operative factories being located in Nilgiris with a view to lowering the cost of production from the existing level for an overall improvement of the health of the co-operative tea factories which are owned by the small tea growers.

P A R T - V

Small Tea Growers :

CHAPTER I

General Background :

1.1. The district of Nilgiris has the largest concentration of small growers of tea in the country, although no accurate data are available to show their actual number and the area under them. Total number of small gardens registered with the Tea Board at present is nearly 6,344 covering an area of 7,207 hectares but the number of unregistered gardens is yet quite large. The total number of registered and unregistered gardens together can be well around 15,000 or more. Production of small gardens can be assessed from the quantum of tea manufactured by the co-operative and bought leaf factories who purchase the green leaf from the small growers. It may, however, be pointed out that a small proportion of the green leaf is also sold to the middlemen who, in turn, sell it to the large estates or bought leaf factories. Based on the returns received from the bought leaf and co-operative factories, the production of small growers in 1976 was around 15m. kgs. which accounted for as much as 83% of annual production of small growers in the country as a whole and 3% of all India tea production.

Emergence of small growers

1.2. Majority of the small growers in Nilgiris came into existence around the year 1920. Growth and development of small growers were very much accelerated by the introduction of export quota in 1933. The buoyant market value of export quota not only induced agriculturists to take to tea cultivation but also encouraged them to register the gardens with the Tea Board since only gardens registered with the Tea Board were entitled to export quota. A number of small gardens thus emerged. However, when export quota system was suspended in 1961 interest of small growers to register themselves with the Tea Board waded away.

Role of co-operative and bought leaf factories in the growth and development of small tea gardens in Nilgiris :

1.3. In order to improve the lot of small growers the idea of setting up of co-operative factories was first stressed by the Plantation Enquiry Commission in 1956. As a result of the initiative taken by the State Government in this regard the first Industrial co-operative factory proved to be a success and resulted in the setting up of a series of co-operative factories and as a result by 1977 when the survey was undertaken there were 9 co-operative factories in existence and two more were under construction. Apart from processing the green leaf produced by the small gardens, the co-operative factories undertake distribution of manures, clones etc. to the small growers. There is a Central Service Society functioning at Coonoor which has been making bulk purchase of tea manure mixture over the years and has been distributing it to the small grower - members through the respective co-operative factories. The society has also been undertaking direct marketing of tea.

The Nilgiris Small Tea Growers' Service industrial Co-operative Society Limited (INCOSERVE)-an apex society of all the co-operative tea factories in Nilgiris - undertakes supply of manure, plant protection measures etc., for the benefit of small growers.

1.4. Like the co-operative factories in the public sector there have also been factories in the private sector-usually known as bought leaf factories - helping the development of small gardens in Nilgiris. Unlike co-operative factories whose facilities are confined to their members, the facilities of bought leaf factories are available to all small gardens. The bought leaf factories-in the nature of partnership or public limited firms-came into existence in Tamil Nadu since 1963-64 and there are at present 75 such factories. These factories mostly purchase green leaf from the small growers. In areas which are not served by the co-operative factories the bought leaf factories afford an assured marketing outlet for the green leaf produced by the small growers.

*Role of Tea Board in the development
of small tea gardens in Nilgiris :*

1.5. The Tea Board is having its Regional Office at Coonoor headed by an Assistant Director of Tea Development. The Board, in collaboration with U. P. A. S. I. renders to the small growers advisory service, training in modern method of tea culture and arranges for supply of clonal tea plants at subsidised rates. Also demonstration plots are maintained to educate planters about modern scientific methods of tea cultivation. The Tea Board grants financial assistance in the setting up of co-operative tea factories. This assistance is in the form of loans for construction of tea factory and purchase of tea machinery. The construction cost of the factory is financed by the Tea Board and the State Government on a 50:50 basis. The purchase of machinery for manufacture of tea is also financed on the same pattern. Tea Board also bears 50% of the entire establishment cost including the managerial cost for a period of three years from the year of establishment of the co-operative. The Board also finances the setting up of clonal multiplication centres. Demonstration plots are also set up by the Tea Board in collaboration with UPASI to generate an awareness amongst the small growers about the benefits which result from the adoption of scientific measures and improved cultural and farm management prac-

tices. The Board assisted the INCOSERVE with a loan of Rs. 2.50 lakhs to finance the construction of a warehouse at Coonoor which would facilitate better storage of tea produced by the co-operative tea factories.

1.6. The Regional Office of the Board at Coonoor has been delegated with the powers to grant Replanting/Replacement/Rejuvenation Subsidy to the small growers with a holding of upto one hectare. There has been overwhelming response from the small growers in respect of Rejuvenation Subsidy Scheme. For rendering assistance to the small growers the Tea area Rejuvenation and Consolidation Subsidy Scheme and Replantation Subsidy Scheme have been liberalised. Under the liberalised schemes, an outright grant of Rs. 5,000 per hectare as subsidy for replantation is paid by the Tea Board. Under Tea area Rejuvenation and Consolidation Subsidy Scheme, a grant of Rs. 3,000 per hectare and Rs. 4,000 per hectare are paid by the Board for undertaking rejuvenation pruning and for rejuvenation and interplanting respectively. As on 31-3-1980 an amount of Rs. 16.05 lakhs has been disbursed by the Tea Board towards subsidy to small tea growers under Replantation/Replacement/Rejuvenation Subsidy Schemes.

CHAPTER II

Field practices and aspects of sales, labour, cost and profitability :

Registration of estates :

2.1. It was found that out of 600 small gardens surveyed, 166 gardens representing about 28%, were registered with the Tea Board. the Talukwise position is given in the table below :-

TABLE 1
**Total number of registered/unregistered gardens
covered by the survey**

Taluk	Registered	Unregistered	Total
Coonoor	101	213	314
Ootacamund	59	07	266
Gudalur	6	14	20
Total	166	434	600

2.2 The main reason for non-registration of gardens (72%) is reported to be the prevalence of 'joint patta' (Joint ownership) system. It is reported that when the head of a family dies, land under his possession is divided and distributed without executing any proper documents to his children, who continue cultivation in their respective plots. In the case of some gardens, the land was possessed by its owners long time back by encroachment of forest land which made it difficult to obtain 'pattas' from state government.

2.3. Registration of all the tea gardens in the country is essential for identification of units and for compiling area, production and other data. Registration of small growers is also necessary for planning any programmes for the benefit of the growers. Documentary evidence of ownership is insisted upon by the Tea Board for registration of estates. In view of 'joint patta' system, small growers are unable to produce any individual title of ownership. It may be pointed out in this context that the Tea Board has liberalised its subsidy schemes and at present an unregistered small grower, who can produce a membership certificate from a co-operative tea factory or a revenue receipt issued by village Karnam, is entitled to the benefits of the schemes. A large number of such unregistered small growers have been granted rejuvenation subsidy. It is, therefore, felt appropriate that Tea Board may relax its condition in regard to evidence of ownership for registration as well so that small growers can register themselves with the Board on the basis of membership certificate of co-operative tea factory or revenue receipt. To begin with, these unregistered gardens who have already been granted subsidies, may immediately be registered in view of the fact that other formalities of registration such as inspection of estate, preparation of survey plan etc. have already been carried out at the time of granting subsidy. In the case of those gardens whose ownership has not been recognised, the State Government may consider recognition of ownership of such gardens by the present owners and issue 'pattas' so as to enable them to register with the Tea Board.

2.4. It was also found that while 180 gardens out of the total gardens surveyed (600) were members of co-operative factories, all

others were associated with bought-leaf factories. We would, therefore, suggest that all the co-operative and bought-leaf factories in the country should be registered with the Tea Board so as to provide a supplementary data base for the small growers' sector.

Membership in Associations :

2.5 At the time of the survey only one Association of small growers viz., The Nilgiris Small Tea Growers, Association was found to be in existence. As many as 121 gardens out of 600 surveyed were members of this Association. Advisory service of U.P.A.S.I. is, however, available to small growers free of charge whether or not they are members of it. As many as 135 gardens were reported to be availing such service rendered by U.P.A.S.I.

Size of the gardens :

2.6. Average size of the gardens in terms of total area was found to be 1.33 hectares. The talukwise figures varied from 1.28 to 1.36 hectares. In terms of area planted with tea, the overall average was 1.19 hectares while these were 1.25, 1.14 and 1.17 hectares in the respective Taluks. The tables below shows the details :

TABLE 2
Size of the gardens

Taluk	Number of gardens	Total area of gardens (Hect)		Area planted with tea (Hect)	
		Area	Average size	Area	Average size
Coonoor	314	422.00	1.34	392.50	1.25
Ootacamund	266	339.18	1.28	303.66	1.14
Gudalur	20	27.18	1.36	23.52	1.17
Total	600	788.36	1.33	719.68	1.19

Age composition of the bushes :

2.7. As much as 96.46% of the tea area covered by the surveyed gardens in Nilgiris contained bushes which are below 50 years. Talukwise, the area covered by bushes below 50 years was 94.82% in Coon-

oor and 98.27% in Ootacamund. In the case of Gudalur taluk, the entire area contained bushes below 30 years. The following table shows the details :

TABLE 3
Age group of bushes

Age group	Coonoor		Ootacamund		Gudalur		Total	
	Area (Hect)	%age to total	Area (Hect)	%age to total	Area (Hect)	%age to total	Area (Hect)	%age to total
Below 5 years	8.96	2.28	6.45	2.12	3.52	14.97	18.93	2.63
5 to 10 years	6.00	1.52	5.00	1.64	3.00	12.75	14.00	1.95
10 to 30 years	86.00	21.91	76.55	25.21	17.00	72.28	179.55	24.95
30 to 50 years	271.22	69.11	210.43	69.30	—	—	481.65	66.93
Over 50 years	20.32	5.18	5.23	1.73	—	—	25.55	3.54
Total	392.50	100.00	303.66	100.00	23.52	100.00	719.68	100.00

Since most of the tea bushes in all the three taluks are well within the economic age group of less than 50 years their productivity can be increased by the adoption of improved cultural practices and application of necessary inputs.

Utilisation of total area :

2.8. The position of utilisation of the total area by the surveyed gardens is indicated in the table below :

TABLE 4
Utilisation of total area

Category	Coonoor		Ootacamund		Gudalur		Total	
	Area (Hect)	%age to total	Area (Hect)	%age to total	Area (Hect)	%age to total	Area (Hect)	%age to total
Area under tea	392.50	93.01	303.66	89.53	23.52	86.53	719.68	91.29
Area under other crops	9.00	2.13	11.33	3.34	—	—	20.33	2.58
Area lying fallow	20.50	4.86	24.19	7.13	3.66	13.47	48.35	6.13
Total	422.00	100.00	339.18	100.00	27.18	100.00	788.36	100.00

It will be seen that the area under tea constituted 91.29% of the total area of the surveyed gardens. Talukwise, area under tea constituted 93.01% in Coonoor, 89.53% in Ootacamund and 86.53% in Gudalur. While the percentage area lying fallow has been somewhat negligible in the case of Coonoor and Ootacamund this has been considerable in the case of Gudalur. In view of this, there is scope for extension of tea area in Gudalur as compared to other Taluks.

Yield rate :

2.9. The quantity of green leaf plucked along with the average yield per hectare in the three Taluks in 1976 were as follows :-

TABLE 5
Average yield rate of small growers in 1976

Taluk	Planted area (hect.)	Total green leaf plucked (kgs.)	Total production of made tea (kgs.)@	Production of green leaf per hect. (kgs)	Production of made tea per hect. (kgs.)
Coonoor	392.50	1,423,754	316,390	3,628	806
Ootacamund	303.66	1,037,606	230,579	3,417	760
Gudalur	23.52	97,205	21,601	4,132	919
Total	719.68	2,558,565	568,570	3,556	790

(@ Made tea arrived at the ratio of 1:4.5 of green leaf)

The average yield of the surveyed gardens in Nilgiris was found to be 790 kgs. per hectare in 1976. Talukwise, the yield ranged from 760 to 919 kgs. per hectare. In the case of Gudalur, however, yield rate is found to be the highest among the three taluks. The comparatively younger bushes, facilities for irrigation and lesser damage of crop due to soil erosion and landslides are mainly the contributory factors for the higher yield rate in Gudalur.

Bush population and vacancy :

2.10. In almost all gardens square planting of 4' x 4' had been adopted. At this spacing, number of plants that can be planted in an hectare is 6, 727. Based on this, vacancy ratio has been estimated at 23.54 for surveyed gardens. Table 6 gives the Talukwise position :-

TABLE 6
Assesment of vacancy

Taluk	Area	No. of bushes	Bushes/hect.	Vacancy
Coonoor	392.50	20,33,935	5,182	22.97
Ootacamund	303.66	15,48,666	5,100	24.19
Gudalur	23.52	1 19,121	5,064	24.72
Total	719.68	37.01,722	5,144	23.54

It will be seen that the vacancy ratios range from 22.97 to 24.72 in the three taluks.

Taking into account the vacancy ratio which is 23.54 there is need for increasing the bush population by undertaking infilling operations in between the rows. Small gardens have been carrying out infilling in their gardens to increase the bush population. The percentage of such infilling to total bush population in 1976 was about 2.8%. The talukwise particulars regarding infilling undertaken during the year 1976 are given in the table below :-

TABLE 7
Infilling - Talukwise

Taluk	Number of gardens which carried out infilling	Number of plants Infilled	Total number of bushes	%age of infilling to total number of bushes
Coonoor	190	58,900	2 033,935	2.9
Ootacamund	150	43,500	1,548,666	2.8
Gudalur	10	2 600	119,121	2.2
Total	350	105,000	3,701,722	2.8

It may be seen that percentage of infilling in respect of Coonoor taluk was 2.9% against vacancy ratio of 23%. In Ootacamund taluk when the percentage of vacancy ratio was 24%, the percentage of infilling was found to be 2.8%. In respect of Gudalur taluk, the vacancy ratio was 25% against which the percentage of infilling was 2.2%. The low percentage of infilling in Gudalur was also reflected in the lower number of bush population per hectare. Nevertheless, yield rate per hectare in Gudalur at 919 kgs. per hectare was higher than those of other areas. This was perhaps been due to the fact that the small growers in Gudalur have resorted to coarse plucking for higher out turn as a whole.

Percentage of infilling by the small growers would have been more but for two reasons viz., inadequate availability of good planting materials and lack of sufficient finance. There are at present two clonal multiplication centres set up by the Tea Board : one at Karumbalam and another at Mahalinga. These centres supply callused cuttings and rooted clonal tea plants to the small growers. Apart from these sources, planting materials are also supplied by Indo-German Project, UPASI and the Forest Development of the State Government. The planting materials supplied by these sources are, however, insufficient to meet the increasing demand of the small gardens. The inadequate supply position of planting materials is exploited by the private agents in Nilgiris who rear nurseries with seeds brought from Assam and supply the planting material to small gardens very often on deferred payment basis which is an attraction to the small growers. The quality of these planting materials is reported to be far from satisfactory. In order to mitigate the hardship of the small growers in getting good planting materials, two more clonal multiplication centres are proposed to be set up: one at Gudalur and another at Kunda for which the Tea Board has already provided the necessary funds to the State Government. The small growers have also reported that the average cost of infilling per bush has gone up from 70 paise in 1974 to Rs. 1.10 in 1976; The majority of the small growers are aware of the Tea Board's Rejuvenation and Consolidation Subsidy Scheme and a few of the gardens are already utilising

this scheme. The rates of subsidy granted under the Tea Board's Scheme have also been revised upwards taking into account the increase in the cost of infilling. The small growers will therefore, be in a position to further step up the rate of infilling in their gardens by increased utilisation of the Tea Board's subsidy scheme and also by availing good quality planting materials from the various clonal multiplication centres.

Application of fertilisers :

2.11. Among the gardens surveyed, 505 gardens applied chemical fertilisers covering an area of 650 hectares. The total quantity applied by these gardens was reported to be 2.10 tonnes, 440 gardens applied a mixture of N.P.K. and 65 applied other types of fertilisers. Average quantity of fertilisers applied per hectare worked out to 323 kgs. Small growers who were not members of co-operative tea factories made their own arrangements for procuring fertilisers. The optimum dosage of fertilisers has to be determined on the basis of local soil condition, number of shade trees and other agroclimatic conditions and in this context it was found that there is necessity for increasing the application of fertilisers in the small gardens to obtain higher yield. Small growers may, however, avail of the advisory services rendered by U.P. A.S.I. in this regard.

Application of pesticides and weedcidies :

2.12. Plant diseases widely prevalent in small tea gardens were reported to be (i) Blister blight (ii) Black rot and (iii) Red rust. Stray incidence of Porea in certain gardens in Gudalur taluk was reported.

90% of small tea gardens in Nilgiris were reported to have been attacked by Blister blight. The incidence of this disease is higher in the small gardens than in the big estates. This plant disease can easily be brought under control by spraying of proper fungicides.

Small growers belonging to co-operative tea factories get assistance from Tamil Nadu Government for control of plant diseases. Other small growers may, therefore, consider joining the co-operative so as to avail of the facilities provided in this regard.

2.13. Weeds widely prevalent in small tea gardens are : *Achyranthes aspera* (Goat weed), *Bidens Biternata* (Spanish weed), *Erigeron mucronatus* (Nilgiri daisy), *Sida acuta* (Snakes tongue), *Axonopus compressus* (Carpet grass), *Pennisetum clandestinum* (Kikya grass), and *Paspalum conjugatum* (Buffalo grass). Generally, small growers adopt manual methods, such as sickling and hoeing for removal of weeds and grass. Since use of chemicals is more popular and effective in controlling the weeds, small growers may resort to application of chemical weedicides.

Soil erosion and drought :

2.14 Drought is a common feature in Nilgiris, which takes its turn almost every year. During the years 1975 and 1976 loss of crop due to drought reported to be of significant percentage.

A large part of tea area in Nilgiris is prone to soil erosion reportedly due to deforestation. Areas more susceptible to soil erosion are Kurumbalam, Selas, Adigaratty, Ithlar, Belgauchi, Manjacombai etc. For construction of bunds at vulnerable points to prevent soil erosion, financial assistance is provided by the Government of Tamil Nadu. However, many affected small growers cannot avail of the assistance as they did not have the necessary resources to supplement such assistance.

Plucking and pruning :

2.15. Plucking is an important field operation, which requires technical skill and training. Plucking to the right degree of closeness and at the correct and uniform height stimulates the bushes to produce maximum crop commensurate with application of fertilisers. On the other hand, coarse plucking at irregular levels and space debilitates the bush and reduces the number of plucking points. It is, therefore, essential that small growers should be given proper training in the delicate work of plucking. Plucking round usually adopted by small growers is generally 15/20 days. Plucking round can be reduced to 10 days if coarse plucking is avoided. During the course of the survey it was observed that in view of hike in price of green leaf even banchy leaves

and stems were snatched away from the bush for manufacture. This type of coarse treatment affects the health of bushes and retards their productivity to a great extent.

Pruning cycle generally adopted by small growers is 5 years for gardens in higher elevation and 4 years for gardens in lower elevation. Small growers may, therefore, be given practical training in scientific way of pruning and plucking.

Marketing of the green leaf :

2.16. Small gardens in Nilgiris are generally covered by a network of co-operative and bought leaf factories. A small fraction of the small garden's teas is also sold to the middlemen. In 1976 as much as 83% of the green leaf was disposed of through co-operative and bought leaf factories while the remaining 17% was sold to the middlemen. The average prices realised by the small growers for their green leaf from the three different sources during 1976 are given below :-

TABLE 8
Prices realised by small growers in 1976

Sources	Average price of green leaf (Rs. / kg.)
Co-operative factory	1.36
Bought leaf factory	1.61
Middlemen	1.48
Average	1.46

2.17. While the details of the quantum sold and the price paid by the co-operative and bought leaf factories are dealt with separately in the respective chapters on co-operative and bought leaf factories, it may be stated that in the case of small growers in Nilgiris middlemen do not appear to play a significant role in view of the existence of quite

a good number of co-operative and bought leaf factories. Yet it would be worth while to point out that a few of them flourish because they help small growers in the procurement and supply of fertilisers. They also maintain nurseries and supply seedlings to the small growers. In spite of heavy competition from co-operative and bought leaf factories the middlemen are able to thrive because they advance loans to the small growers in times of need such as marriages, religious ceremonies and funerals. With plans for setting up of more co-operative factories and two more clonal multiplication centres by the Government of Tamil Nadu in collaboration with the Tea Board, the role of middlemen is expected to diminish gradually.

Labour, cost of production and profitability :

2.18. Data in respect of financial aspects have not been maintained by any of the small gardens. The practice of any kind of evaluation of cost of production and profitability was, therefore, found to be virtually lacking among small growers. Cost data were, however, collected by enquiries. Based on this, the break-up of cost of production 1976 is found to be as follows :-

TABLE 9
Cost of production during 1976

(Figures in %age)

Sl. No.	Expenses classification	%age to Total
1.	Weeding	38.57
2.	Plucking	27.44
3.	Fertilisers	20.10
4.	Pruning	2.78
5.	Other cultivation expenses	6.85
6.	Transport and other charges	4.26
	Total	100.00

Expenditure on weeding (38.57%) was found to be the largest item of cost followed by plucking (27.44%) and fertilisers (20.10%). It may be pointed out that labour in the small gardens is provided by family members of the small growers.

The average cost of production per kg. of green leaf worked out to 49 paise in 1976 for small gardens in Nilgiris. The details are as under :-

TABLE 10
Cost of production per kg. of green leaf during 1976

(Figures in paise/kg.)

Sl. No.	Expenses classification	Taluks			
		Coonoor	Ootacamund	Gudalur	Overall
1.	Weeding	19	20	17	19
2.	Plucking	14	14	11	14
3.	Fertilisers	10	9	9	10
4.	Pruning	1	1	1	1
5.	Other cultivation Expenses	4	3	3	3
6.	Transport and Other charges	2	2	1	2
	Total	50	49	42	49

The talukwise position shows that the cost of production per kg. of green leaf is comparatively lower in Gudalur, which could attributed to the higher yield per hectare obtaining in that region.

Profitability :

2.19 As stated earlier, small growers in Nilgiris incurred an average expenditure of 49 paise per kg. of green leaf. Against this, the average price realised per kg. of green leaf was Rs. 1.46. Small growers, therefore, made a net profit of 97 paise per kg. of green leaf in 1976. The talukwise position is brought out in the table below :-

TABLE 11
Profitability position of small growers in 1976

(Figures in paise / kg.)

Taluk	Price	Cost	Profit
Coonoor	145	50	95
Ootacamund	148	48	100
Gudalur	135	41	94
Total	146	49	97

The profitability position was found to be better for Ootacamund than Coonoor. Based on the average yield of 3,553 kgs. of green leaf, the average profit made by a small garden worked out to Rs. 3,446/- per hectare. The average size of a small garden surveyed was found to be 1.20 hectare. On this basis the average profit of sample garden worked out to Rs. 4,135/-. Apparently this profit provides sufficient inducement for the small growers to remain in the occupation of the tea industry in Nilgiris. However, the economic viability of small gardens can be further stepped up by increasing the quantum of tea produced as well as improving the quality of the green leaf.

PART VI

Summary of Finding and Recommendation :

CHAPTER I

Large tea estates :

1. There are 221 large tea estates, each having an area of more than 8.09 hectares, in Nilgiris, comprising Coonoor & Ootacamund (186) and Gudalur (351). The total area covered by the estates in Coonoor & Ootacamund was approximately 10,943 hectares, representing 46% of the total area under tea in Nilgiris. In respect of Gudalur, the figures were around 5,259 hectares and 22% respectively.

(Para 1.1)

2. The survey covered 20 large estates in Coonoor & Ootacamund and 6 large estates in Gudalur. Moreover, the survey was confined only to those tea estates which owned factories. No tea estates of sizes above 8.09 hectares to 100 hectares in Gudalur had any factory of their own, thereby precluding the possibility of collecting any data from this section of tea estates. In Coonoor & Ootacamund, however, every surveyed tea estate possessed factory.

(Para 1.4)

3. The area under tea for the surveyed tea estates in Coonoor & Ootacamund was found to be about 4.263 hectares, representing 67.83% of the total area under grant. In respect of Gudalur, the figures stood at 1,669 hectares and 22.44% respectively. Besides, Gudalur taluk possessed more area under forest and waste land, covering 66.76% of the grant area, while it was only 18.35% for Coonoor & Ootacamund. The area under coffee plantation in former area was reported to be more than four times than latter. No rice cultivation had been reported in Coonoor & Ootacamund. It, thus, appears that economy of tea estates in Gudalur depends not only on the main crop i. e. tea but also on the other crops like coffee and rice, unlike tea estates in Coonoor & Ootacamund. Further more, the area under nursery in both the areas appears to be inadequate to feed back the requirements of new planting materials of the tea estates, It is, therefore, recommended that, despite the help being rendered by the Tea Board in suppling of planting mterials to the tea estates, the tea estates should bring adequate area under tea nursery to raise suffcient number of planting materials required by the tea estates for achieving the self-sufficiency in this field.

(Para 1.6)

4. In Coonoor & Ootacamund, there was a progressive decline in the utilisation of grant area for tea cultivation over the increase in the size of tea estates, barring the tea estates of above 8.09 hectares to 50 hectares; the utilisation is maximum at 83.88% for tea estates of size group 50-100 hectares and minimum at 58.70% for the size group of above 400 hectares. In respect of Gudalur, the utilisation in the surveyed tea estates did not even exceed 50% of the total grant area. The occupation of more areas under forest and waste land as well as under other agricultural crops in Gudalur appears to be largely responsible for this. It is, therefore, recommended that proper planning should be made by the tea estates to bring more non-tea area under tea cultivation within the grant area over the years in a phased manner so as to increas the production of the estate in particular and of the country, In general.

(Para 1.7)

5 During the survey, it was reported that in Gudalur none of the estates had undertaken extension or replacement for the years 1972 to 1976, while replanting was undertaken by 2 estates only. In Coonoor & Ootacamund, replanting and replacement planting was done by 10 estates and 1 estate respectively. Extension was done by 8 estates. Moreover, Tea Board's Replantation Subsidy Scheme was availed of by 7 estates in Coonoor & Ootacamund and 2 estates, in Gudalur. Despite the various difficulties, as was reported during the survey, encountered by the tea estates for taking up the programmes of extension, replacement and re-planting, the large estates should come forward to avail themselves of the various developmental schemes of the Board viz. Plantation Finance Scheme, Replantation Subsidy Scheme and Rejuvenation and Consolidation Subsidy Scheme for improvement as also expansion of tea cultivation in the tea estates.

(Para 1.8)

6. In Coonoor & Ootacamund, a little below 60% of the area of the tea estates had a bush population of less than 50 years old. It was around 33% in respect of Gudalur. In the case of former area, there had been a progressive increase in bush population of more than 50 years age alongwith the increase in the size of the tea estates. The same trend was, however, noticed for the bush population of 31-50 years old as well. Further, within the highest size group of tea estates, the area covered by bushes of above 50 years was maximum at around 45%, while in Gudalur, this occurred for size group of above 200 to 400 hectares at 65%. The bush population for Gudalur was estimated at 6,479 per hectare as against 9,053 per hectare for Coonoor & Ootacamund. Notwithstanding this, the yield rate for Gudalur was reported to be 1,783 kgs. per hectare as against 1,649 kgs. per hectare, for Coonoor & Ootacamund, which has perhaps been due to adoption of coarse plucking by tea estates in the former area. Moreover, the survey had brought out the fact that the spacing of 4' X 4' was popular in these areas followed by 4' X 3' and 4' X 3.5'. The vacancy ratio was found to vary at a range of 10% to 15% —10% for tea estates below 200 hectares and 15% for estates of above 200 hectares.

It is, therefore, recommended that the tea estates above the size group of 200 hectares should step up the rate of replanting. Not only that, the large tea estates should also take appropriate steps to increase the bush population of the economic age-group by increasing the rate of infilling as well as planting of new bushes in between the rows. This would help increase the productivity per bush as well as per hectare of planted area, with a consequential reduction in per unit cost of production with a corresponding improvement in the economies of scale of the unit.

(Paras 1.9 to 1.12)

7. The surveyed tea estates were, reported to get sufficient water from the natural resources. However, some sample tea estates were found to resort to using of stored water through gravitational channel and spraying the same with the sprinklers. However, for meeting the situation in the event of necessity, it is recommended that a suitable scheme of irrigation should be evolved by the tea estates, where the supply of water from the natural resources is not adequate, in consultation with the State Government.

(Para 1.13)

8. Due to non-availability of pure ammonia and urea based fertiliser, most of the surveyed tea estates were, reported, to apply NPK and NK fertiliser. In Coonoor & Ootacamund, the rate of application of NPK and NK fertiliser worked out to 549 kgs. and 326 kgs. per hectare respectively. The figures were 472 and 461 kgs. per hectare in the case of Gudalur. It is, therefore, recommended that apart from working out a suitable scheme of supplying pure ammonia and urea based fertiliser to the tea estates by the United Planters' Association of Southern India (UPASI), an extension service should also be organised and strengthened by UPASI to look into the aspects of optimum utilisation of the fertiliser as also suitability of a particular fertiliser for a particular area.

(Para 1.14)

9. In Coonoor & Ootacamund, 7 estates of the sample tea estates were reported to be affected by weeds, while it was 5 in the case of Gudalur. Tea areawise, figures worked out to 13% and 42% respectively.

The most common measures adopted for controlling the weeds were found to be sickling—2 to 3 rounds a year—and hoeing. A few estates were found to be applying chemical fertiliser. As for pest attacks, as much as 50% of the estates in Coonoor and Ootacamund and 80% of the estates in Gudalur were found to be affected by pests. Plant diseases were also found to be prevalent in the gardens.

It is, therefore, recommended that a suitable programme may be chalked out by UPASI, in consultation with the Tea Board, to minimise the attack of pests and diseases and to remove the weeds, so as to promote the growth of tea production.

(Paras 1.15 to 1.17)

10. In Coonoor & Ootacamund, 10 estates were found to be affected by frost and 7 estates by drought. In Gudalur, 1 estate each was affected by frost and drought and 4 estates by soil erosion. The possibility of supplying "Frost Resistant" clones to the tea estates may, therefore, be explored. The Soil Conservation Department of the State Government may evolve suitable scheme for prevention of soil erosion.

(Para 1.18)

11. The proportions of plucking '2 leaves and 1 bud' and '3 leaves and 1 bud' were found to be 37% and 53% respectively. The corresponding figures were 27% and 56% in the case of Gudalur. Moreover, the proportion of plucking '2 leaves and 1 bud' was found to be decreasing with the increase in the size of tea estates in Coonoor & Ootacamund. It is, therefore, recommended that the services of UPASI and brokers may be obtained by the tea estates so as to strike a balance between finer and coarse plucking with a view to taking best advantage of the market condition.

(Para 1.19)

12. Amongst the surveyed tea estates in Coonoor & Ootacamund as many as 8 estates had availed of Hire Purchase Scheme of the Board. In respect of Gudalur, the figures registered at only 2. All the tea estates were found to be equipped with adequate machinery which were, reported to be in a satisfactory condition. Arrangements for withering were fairly satisfactory. However, fermenting on floor was

found to be common, though some surveyed tea estates were found to be using fermenting drums. Moreover, arrangements were reported to be sufficient for controlling humidity and temperature.

It is, therefore, recommended that the large estates may consider the feasibility of installing fermenting drums for ensuring quality in manufacture of tea. Further, a suitable programme may be chalked out by the tea estates to replace old machinery with the new ones so as to keep up the production of the factory in respect of both quantity as well as quality. For this, Tea Board's Hire Purchase and Irrigation Equipment Machinery Scheme should be availed of by the tea estates subject to compliance of terms and conditions laid down for the running of the said scheme.

(Para 1.23)

13. During the survey, it was found that the tea estates in Coonoor & Ootacamund produced around 98% orthodox and 2% green tea. In Gudalur, orthodox manufacture accounted for 40% of the production while it was 60% for CTC.

(Para 1.24)

14. As much as 78.9% of the production of the surveyed tea estates in Coonoor & Ootacamund was sold through public auctions in India and 4.5%, through London auctions. Cochin auction accounted for 64.6% and Coonoor auctions, 14.3%. Only 6.4% was sold through export under private sale and 10.1% ex-garden. There had been a progressive decline in sales through Cochin auction with a corresponding increase in sales through Coonoor auction. Moreover, the ex-garden sales also showed a decline over the years. In respect of Gudalur, sale through auction was 83.3% and 14.7% through Coonoor auction.

(Para 2.1)

15. Average prices realised by tea produced in the surveyed tea estates in Coonoor & Ootacamund were Rs. 9.18 per kg. for Cochin auction, Rs. 7.43 for Coonoor auction, Rs. 11.10 for London auctions; Rs. 10.70 for export under private sale and Rs. 7.79 for ex-garden sale. The average price, thus, worked out to Rs. 9.67 per kg. As against this,

the average price for tea estates in Gudalur was Rs. 8.09 per kg—Rs. 8.23 for Cochin auction, Rs. 7.02 for Coonoor auction, Rs. 9.52 for ex-factory sale and Rs. 10.40 for export under private sale.

Because of lower quality produced by the estates in Gudalur, owing to adoption of 3 leaves and 1 bud in relatively higher percentage in preference to 2 leaves and 1 bud, as dealt with in earlier paragraphs, the price realised by the tea estates of this area was found to be lower than that produced by the tea estates in Coonoor and Ootacamund.

It is suggested that the producers should be persuaded to bring more and more teas at auctions for ensuring better return, specially for better quality teas and particularly for medium and common quality teas, though it is recognised that the ex-factory sales have both weakness and strength of marketing.

(Para 2.2)

16. The proportion of male workers was found to be more in factory, while more female workers were deployed in field. In the field, the plucking operation accounted for the highest percentage of the total mandays spent in conducting different operations. The figure stood at 71.82% for Coonoor & Ootacamund and 67.80% for Gudalur. Next came the operation of weed control—15.23% for former area and 8.42% for latter. As for factory operations, the three operations viz. weighing, sorting, rolling and withering, in aggregate, constituted 58% of the total mandays spent in Coonoor & Ootacamund and 61% in Gudalur.

(Paras 3.1 to 3.5)

17. Wages and D.A. constituted 67% to 74% of the total bills paid to the workers. While the proportions of the expenditure towards provident fund and medical expenses, recreation facilities etc. were not at large variance between these two areas under study, the proportion of expenditure for bonus payment, in Coonoor & Ootacamund, was higher than Gudalur.

(Para 3.7)

18. All the surveyed tea estates in Coonoor & Ootacamund and Gudalur provided both staff and labour quarters. In the former area,

in addition to arrangement for supply of drinking water through pipe lines collected from spring/stream, 10 estates had facilities for surface well. Similar arrangements for supply of drinking water through pipe lines was also noticed in Gudalur. 11 estates in Coonoor & Ootacamund had hospitals, 9 estates had dispensaries. In Gudalur 5 estates, for which information was available, had hospitals in addition to dispensaries.

(Paras 37 to 310)

19. The overall cost of production per kg. of made tea worked out to Rs. 872 per kg. in Coonoor & Ootacamund, as against Rs. 7.10 per kg. in Gudalur. The plucking expenses constituted nearly 22% of the total cost. The general charges accounted for about 19% in Coonoor & Ootacamund, followed by 16% for cultivation. In Gudalur, the percentages worked out to 14% for general charges and 16% for cultivation. Furthermore, the cultivation and plucking expenses for tea estates in Coonoor & Ootacamund were significantly higher than Gudalur because of the former area being at higher elevation.

(Para 4.1)

20. In the surveyed tea estates in Coonoor & Ootacamund the cost of production per kg. had shown a decline with increase in the size of the tea estates, except in the size group of above 400 hectares. This has been due to higher yield rate for larger size tea estates. However, for tea estates, of above 400 hectares, every effort should be made to bring down the per unit cost of production, by increasing the productivity per hectare

(Paras 4.2 & 4.3)

21. In the surveyed tea estates of both the areas, the profitability ratios showed remarkable improvement during 1974 to 1976, perhaps due to petering out of the slump in tea economy from 1974. However, some of the ratios had declined in 1976, in both the areas of survey.

(Paras 4.4)

CHAPTER II

Bought leaf tea factories

1. Bought leaf factories, a special feature of Tamil Nadu's tea industry, came into existence after 1963-64. There are 75 bought leaf factories concentrated in the sub-divisions of Nilgiris district viz., Coonoor & Ootacamund (74) and Gudalur (1). The total production of these factories was found to be about 11 m.kgs. accounting for nearly 9% of total production of South India and 2% of all India. The survey covered 20 bought leaf factories, all of which were incidentally located in Coonoor & Ootacamund.

(Paras 1.1 & 1.2)

2. Although the bought leaf factories are at liberty to purchase green leaf from any source, the major share of this purchase was reported to have from small growers.

(Para 1.3)

3. To carry green leaf by head-load was the most common practice adopted by the small growers of this region-46% of the green leaf was carried by head-load to the bought leaf factories by the small growers followed by the same percentage by tractor/truck and 8%, by jeep. The

bought leaf factories did not charge any discount for water content on the weight of the green leaf from the small growers. But during the rainy season, the discount was charged at a rate varying from 5% to 10%, depending on the quality of the green leaf.

(Para 1.4)

4. The average price of green leaf paid by the bought leaf factories to the small growers increased from Rs. 1.02 per kg. in 1974 to Rs. 1.39 in 1975 and further to Rs. 1.61 in 1976. The overall average thus worked out to Rs. 1.36 per kg. It was found from the survey results that there had not been any significant change in the purchase of green leaf by bought leaf factories over the years of reference, which has, perhaps, been due to limited capacity of the factory or non-availability of green leaf of own choice or for both. The bought leaf factories may consider the possibility of expansion of the capacity of the factory.

(Para 1.5)

5. The bought leaf factories were reported to make advance payment to the small growers against future supply of green leaf. The advance was usually utilised by the small growers for the purchase of manures.

(Para 1.6)

6. Nearly 85% of the bought leaf factories were reported to have utilised medium and coarse leaf for manufacturing tea, which in its turn has some adverse effect on the quality of the tea produced and the price realised there-from. It is, therefore, recommended that the bought leaf factories may consider the purchase of better quality green leaf so as to manufacture better quality tea for realisation of better price. For this the bought leaf factories may have to pay better price to small growers for fine plucking of green leaf.

(Paras 1.7 & 1.8)

7. Majority of the surveyed bought leaf factories did not possess adequate machinery for processing the green leaf. Machinery like drier, roller, sorter etc. are required by these factories. For withering, no factory did possess rack or trough. For fermenting, a small percentage of factory was reported to have used the facility of drums, while the remaining was reported to have performed the operation on floor. Arrangement for

control of humidity and temperature was also not found satisfactory. In order to improve the quality of the tea, the bought leaf factories may consider the feasibility of installing fermenting drums, withering troughs etc. in the factories. In this context, it is recommended that the bought leaf factories should take the advantage of the Tea Machinery Hire Purchase Scheme of the Tea Board for purchasing necessary machinery and installing them in the factory which would go a long way in the improving the processing of tea and the quality thereof.

(Paras 1.9 & 1.10)

8. Two-thirds of the made tea was manufactured by CTC method which had been increasing over the years of study with a corresponding decrease in manufacture of tea by orthodox method.

(Para 1.11)

9 On an average 54% of the teas, manufactured by bought leaf factories was sold through public auctions in India—13% at Cochin auction and 41% at Coonoor auction. The sale of teas through private negotiations constituted nearly 46%. The reasons for selling a sizeable quantity of teas through private deals were reported to be—levy of higher amount of the sales tax at auctions, the drawal of large samples at auctions, considerable time lag involved in auction sales for realisation of sale proceeds and the higher cost of packing for sale through auction. It is, therefore, recommended to reduce the size of the samples to encourage the sale of more teas of bought leaf factories through auctions.

(Para 1.15)

10. The price realised by bought leaf factories for sale of teas through different modes of marketing averaged to Rs.7.59 per kg.—Rs.8.63 at Cochin, Rs. 7.18 at Coonoor and Rs. 7.65 at private sale. It was also found that only the better quality teas and that too of smaller quantity were being sent to Cochin for sale and that a reasonable quantity of good quality teas was being sold privately at a relatively lesser price. It is, therefore, recommended that proper advice and guidance should be given to the owner of the bought leaf factories by brokers, UPASI and Field Advisory Officials of the Board in respect of adoption of pro-

per channels of marketing of the produce so as to take the best advantages of the market conditions for an overall improvement in the economies of scale of the unit. In this context, it may also be relevant to point out that the services of expert tea makers are also found necessary for improving the manufacture for quality teas so as to ensure better appreciation of the price realisation.

(Paras 1.16 & 1.17)

11. The bought leaf factories were found to employ both permanent and casual labours. The male labour constituted nearly 70% of the total labour force while female labour around 30%.

(Para 1.18)

12. Under different types of factory operations, the rolling operation accounted for nearly 24% of the total mandays spent. The operations like weighing, sorting, cutting etc. jointly constituted nearly 22% followed by drying 14%, withering 12% and packing 12% each.

(Para 1.19)

13. None of the bought leaf factories had submitted the data relating to daily wages of labour separately for basic, dearness allowance and other perquisites etc. However, it was reported that rates of daily wage paid to the factory workers varied from Rs. 3.00 to Rs. 6.25 for male and from Rs. 3.00 to Rs. 4.00 for female.

(Para 1.20)

14. Out of the 20 surveyed bought leaf factories two factories received technical advise from UPASI. UPASI may, therefore, extend their advisory services to cover more bought leaf factories.

(Para 1.22)

15. Out of 20 surveyed bought leaf factories, the balance sheets of only 14 factories were made available to the survey team during the course of field investigation. Taking into account the expenditures indicated in the balance sheets and the production recorded in the questionnaires, the overall cost of production of made tea by bought leaf factories for the year 1976 worked out to Rs. 9.46 per kg. It was found that in certain cases the cost of production was as high as Rs. 12.96 per kg. and in certain cases, as low as Rs. 6.92 per kg.

Similar was the behaviour of price of these 14 surveyed bought leaf factories. The price ranged from Rs 6.79 per kg. to Rs. 11.12 per kg. The overall average price thus calculated to Rs. 8.81 per kg., as a result some of the surveyed bought leaf factories (4) had shown profit and others (10) shown loss. The overall relationship between cost and price weighed on the negative side. From the break up of the cost of production it was found that manufacturing cost constituted nearly 72% of the total followed by 11.5% for duties and taxes and 4.3% for packing. As the manufacturing cost had taken into account the cost of the green leaf paid by the bought leaf factories to the small growers, the question of reducing this cost seems to be undesirable, lest it hits the small growers. The question of reducing the cost under other heads of expenditure as shown earlier may be considered by the bought leaf factories. However, it is relevant in this context to point out that the duties and taxes constituting nearly 11.5% of the total cost should have to be reduced substantially. The bought leaf factories, being situated in Excise Zone-IV, will have to pay by and large, basic excise duty of 80 paise per kg. The reduction in the basic excise duty would help the bought leaf factories to bring down the overall cost of production substantially.

It is, therefore, recommended that apart from the consideration of reduction in other cost by the bought leaf factories, step should be taken by the Government to reduce excise duty being paid by the bought leaf factories to a considerable extent so as to bring down the overall cost of production. This would provide the fillip to the bought leaf factories to improve the economies of scale of the units with an ultimate objective of improving the health of the factories.

(Para 1.23)

CHAPTER III

Co-operative tea factories :

1. During the time of survey as many as 9 co-operative factories were in existence in Nilgiris - 8 co-operative factories in Coonoor & Ootacamund and 1 in Gudalur. The total area covered by the co-operative factories in 1976 was reportedly of the order of 3,863 hectares with a production to the tune of 3,879 thousand kgs.

(Paras 1.1 to 1.3)

2. Most of the co-operative factories directly collected the green leaf from the member gardens. The gardens which were near to the co-operative factories send the green leaf directly to the factories by head load. The green leaf was also collected by co-operative factories by sending jeep, truck, tractor to the small gardens. The last named method of collection of green leaf constituted nearly 83% of the total green leaf collected by the co-operative factories.

(Para 1.4)

3. The average price paid per kg. of green leaf by the co-operative factories to the small growers was 84 paise in 1974 which enhanced to Rs. 1.36 in the subsequent two years. As compared to this,

the price of the green leaf paid by the bought leaf factories were found to be higher, as indicated in the Part-III dealing with bought leaf factories. Because of coming into being of the co-operative factories in Nilgiris, the small growers received an average price of Rs. 1.22 per kg. of green leaf as against as low price as 30 paise per kg. earlier. In certain cases or in certain seasons the price even had gone up to Rs. 2.00 per kg. Had not the co-operative factories been started in Nilgiris, the plight of the small growers would have been the same as before, if not worse. A large number of small Bought leaf factories had also being reported to be closed, with the bigger ones forced to pay the higher price to the small growers for green leaf. Besides, the co-operative factories encourage the habit of thrift among the members for which grower members were required to subscribe at a rate of 6% to 10% of the value of the green leaf sold by them to the factory. Another advantage of the small growers being brought under the umbrella of co-operative movement is to award a series of benefits like supply of manure on credit, financial loan at the time of necessity etc., to the small grower members.

The co-operative factories made advance payment to the small growers against future purchase of green leaf. The rate varied from 50 paise to Rs. 2.00 per kg. depending on the quality of the green leaf. However, most of the small growers were reported to have utilised such advance for purchase of manure. The survey result had also revealed that there had been a considerable improvement in the purchase of green leaf by the co-operative factories over the years of study, which has been, perhaps, due to the increase in the capacity of the factory or due to fuller utilisation of the existing capacity.

(Para 1.5)

4. The co-operative factories usually did not make any discount for water content on the weight of the green leaf but during the rainy season, discounts ranging from 5% to 10% were made depending on the quality of the green leaf.

(Para 1.6)

5. The green leaf used by the co-operative factories was of medium/coarse type. However, a few co-operative factories were reported to have used fine quality green leaf for manufacture. The average production of made tea per factory was reported to be of the order of 368 th. kgs.

(Para 1.7)

6. All the 9 co-operative factories were reported to have required machinery to process the green leaf by orthodox method. No co-operative factories, except one, had reportedly availed of the Tea Machinery Hire Purchase Scheme of the Board. The production of orthodox type of tea was of the order of 96% and of CTC type 4%. In order to have a switch over from orthodox method to CTC method with a view to taking advantage of change in market condition and to have a flexibility in the production system, the co-operative factories may like to consider installation of adequate machinery for manufacturing of CTC teas on a large scale basis. For this, it is imperative that co-operative factories should avail of the facilities given under the Tea Machinery Hire Purchase Scheme of the Board under suitable terms and conditions laid down for the operation of the said scheme.

(Paras 1.8 & 1.13)

7. All the co-operative factories surveyed had been undertaking withering operation either on rack/trough or on the floor. None of the surveyed factories reported shortage of withering space. For fermenting, 7 surveyed factories were reported to have used floor. These factories had also arrangement for controlling both humidity and temperature. Shortage of coal and fire wood was not reported by any of the factories. Loss of production due to power shortage was reported to be insignificant.

(Paras 1.9 to 1.12)

8. Almost the entire production of the co-operative factories was being sold through public auctions in India. The percentage of sale through Cochin auction was 32% and for Coonoor, 67%. The percentage of sale through Coonoor auction had shown an increase over the years with a corresponding decrease at Cochin auction.

(Para 1.16)

9. The overall average price fetched by the teas manufactured by co-operative factories worked out to Rs. 7.63 per kg. Rs. 8.27 for Cochin auction and Rs. 7.31 per kg. for Coonoor auction. The realisation of better price for selling teas through Cochin auction had been due to sending better quality teas of Cochin auction for sale. Nevertheless, the price of teas fetched by the co-operative factories were lower than the average price of Nilgiris teas.

In order to improve the quality of tea manufactured by the co-operative factories so as to fetch better return for the produce, UPASI may take necessary steps to ensure that the small growers adopt better plucking standard. Not only that, the services of expert tea makers are imperative for improving the quality of teas, the deployment of whom in the factory may be considered by the INCOSERVE.

(Paras 1.18 to 1.19)

10. Co-operative factory employ both permanent and casual labour. Male and female workers constituted nearly 79% and 21% of the total labour force respectively.

(Para 1.20)

11. Out of the total mandays spent for running various operations in the factory, weighing, sorting, cutting and binning accounted for 25%, followed by 19% for rolling, 13% for packing and 11% for withering.

(Para 1.21)

12. Out of the 9 surveyed factories, 4 factories were reported to have received technical advice from UPASI as well as Tea Board. It is desirable that more number of co-operative factories should be brought under the technical advice of UPASI and Tea Board over the years for the betterment of units.

(Para 1.24)

13. On the basis of balance sheet received from 9 co-operative factories during the course of field investigation, the overall cost of production of the co-operative factories for the year 1976 averaged to Rs. 8.17 per kg. of made tea. In certain cases, it was as high as Rs. 8.99 and in certain cases, as low as Rs. 6.86. The same was the behaviour of price realised by the co-operative factories. While average price was

of the order of Rs. 8.47 per kg. it ranged from Rs. 7.32 to Rs. 9.80. As a result, some of the co-operative factories (4) had shown profit and other (5) loss. Because of considerable profit by certain profit making co-operative factories coupled with marginal loss by certain co-operative factories the overall cost-price relationship weighed on the positive side. It may also be relevant to point out in this context that the cost of manufacture which includes the price of green leaf paid to the small growers by the co-operative factories accounted for nearly 69% of the total cost. In respect of duties and taxes the figure was 15% and for packing and general charges the percentages were nearly 3% and 4% respectively. Though there is a room for reduction in cost under freight, packing and general charges, enough possibility exists in reduction of the cost under duties and taxes. Since the reduction in the cost under manufacturing does not appear to be desirable, because of its adverse impact on the price received by the small growers from the co-operative factories, stress should be given to reduce the cost under duties and taxes. Co-operative factories, being located in the Nilgiris, will have to pay by and large a Central Excise Duty of 72 paise per kg. Excise duty alone accounts nearly 60% of the total expenditure made for the payment of duties and taxes. The substantial reduction in the excise duty would help the co-operative factories to lower down the cost of production to a considerable extent from the existing level which, in the ultimate, would improve the health of the unit. It is, therefore, recommended that Government may like to consider the question of substantial reduction in the rate of Excise duty being paid by the co-operative factories in the district of Nilgiris.

(Para 1.25)

CHAPVER IV

Small Tea Growers :

1. As much as 28% of the small gardens surveyed in Nilgiris was found to have been registered with the Tea Board. The main reason for non-registration of the gardens is reported to be the existence of 'Joint Patta' (Joint ownership) system.

(Paras 2.1 & 2.2)

2. Registration of all tea gardens in the country is essential for identification of units and for compiling area, production and other data. It is also necessary for planning any programme for the benefit of the tea growers. It is, therefore, felt appropriate that Tea Board may relax its conditions in regard to evidence of ownership for registration as well so that small growers themselves with the Tea Board on the basis of membership certificate of Co-operative Tea Factory or revenue receipt. To begin with, those unregistered gardens who have already been granted subsidy on production of a membership certificate from the Co-operative Tea Factory and revenue receipt from village Karnan, may immediately be registered with the Tea Board in view of the fact that other formalities of registration such as inspection of estates, preparation of survey plan etc. have already been carried out at the time of granting

subsidy. In case of those gardens whose ownership has not been recognised, the State Government may consider recognition of ownership of such gardens by the present owners and issue 'Pattas' so as to enable them to register with the Tea Board.

(Para 2.3)

3. Of the total gardens surveyed (600) 180 was found to be the members of Co-operative Tea Factories and all others were associated with the bought leaf factories. It is, therefore, suggested that all the co-operative and bought leaf factories in the country should be registered with the Tea Board so as to provide a supplementary data base for the small growers' sector.

(Para 2.4)

4. Out of 600 surveyed gardens, only 121 gardens were found to be members of Nilgiris Small Tea Growers' Association.

(Para 2.5)

5. Area under tea constituted 93.01% of total area in Coonoor, 89.53% in Ootacamund and 86.53% in Gudalur. The area lying fallow was somewhat negligible in case of Coonoor & Ootacamund while it was considerable in Gudalur. In view of this, there is scope for extension of tea area in Gudalur as compared to other taluks.

(Para 2.8)

6. The area covered by bushes below 50 years was 94.82% in Coonoor and 88.27% in Ootacamund. In case of Gudalur taluk, the entire area contained bushes below 30 years. Since most of the tea bushes in all the three taluks are well within the economic age-group of less than 50 years, their productivity can be increased by adoption of improved cultural practices and application of necessary inputs.

(Para 2.7)

7. The yield of surveyed estates in Coonoor was found to be 806 kgs. per hectare, while it was 760 kgs. and 919 kgs. per hectare in Ootacamund and Gudalur respectively. The average size of planted tea area was 1.19 hectares. In terms of total, area, the figure was 1.33 hectares.

(Paras 2.6 & 2.9)

8. The vacancy of the surveyed gardens was estimated at 22.97%, 24.19% and 24.72% in Coonoor, Ootacamund and Gudalur respectively. There is, therefore, need for increasing the bush population by undertaking infilling operations in between the rows. The small gardens, however, have been undertaking infilling operations in their gardens. The percentage of such infilling to total number of bushes in 1976 was 2.9, 2.8 and 2.2 in case of Coonoor, Ootacamund and Gudalur respectively. The small growers were reported to have faced with certain difficulties in undertaking infilling operations. These are mainly (i) inadequate availability of good planting materials and (ii) lack of sufficient finance. In order to mitigate the hardships of the small growers in getting good planting materials, two more clonal multiplications centres are proposed to be set up—one at Gudalur and another at Kunda—for which the Tea Board has already provided the necessary funds to the State Government. Tea Board's various financial scheme for the small growers have also been amended suitably so as to meet the demand of small growers. The small growers should, therefore, avail of the various schemes of the Board to the maximum extent possible with a view to reducing the vacancy ratio, increasing the rate of infilling, bringing the available land within the grant area under tea cultivation etc.

(Para 2.10)

9. Among the gardens surveyed, 505 gardens applied 210 tonnes of chemical fertilisers covering an area of 650 hectares. Of this, 440 gardens applied a mixture of NPK and 65 gardens applied other types of fertilisers. Average quantity of fertiliser applied per hectare worked out to 323 kgs. In order to have an utilisation of optimum dose of fertiliser along with its scientific and systematic application the small growers may avail themselves of advisory services rendered by UPASI.

(Para 2.11)

10. Plant diseases were reported to be widely prevalent among surveyed tea gardens in three taluks of Nilgiris. The most common diseases were (i) blister blight (ii) black rot and (iii) red rust. 90% of the small tea gardens in Nilgiris were reported to have been attacked by blister blight.

To control plant diseases, the small growers belonging to the co-operative tea factories get assistance from Tamil Nadu Government. Other small growers may, therefore, consider joining the co-operatives so as to avail of the facilities provided in this regard.

(Para 2.12)

11. The small tea gardens in Nilgiris were attacked with weeds. For controlling the weeds, the small growers adopt manual methods like sickling and hoeing. Since use of chemicals is more popular in effective controlling the weeds, the small gardens may resort to application of chemical weedicides.

12. Small gardens in Nilgiris resorted to coarse plucking. It is, therefore, essential that small growers should be given proper training in the delicate work of plucking. Plucking round usually adopted by small growers is generally 15/20 days. Plucking round can be reduced to 10 days, if coarse plucking is avoided. Pruning cycle adopted by small growers is 5 years for gardens in higher elevations and 4 years for gardens in lower elevation. Small growers, may, therefore, be given practical training in scientific way of pruning.

(Para 2.15)

13. Small growers in Nilgiris sell their green leaf to the co-operatives and bought leaf tea factories (jointly accounting 83%) and middle men (17%). The average prices realised for green leaf of the small gardens by these sources were Rs. 1.36, Rs. 1.61 and Rs. 1.48 per kg. respectively. The proposal of setting up of more co-operative factories and more clonal multiplication centres by the Government of Tamil Nadu in collaboration with Tea Board would help in diminishing the role of middlemen in this region.

(Paras 2.16 & 2.17)

14. The break-up of cost of production of the sample small gardens revealed that weeding constituted 38.57% of the total cost, while pluck-

ing and fertilisers constituted 27.44% and 20.10% respectively. The average cost of production per kg. of green leaf was found to be 49 paise in 1976.

(Para 2.18)

15. Small growers in Nilgiris incurred an average expenditure of 49 paise per kg. of green leaf. Against this, the average price realised per kg. of green leaf was Rs. 1.46. Small growers, therefore, made a profit of 97 paise per kg. of green leaf in 1976. On the basis of average yield of 3553 kgs. of green leaf per hectare and average size of the garden of 1.20 hectares, the total profit worked out to Rs. 4135. The economic viability of the small growers can further be stepped up by increasing the productivity as well as quality of the produce.

(Para 2.19)