TECHNO-ECONOMIC SURVEY OF TEA INDUSTRY IN NILGIRIS

TEA BOARD OF INDIA
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Foreword

The report on Techno-Economic Survey of Nilgiri Tea Industry is the sixteenth of its series brought out so far by Tea Board.

The Nilgiri Tea Industry has been reeling under severe crisis for the past few years because of depressed prices, low profitability, unfavorable debt equity ratio and the inability to take up modernization works. Since Nilgiri being one of the oldest and the most potential area for tea industries in Southern India faced with several problems including development oriented problems, a fresh study in the form of Techno-economic survey had been felt to be necessary. Accordingly, the Survey team of the Tea Board has made an attempt to go into the crux of the problems encountered by the tea industry in Nilgiris and to find out the suitable remedial measures thereof.

In the report, major techno-economic problems have been analysed chapterwise with remedial suggestions. If the report is able to create deeper awareness about the problems correctly facing the industry and the ways to tackle them, the purpose of the survey would have been served. Nevertheless, to regain the lost health and further growth of the Nilgiri tea, industry needs care and attention. Such attention is however possible if the planters, the State and Central Governments, Tea Board and agencies dealing with tea in the area, all put their heads together and formulate plans for rehabilitation of the industry. Of course, the main responsibility for rehabilitations is that of the planters.

I thank Tea Board's Statistics Branch for bringing out this report and all others who have put in their sincere endeavor to complete the desired task.

December 18, 2003,
Kolkata-700 001.

N.K.DAS
CHAIRMAN

Introduction

Known as Blue Mountains, Nilgiri is bestowed with congenial agro-climatic conditions for tea cultivation and has secured a commendable position in the agro-based industry in Tamil Nadu and in the tea map of Southern India. The existing crisis specially in the Nilgiri tea industry enthused the Tea Board to undertake a survey in order to find out the problems being faced by the tea growers and to make suitable remedial measures. Accordingly, the survey was carried out exclusively on big growers although about two-third of the tea planted area and production of Nilgiris being claimed by the small growers (possessing upto 10.12 hectares of planted area). The survey findings revealed that there are ample scope for extension, replanting and replacement planting in the large sized estates in particular, due to their huge planted area having age old tea bushes. The survey team recommends for adoption of further improved field and factory management as recommended by the UPASI and other advisory body. Efforts have been made to obtain various data interacting with concerned quarters including garden managers. Careful attempt has been taken to work out tables, revelations for identifying various problems faced by the surveyed tea estates. To overcome those problems suitable recommendations have also been made for the overall growth of the industry. I place this survey report to the members of the tea industry and hope this will be useful to them.

I am thankful to UPASI, concerned garden managers, Executive Director, Assistant Director of Tea Development, Inspectors of Board's Coonoor office whose guidance and assistance helped a lot to accomplish the task.

In conclusion, I must appreciate the Director of Tea Development, Director (Research) and Controller of Licensing Tea Board, Kolkata, for their valuable suggestions and place on record the immense responsibility shouldered by the Investigating officials of the survey team including Research Officer (Economics) during the course of their field activities and furnishing the report.

M.Paramanantham
Statistician

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Chapter- I

Background:

The mountain Nilgiris is around 2900 square metres of area stretched from Western Ghat of Nilgiri-Wynaad to the connector of the State of Tamilnadu, Kerala and Karnataka. The district Nilgiris with an area of 2549 square kms is land locked by Karnataka on the North, Kerala on the West and Coimbatore district of Tamilnadu on the East and South. This plateau averaging about 1980 metres with an east-west length of about 65 kms as it links the two ghat ranges and a north-south extent of 40 km. This hilly district has the advantage of receiving both the monsoons - South-West monsoon in Summer/Autumn months and North-East monsoon during pre-winter period. Average rainfall is around 200 cm per year. The agro-climatic condition is suitable for plantation crops. The principal agricultural products are tea, coffee, rubber, ragi, ginger, pepper, carrot, beetroot, potato, cabbage etc. But it is tea which makes the Nilgiris plantation country. The plateau is broken up by several district ranges of hills, the Doddabetta and Kundah ranges the best known of them. There are several streams and rivers lacing the plateau and flow down to reach the river Kaveri.

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 a temperate climate. The geographical position of the district is such that the western part receives major rainfall during South-West monsoon while the other part during North-East monsoon. The soil of Nilgiris is formed by fairly grained rocks containing good amount of acid, aluminum and iron. Vegetation throughout the year helps accumulation of organic matters.

History of tea cultivation :

Earlier a coffee growing region, trial tea planting was commenced in Nilgiris in the year 1832 by Dr.Christie who had bought a few plants from China. Subsequently in the year 1835 those plants were shifted to an experimental farm at Ketti. The first field scale effort to plant tea in the Nilgiris were on Thiashola and Dunsandle estates in 1859. Another estate to plant tea early was Nonsuch, near Coonoor in 1860. Plantation in the Kotagiri region came into being in the year 1863 and thereafter spread over the whole of Nilgiris within a span of ten years.

Endowed with good climate, soil and a generally a well-distributed rainfall, making fluctuations in crop is less apparent, the Nilgiris has some of the highest yielding gardens. Most of them are today owned by medium and small sized tea companies as well as proprietory concerns, but significantly, the Nilgiris has the largest number of small holdings and bought leaf factories for processing these green leaf from these holdings. Successful sole government plantations and co-operative tea factories are also part of the Nilgiris' tea scene today. Nevertheless, the greater part of earlier plantation development in the Nilgiris was in what is called the Wynaad or the Nilgiri – Wynaad.

Presently, tea is the prime crop of Nilgiris which occupies around 54000 hectares of land and out of that almost 60% is under the possession of small tea growers. There are approximately 60000 small tea growers in Nilgiris with an average holding of one hectare each and account for 60 Mkg of tea, whereas big growers' contribution is to the extent of about 35 Mkg. The small growers' leaf production is normally processed by the bought leaf factories spread allover Nilgiris. Besides, there are 17 Industrial co-operative factories playing a pivotal role in balancing the price of green leaf being offered by private manufacturing sector, having 156 Bought Leaf tea factories in Nilgiris.

Role of Tea Board

Tea Board plays a significant role in the development and technological upgradation of Nilgiri Tea Industry particularly the small grower sector.

During the year 2000, Tea Board had extended financial help to over 65,000 small tea growers of South India under the Price Subsidy Scheme.

A major quality upgradation programme for the small sector is in operation during the last few years as a measure to improve the leaf standards and manufacturing practices in Bought Leaf/Co-operative Tea Factories with the involvement State Horticulture department and women's self-help groups.

A crash scheme aimed at conversion to Orthodox and NRC – CTC manufacture by installation of suitable machinery was launched during the last quarter of financial year 2001–02. Liberal subsidy upto 50% of the cost of upgradation was provided to all the bought leaf factories that came forward to participate in the scheme.

Existing Schemes of the Board for Replanting, Rejuvenation, New Area Development and Factory modernization have been intensified. A new subsidy

scheme for encouraging pruning has been introduced. Besides this, a price Stabilization fund has been constituted for the benefit of small tea growers.

Study tour for the small growers and Bought Leaf Factory owners are being arranged by the Tea Board to enable them to gain firsthand experience on the various cultural and manufacturing practices being followed in respect of field and factory in North India and North East India.

Organic tea production is being promoted, both in the estate and small sector through pilot projects.

The commercial links of the producers with the internal tea trade was also strengthened by organizing a national convention on south India tea followed by a visit of the producers to the north Indian tea markets.

With a view to encouraging producers to go in for ISO and HACCP certification Tea Board has formulated an incentive scheme and training programmes were organized on the theme for the benefit of producers.

Tea Board had also instituted a study into the system of primary marketing of teas and the post auction value chain aimed at to protect the legitimate interest of growers. Based on this study, the new TMCO, 2003 and auction rules directives have been notified for streamlining the auction system and collection of data. A major IT project for information dissemination and electronizing auctions is on the anvil.

Tea Board is working closely with the State Government Agencies responsible for enforcement of the prevention of Food Adulteration Act to curb adulteration of tea in some areas in south India. Tea Waste Control Order has been streamlined and a tighter vigil is being maintained on the production and proper disposal of tea waste in the manufacturing units.

Tea Board had launched "India Tea" promotion campaign in Russia during 2002 as a special export promotion initiative to boost up tea exports to Russia which is the principal market for the South Indian teas. Besides, Tea Board has formulated medium term export strategy called "Tea export initiative" aimed at diversifying our market portfolio and leading to an incremental export volume.

The Coonoor Office of Tea Board has been closely involved in preparing reports for the revival of closed/sick tea gardens and studying the social infrastructure costs in the estate sector.

Last but not the least the Tea Board's Coonoor Office is dedicated to all round development and growth of the Nilgiri tea industry

Chapter – II
Area Profile and Designing of the Survey

Area, Production and Productivity :

According to available information with Tea Board, there were altogether 171 tea estates (Big growers) in Nilgiri hills covering an area of 18558 hectares producing 34.77 Million Kg of made tea which accounted for 18.12% of the tea area and 17.09% of the production in respect of South India during 1998. On an average yield rate in Nilgiris worked out around 1889 kgs as against 2078 kgs in Tamil Nadu and 1987 kgs in total South India during the same period under consideration.

Table -1

Area, Production and yield of Tea during 1991 to 2000.

Area in Hect.
Qty. in Th. Kg.
Yield Kg./Hect.

Year	Nilgiris			Tamilnadu			South India		
	Area	Production	Yield	Area	Production	Yield	Area	Production	Yield
1991	26260	84677	3225	38634	119937	3104	75288	191266	2541
1992	26298	73248	2785	38673	103066	2665	75213	161898	2153
1993	26451	78915	2983	38831	112832	2906	75574	179292	2372
1994	35489	83605	2356	48854	117520	2406	87766	184940	2107
1995	35537	84274	2371	48958	117915	2408	87832	187385	2133
1996	35585	82597	2321	48984	115840	2365	87845	181999	2072
1997	36039	92172	2558	49671	130179	2621	88592	205334	2318
1998	49759	93972	1889	63543	132046	2078	102396	203450	1987
1999	55319	94628	1711	69103	130462	1888	108070	202676	1875
2000	60427	95194	1575	74398	131812	1772	113460	206166	1817

There was a considerable increase in area under tea in Nilgiris mainly due to the large-scale conversion of tea by the small farmers after 1997.

Size wise distribution of estates :

Size wise classification of estates in Nilgiris is shown in Table – 2. It would be worthwhile to note that small holdings (upto 10.12 hectare under tea) accounted for 99.69% of the total holdings and 66.48% of the total tea area and 68.82% of total production of Nilgiris. The big gardens' share in total number of holdings is only 0.31% but they accounted for 33.52% of tea area and 31.18% of the total production. Among the big

gardens' 56% of the total tea estates are in the size-group of above 10.12 to 50 hectares and only 4% (7 in number) under the size-group of above 400 hectares. The remaining 40% is accounted for by 68 gardens with holding size ranging between 50 and 400 ha. The estates above 400 hectares claimed 21.78% of the total tea area and 25.92% of total production under big growers (above 10.12 hectares).

Table-2

Size-wise Distribution of Tea Estate in Nilgiris as on 31-12-1999.

Area in Hect.
Qty. in Th. Kg.

Size-group	Number of Tea Estates	Total Area	Percentage to total area	Production	Percentage to total production
Upto 10.12 (small growers)	55601	36774	66.48	65123	68.82
Above 10.12 to 50	96	1973	3.57	1108	1.17
Above 50 to 100	20	1361	2.46	1079	1.14
Above 100 to 200	20	2996	5.42	4480	4.73
Above 200 to 400	28	8176	14.78	15190	16.05
Above 400	7	4039	7.30	7648	8.08
Total Big Growers	171	18545	33.52	29505	31.18
All Groups	55772	55319	100.00	94628	100.00

Size-group and yield variation :

The following table shows the variation in yield rate with different size groups of the estates.

Table-3

Size group and yield per hectare as on 31-12-1999 for the estates in Nilgiris.

Size group (in Hect)	Yield (Kg/Hect)
Upto 10.12	1771
Above10.12 to 50	562
Above 50 to 100	793
Above 100 to 200	1495
Above 200 to 400	1858
Above 400	1894
Overall	1711

The yield rates varied from 562 kg/ha to 1894 kg/ha among the different size-groups during the year 1999. Yield rate was maximum (i.e. 1894kg/ha) for the estates in the size-group of above 400 hectares. On an average the yield per hectare of Nilgiris, including small holdings, worked out to be 1711 kg/ha during 1999.

Age composition of bushes :

Table – 4

Age-group of bushes of Nilgiris during 1999

Age-group	Percentage to Total Area
Upto 5 years	33.24
Above 5 to 10 years	11.62
Above 10 to 30 years	18.59
Above 30 to 50 years	13.64
Above 50 years	22.91
Total	100.00

It would be evident from the table – 4 that as much as 77% of the overall area under tea in Nilgiris contained bushes in the economic age-group of less than 50 years. There was as much as 33% of the total area under juvenile bushes up to the age of five years indicating large-scale extension/replatation/replacement planting during the previous five years.

Primary marketing of tea :

Auctions continue to be the main primary channel for the marketing of teas in Nilgiris with disposal of 79.07% of teas produced during 1999 (taking all the South Indian auctions together) through auctions.

Table – 5

Quantity of Nilgiris tea sold at Coonoor, Coimbatore and Kochi Auctions.

(Qty. in Th. Kg.)

Year	Total Production	Sold through auction				Parcentage to total production
		Coonoor	Coimbatore	Kochi	Total	
1995	84274	43263	3902	10946	58111	68.96
1996	82597	45978	3236	8698	57912	70.11
1997	92172	54921	4474	9072	68467	74.28
1998	93972	54856	6956	9959	71771	76.38
1999	94628	60140	6847	7834	74821	79.07
2000	95194	53703	14436	9080	77219	81.12

More than 80% of the total auction sales of Nilgiris teas were through Coonoor auction, while Kochi auction constituted 10%. Bulk of total sales through Coonoor auction accounted for Bought Leaf and Co-operative tea factories.

Comparisons of the prices fetched by the teas of Nilgiris, total Tamilnadu and total South India in the three auction centers in Coonoor, Coimbatore and Kochi reveal that irrespective of teas of any region, price realization were considerably higher in Kochi auction than other two auctions during the period under consideration as is evident in table – 6. It has also been observed that during the periods from 1995 to 1998 price increased substantially at all auctions. Nilgiris tea's average price stood at Rs.74.96 per kg during 1998 at Kochi auction.

Table – 6

Average price of Nilgiris tea sold at auctions.

(Price: -Rs./Kg)

Year	Nilgiris Tea			Tamilnadu Tea			South India Tea		
	Coonoor	Coimbatore	Kochi	Coonoor	Coimbatore	Kochi	Coonoor	Coimbatore	Kochi
1995	39.88	43.07	43.19	40.31	42.29	42.97	40.33	42.07	41.88
1996	38.02	39.80	45.10	38.41	41.20	-	38.40	41.32	44.42
1997	56.92	65.11	68.73	57.13	60.65	62.80	57.13	60.31	61.57
1998	63.69	65.51	74.96	64.99	68.29	75.30	65.06	68.74	73.31
1999	52.14	54.21	65.69	53.31	56.08	63.78	53.34	57.26	62.03
2000	37.44	39.42	54.62	38.98	42.15	52.84	39.00	43.35	51.33

Survey design and distribution of sample :

A sample of 85 big estates was selected for the purpose of survey. The sample was framed with the help of a statistical method PPSWOR (Probability Proportional to size without replacement) and designed on the basis of two key factors viz. size of holdings and status of ownership with proportional representation of each. In effect, **43 estates could be taken up for survey as a considerable number of tea estates within the sample frame were found to be non-existent. A number of estates were inoperative due to industrial disputes and quite a good number of estates were split into smallholdings below 10.12 hectare.** In some cases purposive inclusion of a few sample units was unavoidable in order to ensure representativeness of the sample.

Table – 7

Distribution of estate by size-groups and type of ownership.

Size-group (Hect.)	Ownership					Total	Percent-age to total
	Prop.	Part.	Pvt.Ltd.	Pub.Ltd	Pub.Sec		
Above 10.12 to 50	50	26	8	8	-	92	54.76
Above 50 to 100	3	10	3	6	-	22	13.09
Above 100 to 200	-	6	1	12	-	19	11.31
Above 200 to 400	-	2	2	15	9	28	16.67
Above 400	-	-	1	5	1	7	4.17
All groups	53	44	15	46	10	168	100.00
Percentage to total	31.55	26.19	8.93	27.38	5.95	100.00	

The data were collected from the sample estates as per the pre-designed questionnaire, a copy of which had been sent to the sample estates and their respective companies well in advance. Subsequently, a team of Investigators visited the sample estates for an on-the-spot study. During the course of survey they had gathered various useful supplementary information on the techno-economic scenario of the industry through interaction with the concerned tea garden managers. Before visiting the gardens, the survey team headed by Research Officer (Economics) had a meeting with the officials of UPASI and a number of leading planters under the Chairmanship of Executive Director, Tea Board, Coonoor to discuss the existing situation on tea, trade and industry in Nilgiris. The meeting also fixed up the modus operendi of the field survey.

Distribution of sample estates :

The survey was actually based on a sample of 43 tea estates. The distribution of sample estates according to size-groups and status of ownerships is shown in table – 8.

Table – 8

Distribution of sample estates by size-group and type of ownership.

Size-group (Hect.)	Ownership					Total	Percent-age to total
	Prop.	Part.	Pvt.Ltd.	Pub.Ltd.	Pub.Sec.		
Above 10.12 to 50	9	3	3	-	-	15	34.88
Above 50 to 100	-	-	1	2	-	3	6.98
Above 100 to 200	1	3	1	5	-	10	23.26
Above 200 to 400	1	1	-	4	3	9	20.93
Above 400	-	-	1	4	1	6	13.95
All groups	11	7	6	15	4	43	100.00
Percentage to total	25.58	16.28	13.95	34.89	9.30	100.00	

As much as 35% of the sample gardens represented the lowest size-group of above 10.12 to 50 hectares whereas the bigger sized estates above 200 hectares accounted for 35%. Medium sized estates between 50 to 200 hectares claimed 30% of the sampie.

Ownership-wise, 35% of the sample estates were represented by the Public Limited companies followed by Proprietory ownerships (26%). Eight Public Sector estates, constituting nine percent of the sample size, were included in the sample. Partnership and Private Limited ownerships staked 30% in the sample.

Table – 9 indicates that according to size-group the bulk of the area under tea (i.e. almost 44%) was in possession of the estates within the size-group of above 400 hectares. Ownership-wise, the maximum percentage of area (i.e. around 55%) being managed by the estates under Public Limited companies. The remaining 45% area is within the management of Public Sector undertaking, Private Limited, Partnership and Proprietory concern.

Table – 9

Distribution of Area by size-group and type of ownership.

(Area in Hect.)

Size group (Hect.)	Ownership					Total	Percentage of total
	Prop.	Part.	Pvt. Ltd.	Pub. Ltd.	Pub. Sec.		
Above 10.12 to 50	186.56	64.94	70.66	-	-	322.16	4.07
Above 50 to 100	-	-	90.17	126.40	-	216.57	2.74
Above 100 to 200	123.98	432.35	151.34	771.74	-	1479.41	18.71
Above 200 to 400	212.03	263.20	-	1186.15	769.22	2430.60	30.74
Above 400	-	-	704.01	2278.51	475.45	3457.97	43.74
All groups	522.57	760.49	1016.18	4362.80	1244.67	7906.71	100.00
Percentage to total	6.61	9.62	12.85	55.18	15.74	100.00	

Chapter – II

Mode of utilization of grant area :

The table 10 and 11 reveals the mode of utilization of total grant area by size-groups as well as by different types of ownership in Nilgiris.

Table – 10

Utilisation of total grant area by different size-groups.

Category of utilization	Size group (in Hectare.)					Total	Percentage to total grant
	Above 10.12 to 50	Above 50 to 100	Above 100 to 200	Above 200 to 400	Above 400		
Area under tea	322.16 (81.37)	216.57 (77.56)	1479.41 (77.03)	2430.60 (80.44)	3457.97 (77.10)	7906.71	78.27
Area under nursery	0.15 (0.04)	-	1.94 (0.01)	2.61 (0.09)	4.50 (0.10)	9.20	0.09
Area available for extension	11.00 (2.78)	8.00 (2.86)	40.38 (2.10)	42.07 (1.39)	186.82 (4.17)	228.27	2.85
Other area	62.62 (15.81)	54.67 (19.58)	398.84 (20.77)	546.48 (18.08)	835.72 (18.63)	1898.33	18.79
Grant Area	395.93 (100.00)	279.24 (100.00)	1920.57 (100.00)	3021.76 (100.00)	4485.01 (100.00)	10102.51	100.00
Percentate to total grant	3.92	2.76	19.01	29.91	44.40	100.00	

(Figures in brackets are the percentage to total grant)

Table – 11

Utilisation of total grant of sample estates classified into different types of ownership.

(Area in Hect.)

Category of utalisation	Type of ownerships					Total	Precentage to total grant
	Prop.	Part.	Pvt. Ltd.	Pub. Ltd.	Pub. Sec.		
Area under tea	522.57 (82.59)	760.49 (64.68)	1016.18 (79.22)	4362.80 (78.24)	1244.71 (86.77)	7906.71	78.27
Area under nursery	- 0.15 (0.02)	1.26 (0.11)	3.00 (0.23)	4.79 (0.09)		9.20	0.09
Area available for extension	-	52.38 (4.45)	1.00 (0.08)	194.82 (3.49)	40.07 (2.79)	288.27	2.85
Other area	110.05 (17.39)	361.68 (30.76)	262.65 (20.47)	1014.15 (18.18)	149.80 (10.44)	1898.33	18.79
Grant Area	632.77 (100.00)	1175.81 (100.00)	1282.83 (100.00)	5576.56 (100.00)	1434.54 (100.00)	10102.51 (100.00)	100.00
Percentate to total grant	6.26	11.64	12.70	55.20	14.20	100.00	

(Figures in brackets are the percentage to total grant)

Overall, the two tables indicate **that 78.27% of the total grant area has been utilized for plantation of tea by the surveyed estates. 0.09% of the total grant area was under nursery and the area specified as "other areas" which accounted for 18.79% of the total grant area comprised forests, factories, staff and labour quarters, bunglows, roads, bridges, jhoras, fallow and wastelands. There was very little scope for extension planting as the area available for the purpose was only to the extent of 2.85% of the total grant.**

Table – 12

Average size of an estate, average grant area and average area other than tea classified among different size-groups.

(Area in Hect.)

Size-groups (Hect.)	Number or estate	Total area under tea	Average area under tea Per estate	Total area under grant	Average area under grant Per estate	Average area other than tea area (grant area minus tea area
Above 10.12 to 50	15	322.16	21.48	395.93	26.40	4.92
Above 50 to 100	3	216.57	72.19	279.24	93.08	20.89
Above 100 to 200	10	1478.41	147.84	1920.57	192.06	44.22
Above 200 to 400	9	2430.60	270.07	3021.76	335.75	65.68
Above 400	6	3457.97	576.33	4485.01	747.50	171.17
Total	43	7906.71	183.88	10102.51	234.94	51.06

Table – 12 shows **the size-group-wise analysis of average grant area (234.94 hectare) and average area under tea (183.88 hectare) per estate. It is evident from the table that around 78% of the grant area has been utilized for plantation of tea and the remaining 22% belongs to non-tea area on an average. Sizegroupwise, the area under plantation varies from 77% to 81% of the total area under grant.**

Table - 13

Average size of an estate, average grant area and average area other than tea classified among different types of ownerships.

(Area in Hect.)

Status of ownership	Number of estate	Total area under tea	Average area under tea per estate	Total area under grant	Average area under grant per estate	Average area other than tea area (grant area minus tea area
Proprietory	11	522.57	47.51	632.77	57.53	10.02
Partnership	7	760.49	108.64	1175.81	167.97	59.33
Private Ltd.	6	1016.18	169.36	1282.83	213.81	44.45
Public Ltd	15	4362.80	290.85	5576.56	371.77	80.92
Public Sector	4	1244.67	311.17	1434.54	358.64	47.47
Total	43	7906.71	183.88	10102.51	234.94	51.06

According to ownership, the average area other than tea per estate was 80.92 hectare for Public Limited companies followed by partnership (59.33 hectare), 47.47 hectare for Public Sector undertakings, 44.45 hectare for private limited ownership and 10.02 hectare for Proprietory concerns. Hence, it indicates that the estates under Public Limited companies have larger non-tea area.

Table – 14

Land suitable for extension of tea area by size-groups.

Size - groups (Hect.)	Number of estates	Average grant area per estate (Hect.)	Land suitable for extension per estate (Hect.)	Percentage of land suitable for extension to total grant area
Above 10.12 to 50	15	26.40	0.73	2.77
Above 50 to 100	3	93.08	2.67	2.87
Above 100 to 200	10	192.06	4.04	2.10
Above 200 to 400	9	335.75	4.67	1.39
Above 400	6	747.50	31.14	4.17
All groups	43	234.94	6.70	2.85

The above table shows **that land available for extension planting per estate was 2.85% of total grant, a major share of which is accounted for by the size group of above 400 hectare.**

Table – 15

Land suitable for extension of tea area by status of ownership.

Status of wonership	Number of estates	Average grant area per estate (Hect.)	Land suitable for extension per estate (Hect.)	Percentage of land suitable for extension to total grant area
Proprietory	11	57.53	-	-
Partnership	7	167.97	7.48	4.45
Private Ltd.	6	213.81	0.17	0.08
Public Ltd	15	371.77	12.86	3.46
Public Sector	4	358.64	10.02	2.79
Total	43	234.94	6.70	2.85

Ownership-wise analysis reveals **that estates owned by Public Limited companies and Public Sector undertakings had as much as 12.86 hectare and 10.02 hectare respectively per estate identified as area suitable for extension planting.** Thus, the survey recommends that the estates under Public Limited companies and Public Sector undertaking may undertake extension planting phase-wise for augmenting both production and productivity.

Chapter – III

Progress of extension, replanting and replacement :

An analysis has been made in respect of various developmental activities undertaken by the sample tea estates during the period 1998-2000 according to different size-groups.

Table –16

Extension, Replanting and Replacement carried out during 1998 to 2000 according to size-groups by the sample estates.

Size group (Hect.)	Extension			Replanting			Replacement		
	No. of estate under took	Area extended (Hect.)	Percentage to total planted area	No. of estate under took	Area replanted (Hect.)	Percentage to total planted area	No. of estate under took	Area repleced (Hect.)	Percentage to total planted area
Above 10.12 to 50	-	-	-	3	7.66	2.38	-	-	-
Above 50 to 100	1	2.18	1.01	1	1.50	0.69	-	-	-
Above 100 to 200	1	1.00	0.07	5	31.40	2.12	1	1.00	0.07
Above 200 to 400	4	28.44	1.17	6	25.61	1.05	1	1.50	0.06
Above 400	2	171.25	4.95	4	73.86	2.14	-	-	-
All groups	8	202.87	2.57	19	140.03	1.77	2	2.50	0.03

It appears from the above table **that out of 43 surveyed estates only eight undertook extension planting during 1998 to 2000 covering an area of 202.87 hectares which accounted for 70% of the overall area suitable for extension planting. It also reveals that the maximum percentage of extension programme (i.e. 98.43% of the total extended area) was carried out by the estates above 200 hectares. Above analysis thus indicates that resource mobilization in respect of extension planting was greater in case of higher sized estates.**

Regarding progress of replanting operation in Nilgiris it was noticed **that among the sample estates surveyed 43.21% of existing bushes were above the age of 50 years and constituted around 4316 hectares. Out of this area only**

3% i.e., 140.03 hectares were taken up for replanting by 19 tea estates during 1998 to 2000. Only two tea estates undertook replacement programme during the same period covering 2.50 hectares, which was 0.03% of existing planted area maintained by the 43 sample gardens.

In view of large size old aged fields, it is suggested that an integrated development programme need to be undertaken involving long-term developmental activities like extension, replanting and replacement planting. The programme may envisage optimal utilization of tea Board's Development Schemes.

Table – 17

Extension, Replanting and Replacement planting carried out during 1998 to 2000 according to ownership by the sample estates.

Owner-ship	Extension			Replanting			Replacement		
	No. of estate under took	Area extended (Hect.)	Percentage to total planted area	No. of estate under took	Area replanted (Hect.)	Percentage to total planted area	No. of estate under took	Area repleced (Hect.)	Percentage to total planted area
Propr ietory	-	-	-	3	7.66	1.47	-	-	-
Partner ship	1	0.31	0.04	3	17.00	2.24	-	-	-
Private Ltd.	1	1.00	0.10	3	32.58	3.21	-	-	-
Public Ltd.	5	199.26	4.57	9	81.79	1.88	1	1.00	0.02
Public Sector	1	2.30	0.19	1	1.00	0.08	1	1.50	0.12
Total	8	202.87	2.57	19	140.03	1.77	2	2.50	0.03

Above table shows **that out of eight sample tea estates that underwent extension planting, five were Public Limited companies while the other three estates belonged to mixed categories viz. Partnership, Private Limited and Public Sector.**

Chapter – IV

Field practices and cultural operations :

Age profile :

It was observed **that about 57% of the total planted area had bushes upto 50 years of age, and the remaining 43% exceeded 50 years. Nearly 19% of the bushes were found to be more than 70 years old** and calls for immediate replacement.

Table – 18

Age composition of bushes with proportion to planted area by size-groups.

(Figures in percentage)

Size group (Hect.)	Upto five years	Above 5 to 10 years	Above 10 to 30 years	Above 30 to 50 years	Above 50 to 70 years	Above 70 to 100 years	Above 100 years	Total
Above 10.12 to 50	5.34	4.09	19.84	49.39	14.34	7.00	-	100.00
Above 50 to 100	1.58	1.61	23.58	48.15	7.90	17.18	-	100.00
Above 100 to 200	3.55	6.11	8.98	15.78	33.28	30,70	1.60	100.00
Above 200 to 400	3.07	2.68	28.95	24.19	7.04	26.24	7.83	100.00
Above 400	2.77	11.09	22.81	25.74	33.83	3.76	-	100.00
Overall	3.09	7.10	22.00	24.60	24.22	16.24	2.75	100.00

Ownership-wise age composition of bushes is indicated below in table – 19.

Table – 19

Age composition of bushes with proportion to planted area by ownership.

(Figures in percentage)

Status of ownership	Upto five years	Above 5 to 10 years	Above 10 to 30 years	Above 30 to 50 years	Above 50 to 70 years	Above 70 to 100 years	Above 100 years	Total
Proprietory	4.62	3.64	8.46	29.03	21.50	32.75	-	100.00
Partnership	3.73	10.07	17.52	19.08	16.35	33.25	-	100.00
Private Ltd.	4.94	3.69	11.56	7.39	72.42	-	-	100.00
Public Ltd.	3.24	6.25	14.26	29.12	22.98	19.25	4.90	100.00
Public Sector	1.18	12.17	65.07	22.58	-	-	-	100.00
Total	3.09	7.10	22.00	24.60	24.22	16.24	2.75	100.00

The above table reveals **that the Public Sector Undertakings had their entire plantation with bushes within 50 years of age. The percentage of bushes above 50 years varied between 47% and 72% over other ownerships.** Hence, it is imperative that the estates other than under Public Sector undertakings should lay more emphasis on the uprooting and replanting programmes as a long-term development measure.

Spacing :

The table – 20 indicates the spacing adopted by the sample estates. **Wider spacing like 4'x4', 4'x3', 3.5'x3.5' and 3'x3' were prevalent in almost 57% of the total planted area** in Nilgiris.

Table – 20

Common spacing adopted by the sample tea estates.

Spacing (Figures in feet)	Percentage to total area
4 x 4	36.92
4 x 2.5	11.76
4 x 2	11.59
4 x 3	10.82
4 x 2.5 x 2	10.76
3.5 x 3.5	7.23
4 x 2.5 x 2.5	2.39
3 x 3	2.06
4 x 2 x 2	1.88
4.5 x 2.25 x 2.25	1.74
Others	2.85

The survey suggests that as per suitability, rejuvenation and consolidation with inter row planting or uprooting and replanting may be adopted in the sections

having wider spacing. In the process, the planting materials to be chosen should conform to quality improvement rather that being simply high yielding.

Bush population and vacancy ratio :

The table below reveals **that the average number of bushes per hectare of planted area was 7751 while overall percentage of vacancy was estimated as 13%. The estates within the size-group of above 400 hectares appear to have maximum percentage of vacancy (24%) followed by the size group of above 10.12 to 50 hectares (15%) and the rest ranges between 8 to 10 %. Out of 43 surveyed estates only 12 tea estates spread over all groups underwent infilling operation during the years 1998 to 2000.**

Table – 21

Percentage of vacancy and progress of infilling by the estates during 1998-2000 according to size-group.

Size - group (in here)	Number of surveyed estate	Average existing bushes per hectare	Average percentage of vacancy reported by estates	Number of estates undertaken infilling activity
Above 10.12 to 50	15	7832	15	5
Above 50 to 100	3	8947	9	1
Above 100 to 200	10	7579	10	1
Above 200 to 400	9	7961	8	2
Above 400	6	6756	24	3
Overall	43	7751	13	12

Identical analysis has also been done in respect of different status of ownership of the sample tea estates and depicted in table – 22. It has been observed from the table **that the estates under Public Sector undertakings have the highest percentage of vacancy (19%) while the same was lowest in case of Private Limited companies (7%). In case of other status of ownerships the percentage ranges between 12 to 15%.** Hence, apart from uprooting and replanting of certain age-old planted areas, infilling operation too deserves equal significance to maximize the bush population.

Table – 22

Percentage of vacancy and of infilling operation undertaken by the estates during 1998-2000 according to different types of ownership.

Status of wonership	Number of Surveyed estates	Average existing bushes per hectare	Average percentage of vacancy reported by estates	Number of estates undertaken infilling activity
Proprietory	11	7923	15	3
Partnership	7	7154	14	1
Private Ltd.	6	8455	7	2
Public Ltd	15	7549	12	5
Public Sector	4	7970	19	1
Overall	43	7751	13	12

Standard of plucking :

An analysis of the standard of plucking has been made on the basis of the data furnished by the sample estates, covering different size groups as well as status of ownerships.

Table – 23

Standard of plucking and average yield of made tea during 2000 by size-group.

Size group (Hect.)	Plucking of green leaves (Kg / Hect.)				Average yield of made tea (Kg. / Hect.)
	Upto two leaves and a bud	Three leaves and a bud	Above three leaves and a bud	Total	
Above 10.12 to 50	2477 (22)	7359 (65)	1424 (13)	11260 (100)	2449
Above 50 to 100	1144 (6)	17018 (90)	684 (4)	18846 (100)	4142
Above 100 to 200	4052 (36)	5780 (52)	1381 (12)	11213 (100)	2917
Above 200 to 400	2999 (24)	7283 (60)	1905 (16)	12187 (100)	3295
Above 400	1827 (20)	6338 (68)	1074 (12)	9239 (100)	2079
Overall	2560 (24)	6895 (63)	1301 (13)	10846 (100)	2672

(Figures in bracket indicate percentage to total)

On an average, **yield rate of made tea in Nilgiris was estimated as 2672kg/ hectatre. Finer plucking like two leaves and a bud accounted for 24%, while three leaves and a bud shared 63% and remaining 13% was of courser plucking.** Among all size groups, **the estates of above 100 to 200 hectares had gone**

for maximum percentage of (i.e. 36%) finer plucking while the same was found to vary between 6% and 24% in respect of other size groups.

Table – 24

Standard of plucking and average yield of made tea during 2000 ownership-wise.

Size group (Hect.)	Plucking of green leaves (Kg / Hect.)				Average yield of made tea (Kg. / Hect.)
	Upto two leaves and a bud	Three leaves and a bud	Above three leaves and a bud	Total	
Proprietory	2132 (19)	7635 (70)	1159 (11)	10926 (100)	2294
Partnership	3046 (38)	4076 (52)	792 (10)	7914(100)	2048
Private Ltd.	455 (4)	9967 (88)	893 (8)	11315 (100)	3315
Public Ltd.	2313 (22)	6770 (65)	1358 (13)	10441 (100)	2281
Public Sector	4833 (36)	6273 (47)	2243 (17)	13349 (100)	3942
Overall	2560 (24)	6895 (63)	1391 (13)	10846 (100)	2672

(Figures in bracket indicate percentage to total)

Table – 24 reveals **that the tea estates under the management of Public Sector undertakings occupies the highest position in respect of yield whereas the same is lowest in case of partnership.**

The survey team strongly recommends that the emphasis should be on plucking good quality of leaves for ensuring the quality of the end product, for which it would be necessary for strict adherence to standard of plucking and pruning cycle as recommended by UPASI / TRF.

As a step towards quality upgradation, the survey team recommends reduction in the length of pruning cycle preferably to four years, as that would reduce the banji composition in harvested leaf.

In course of survey it was observed **that a few sample tea estates had gone for indiscriminate/unplanned shear harvesting resulting in impairing the quality of leaf.** It is recommended for adoption of integrated shear harvesting programme only during the peak cropping periods with limited rounds.

The survey also recommends that an optimal plucking average schedule be evolved taking due cognizance of quality of plucking and yield level.

Leaf handling is one of the prime considerations in the process of manufacturing quality teas. It was observed **that many of the surveyed tea estates did not pay much care and attention to it. Leaf bags were found to be heavily stuffed and overloaded. In many cases shabby manner of transportation caused serious**

damage to the leaf. It is therefore recommended that adequate care and attention to be paid while transporting green leaf from field to factory.

It is also recommended that the plucking intervals be restricted to 8 to 10 days during high cropping periods and 10 to 12 days during lean cropping periods.

Chapter – V

Tea Machinery and Manufacturing of Tea :

Factory Operation :

Out of 43 tea estates surveyed, **25 were having factories of their own to process green leaf.** Among those 25 estates, **11 were found to produce exclusively Orthodox, 7 were producing both Orthodox and C.T.C., 4 were producing only C.T.C., 2 were manufacturing both Orthodox and Green tea and remaining one garden was producing Orthodox, C.T.C. and Green tea. The manufacturing devices in majority of the surveyed estates were found to be in fairly good condition.** However, to reduce the cost of production, enhance recovery percentage and qualitative upgradation of the finished produce, replacement of age-old and obsolete machinery with improved modern units were felt necessary. **Most of the surveyed estates with factories had to depend on self-generation of power, as the supply of the same from the grid was inadequate.**

The table – 25 and 26 shown below explains the comparative position of manufacturing Orthodox, C.T.C. and Green tea by the sample estates classified under different size-groups and ownerships respectively.

Table – 25

Manufacture of teas by different methods during 2000 according to size-groups.

(Figures in percentage)

Size - group (Hect.)	Orthodox	C. T. C.	Green Tea	Total
Above 10.12 to 50	-	100.00	-	100.00
Above 50 to 100	92.22	7.78	-	100.00
Above 100 to 200	85.16	9.58	5.26	100.00
Above 200 to 400	74.52	25.48	-	100.00
Above 400	46.59	49.83	3.58	100.00
Overall	67.35	30.27	2.38	100.00

Table – 26

Manufacture of teas by different methods during 2000 according to status of ownerships.

(Figures in percentage)

Ownership	Orthodox	C.T.C	Green Tea	Total
Propreitory	-	-	-	-
Partnership	69.66	16.84	13.50	100.00
Private Ltd.	82.08	11.56	6.36	100.00
Public Ltd.	63.68	39.29	0.03	100.00
Public Sector	62.32	37.68	-	100.00
Overall	67.35	30.27	2.38	100.00

*Proprietory gardens within the sample are without factory.

It was revealed from the above tables **that on an average 67.35% of the total tea produced during 2000 by the sample estates was in the form of Orthodox, 30.27% C.T.C. and rest 2.38% Green tea.**

Most of the sample tea factories were in the practice of withering tea leaves in trough with fairly controlled withering system, fermenting in floor and some of them had no arrangement for controlling humidity and temperature.

Coal, L.D. oil, and furnace oil were normally used as fuel for firing operation by the tea factories of Nilgiris. The survey felt that in order to conserve fuel which is the costliest item, the estates should take up programme for setting up energy plantations within their grant area so that fuel demand could be met internally.

The survey team also observed that in some cases fermentation was not carried out properly. Some had no arrangement for controlling humidity and temperature. It is suggested that the fermenting operation should be undertaken in a separate room with provision for maintaining temperature and humidity. Adequate supply of fresh air required for proper fermentation should be ensured.

It is also felt that the tea estates should lay proper attention towards maintenance of sanitation, hygiene of the manufacturing unit including storing and packaging sections to protect the intrinsic quality of tea.

Chapter – VI

Labour :

The average number of daily employment of labour in Nilgiris during the year 1998 (as per available data) was 84841. Out of this, 78038 were engaged in field and 6803 in factory. Of the total labour force 54% constituted female, and the remaining 46% male. The average labour per hectare worked out to be 2.49 comprising 1.74 permanent workers and 0.74 temporary workers and the annual output per labour averaged at 1108kg (made tea), while the figure stands as 1.88 and 1059kgs respectively in respect of total Tamil Nadu.

The land labour ratio calculated on the basis of available data in respect of both size groups and status of ownerships have been shown in table – 27 and 28.

Table – 27

Average number of labour on roll per hectare of planted area as on 31.12.2000 by Size-group.

Size-group (in Hect.)	Average labour on roll per hectare as on 31-12-2000.		
	Permanent	Casual	Total
Above 10.12 to 50	1.59	0.76	2.35
Above 50 to 100	1.65	0.77	2.42
Above 100 to 200	1.92	0.54	2.46
Above 200 to 400	1.74	0.84	2.58
Above 400	1.67	0.76	2.43
Overall	1.74	0.75	2.49

Over all, **the estimated average labour on roll per hectare as on 31.12.2000 was 2.49. The average labour on roll per hectare was found to be highest (2.58) in respect of the size-group of above 200 to 400 hectares. The highest average employment of permanent labour per hectare was estimated at 1.92 in respect of the size-group of above 100 to 200 hectares against the overall average employment of 1.74. Likewise the overall average employment of casual labour was estimated at 0.75 per hectare. While the lead position in such engagement worked out at 0.84 in the size group of above 200 to 400 hectare.**

Table – 28

Average number of labour on roll per hectare of planted area as on 31.12.2000 According to status of ownerships.

Ownership	Average labour on roll per hectare as on 31-12-2000.		
	Permanent	Casual	Total
Proprietory	2.20	0.15	2.35
Partnership	1.57	0.29	1.86
Private Ltd.	1.65	1.12	2.77
Public Ltd.	1.81	0.69	2.50
Public Sector	1.45	1.32	2.77
Overall	1.74	0.75	2.49

The above table reveals **that the average permanent labour employed per hectare was highest (2.20) in case of Proprietory ownership while the same was lowest (1.45) in case of Public Sector undertakings.** Taking permanent and casual labour employment per hectare together **the employment by Private Limited companies and Public Sector undertakings were found to be highest at 2.77 whereas in case of the estates under Partnership management it recorded the lowest at 1.86.**

The same kind of analysis has been made in respect of different categories of workers (sex-wise) and shown in table – 29.

Table – 29

Distribution of categories of labour per hectare of planted area as on 31-12-2000

Category	Average labour on roll per hectare as on 31-12-2000.		
	Permanent	Casual	Total
Male	0.71	0.30	1.01
Female	1.03	0.45	1.48
Overall	1.74	0.75	2.49

The above table indicates **that over all, average labour per hectare in the category of male and female is 1.01 and 1.48 respectively. Overall, deployment of male and female worked out to around 41% and 59% respectively** by the sample estates.

A detailed analysis of the man-days employed in plucking operation, other field activities and factory operation in respect of tea estates of different size groups and status of ownerships has been shown in table 30 and 31.

Table – 30

Distribution of man-days employed in field and factory during the year 2000 according to size-groups.

(Figure in percentage)

Size-group (Hect.)	Plucking	Other field activities	Factory operations
Above 10.12 to 50	60.65	38.95	0.40
Above 50 to 100	49.07	40.68	10.25
Above 100 to 200	57.94	31.03	11.03
Above 200 to 400	63.71	30.57	5.72
Above 400	61.27	27.39	11.34
Overall	60.93	29.55	9.52

It is evident **that the estates within the size-group of above 200 to 400 hectares utilized maximum (63.71%) of the total man-days in plucking (30.57%) in other field work like pruning, weeding, irrigation, fertilizer application etc. followed by 5.72% in factory operation. Overall, man-days employed in plucking is 60.93%, in the other field activities 29.55% and 9.52% in factory operation.**

Table – 31

Distribution of man-days employed in field and factory during the year 2000 according to status of ownerships.

(Figure in percentage)

Ownership	Plucking	Other field activities	Factory operations
Proprietory	62.62	37.38	-
Partnership	48.98	41.81	9.21
Private Ltd.	58.50	27.95	13.55
Public Ltd.	59.96	31.30	8.74
Public Sector	73.58	13.99	12.43
Overall	60.93	29.55	9.52

*Estates under the Proprietory ownership within the sample have no factory.

Man-days employed by the estates according to different status of ownerships reveals **that the estates under Public Sector undertakings utilized 73.58% in the prime activities of field operation viz. plucking whereas the estates under Proprietory ownership utilized minimum of 48.98%. In factory operation, maximum man-days were used (i.e. 13.55%) by the estates under private limited companies and minimum (8.74%) by the estates of Public Limited ownership.**

The survey recommends that a suitable study be undertaken for optimal utilization of human resources in all stages of both field and factory operations.

Table – 32

Distribution of man-days employed in field and factory during the year 2000 according to sex.

(Figure in percentage)

Category	Plucking	Other field activities	Factory operations
Male	34.76	49.58	15.66
Female	93.75	4.44	1.81
Overall	60.93	29.55	9.52

Sex-wise, **nearly 98% of the total man-days of female labour was spent in field activities including plucking while for male labour the percentage stood at 84. For factory related activities male and female workers spent 15.66% and 1.81% of the total man-days respectively.**

The table – 33 describes the distribution of daily wages and other amenities to labour during 1998 to 2000.

Table – 33

Distribution of wages and other amenities of labourers.

(Figures in percentage)

Item	Period			Average of three years
	1998 - 99	1999 - 2000	2000 - 2001	
Wages and D.A.	78.07	79.13	82.02	79.74
Others including bonus	21.93	20.87	17.98	20.26
Total	100.00	100.00	100.00	100.00

The table above reveals **that on an average out of the total wages bill met by the surveyed estates for the labourers during 1998 to 2000 approximately 80% spent on account of wages and allowances and rest 20% for payment of bonus, housing, medical facilities and other fringe benefits.**

Chapter – VII

Marketing :

Based on the data pertaining to disposal of made tea available from the surveyed estates it is observed **that on an average during the years 1998 to 2000 69% of the Nilgiri teas were sold through auction and remaining 31% was disposed of through domestic private sale (16%) and direct export (15%).** The position is shown in table – 34.

Table – 34

Primary marketing of tea during 1998- 2000 by the estates.

(Figures in percentage.)

Year	Sold through Indian auctions				Ex-factory private sale	
	Coonoor	Coimbatore	Kochi	Total	Domestic	Direct export
1998	35.24	13.56	20.91	69.71	16.76	13.53
1999	35.06	14.03	21.64	70.73	16.37	12.90
2000	30.15	14.51	22.60	67.26	15.47	17.27
Average	33.48	14.04	21.72	69.24	16.20	14.56

Table-35 contains average price of tea per kg sold at auction by the surveyed estates of Nilgiris during the same period. There was a sharp decline in price in both auctions and private sales between 1998 and 2000. It also reveals **that the price fetched from direct export was higher than the ex-factory private sales and other modes of sale during the period under review.**

Table – 35

Average price realized during 1998 to 2000 by the estates.

(Figures in Rs./Kg.)

Year	Sold through Indian auctions				Ex-factory private sale		Average
	Coonoor	Coimbatore	Kochi	Total	Domestic	Direct export	
1998	60.93	72.27	78.68	68.29	63.93	83.81	70.43
1999	54.68	62.49	71.25	61.41	55.25	78.18	63.33
2000	47.97	52.05	60.51	53.29	50.14	67.52	55.98
Average	54.88	61.53	69.82	61.03	56.41	75.76	63.15

The average price realization at South Indian auction centers during 1998 to 2000 were Rs.68.79, Rs.57.10 and Rs.44.63 respectively.

Table-36 indicates the disposal of tea by the sample tea estates classified according to status of ownerships during the same period.

Table – 36

Primary marketing of tea during 1998- 2000 by the estates according to status of ownerships.

(Figures in percentage.)

Status of ownership	Sold Through Indian auction				Ex - factory private sale	
	Coonoor	Coimbatore	Kochi	Total	Domestic	Direct export
Proprietory	-	-	-	-	-	-
Partnership	42.91	4.42	17.53	64.86	18.50	16.64
Private Ltd.	26.07	7.60	31.18	64.85	16.87	18.28
Public Ltd.	33.55	17.26	19.11	69.92	15.59	14.49
Public Sector	33.51	16.56	33.73	83.80	16.20	-
Overall	33.48	14.04	21.72	69.24	16.20	14.56

Estates under Public Sector undertakings sold the maximum proportion of tea (84%) through auction while the estates under partnership and private limited companies sold a lower percentage of 65%.

Table – 37 reveals the average price realized by the sample tea estates falling under different status of ownership during the period 1998 – 2000.

Table – 37

Average price realized during 1998-2000 by the estates according to status of ownerships.

(Figures in Rs./Kg.)

Status of ownership	Sold through Indian auctions				Ex-factory private sale		Overall
	Coonoor	Coimbatore	Kochi	Total	Domestic	Direct export	
Proprietory	-	-	-	-	-	-	-
Partnership	59.43	62.10	77.60	64.52	48.13	77.03	63.57
Private Ltd.	55.73	56.49	63.61	59.61	52.85	73.42	60.99
Public Ltd.	51.32	62.29	71.08	59.23	58.81	76.24	63.25
Public Sector	62.18	64.07	73.21	66.99	73.01	-	67.88
Overall	54.88	61.53	69.82	61.03	56.41	75.76	63.15

On an average, **the estates under Public Sector undertakings fetched the highest price (Rs.67.88 per kg of made tea) in comparison to the estates under other ownerships.**

In the scenario of falling prices, it is imperative that qualitative upgradation be given top priority with a strategy for conversion to orthodox teas in keeping with Tea Board's recent Mid Term Export Strategy Initiatives, 2002-2007. Tea Board

seems to have a positive role to play in domestic consumption campaign to boost the demand of tea in the country, particularly for Nilgiris teas.

In course of survey the team had received various proactive suggestions from different cross sections of Nilgiri tea industry concerning primary marketing of its produce. Need for an overall reform of the existing auction mechanism was emphasized. Fixation of a minimum floor price in the auction was also one of the suggestions of the industry. Besides, developing a strong domestic base of the Nilgiri teas was strongly advocated by the industry instead of totally relying on the export market. The industry also urged to initiate appropriate steps to curb adulteration of tea.

Chapter – VIII

Cost of Production :

The Survey team experienced great difficulty in obtaining the cost data and the profit and loss statement. Even though they were available, in quite a number of cases, it was difficult to break up the data along desired lines. However, on the basis of information obtained from only a few Tea Estates/Companies, an attempt has been made to analyse and highlight different cost components together with a comparison between the cost of production and price realization.

TABLE – 'A'

Cost of production of made tea during 1998-99, 1999-2000 and 2000-2001.

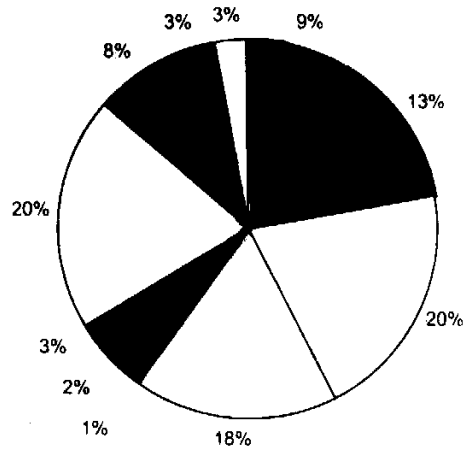
Sl. No.	Item of expenditure	1998 - 99		1999 - 2000		2000 - 2001		Overall	
		Rs. / Kg.	Percentage Increase / decrease relating to previous year.	Rs. / Kg.	Percentage Increase / decrease relating to previous year.	Rs. / Kg.	Percentage Increase / decrease relating to previous year.	Rs. / Kg.	Per centage
1.	Establishment at Garden	4.83	-	4.77	(-)1.24	5.30	11.11	4.95	8.66
2.	Cultivation	7.54	-	8.06	6.90	7.42	(-)7.94	7.68	13.44
3.	Manufacturing	11.59	-	11.52	(-)0.60	11.83	2.69	11.64	20.36
4	Plucking	9.47	-	9.94	4.96	11.00	10.66	10.10	17.67
5.	Freight & Transport	0.46	-	0.51	10.87	0.67	31.37	0.54	0.95
6.	Packing	1.32	-	1.44	9.09	1.51	4.86	1.42	2.48
7.	Duties and Taxes	0.98	-	2.12	116.33	1.89	(-)10.85	1.65	2.89
8.	General Charges	10.49	-	12.45	18.69	11.40	(-)8.43	11.44	20.01
9	Head Office expenses	4.77	-	4.09	(-)14.26	4.09	-	4.33	7.58
10.	Selling Expenses	1.98	-	1.68	(-)15.15	1.80	7.14	1.82	3.18
11.	Depreciation	2.05	-	1.54	(-)24.88	1.11	(-)27.92	2.19	2.78
	Total	55.48	-	58.12	4.76	58.02	(-)0.17	57.16	100.00

The analysis reveals **that the cost of production per/kg of made tea registered a growth of 4.76% during the year 1999-2000 over the previous year of 1998-1999. During 2000-2001, it remained almost at the previous year's level. In absolute term, the unit cost of production during the year 1998-1999 was estimated at Rs.55.48, which increased to Rs.58.12 in 1999-2000 and slightly decreased to Rs.58.02 during 2000-2001.**

The average expenditure during 1998-1999 and 2000-2001 was found to be highest in respect of Manufacturing (Rs.11.64) followed by General Charge

(Rs.11.44), **Plucking (Rs.10.10), Cultivation (Rs.7.68) and Establishment at Garden (Rs.4.95). The lowest average expenditure (Rs.0.54) was observed in case of Freight and Transport. The expenditure on Packaging worked out to be (Rs.1.42).** There was substantial increase in the cost components like Plucking, Taxes and Duties, Freight and Transport and Packing during the period under review

Overall proportion of different items of expenditure to total cost of production per kg of made tea during 1998-99, 1999-2000 and 2000-2001.



Establishment at Garden	Cultivation	Manufacturing
Plucking	Freight & Transport	Packing
Duties and Taxes	General Charges	Head Office expenses
Selling expenses	Depreciation	

TABLE – 'B'

Proportion of different item of expenditure to total cost of production per kg of made tea in different size group (average of 1998-99 to 2000-2001)

(Figure in Percentage)

Sl. No.	Item of expenditure	Size Group (in hectare)				
		8.09 - 100	Above 100 - 200	Above 200 - 400	Above 400	Overall
1.	Establishment at Garden	15.61	3.77	10.13	2.43	5.99
2.	Cultivation	8.41	15.90	10.60	14.29	13.04
3.	Manufacturing	37.21	16.03	14.86	26.26	22.58
4.	Plucking	7.15	19.63	21.44	17.78	17.97
5.	Freight & Transport	1.04	0.79	1.53	0.43	0.84
6.	Packing	2.27	4.14	3.07	1.61	2.52
7.	Duties and Taxes	2.79	2.61	4.00	2.50	2.93
8.	General Charges	13.61	28.35	12.92	20.34	19.23
9.	Head Office expenses	3.14	3.13	10.83	9.78	8.15
10.	Selling Expenses	3.83	2.27	6.34	0.52	2.67
11.	Depreciation	4.94	3.38	4.28	4.06	4.08
	TOTAL	100.00	100.00	100.00	100.00	100.00

On an average, **manufacturing cost accounted for the maximum proportion (22.58%) of the total cost followed by general charges (19.23%) and plucking (17.97%). The share of manufacturing cost and general charges was highest (26.26% & 20.34% respectively) followed by plucking (17.78%) for the maximum size group. The proportions of plucking and manufacturing expenses were highest for tne estates above 200-400 hectare. The proportions of general charges and plucking expenses were highest in respect of tea estates of size group above 100-200 hectare while the manufacturing cost and establishment at garden were the highest in respect of the tea estates of size group 8.09-100 hectare.**

Overall proportion of different items of expenditure to total cost of production per kg of made tea in different size-groups.

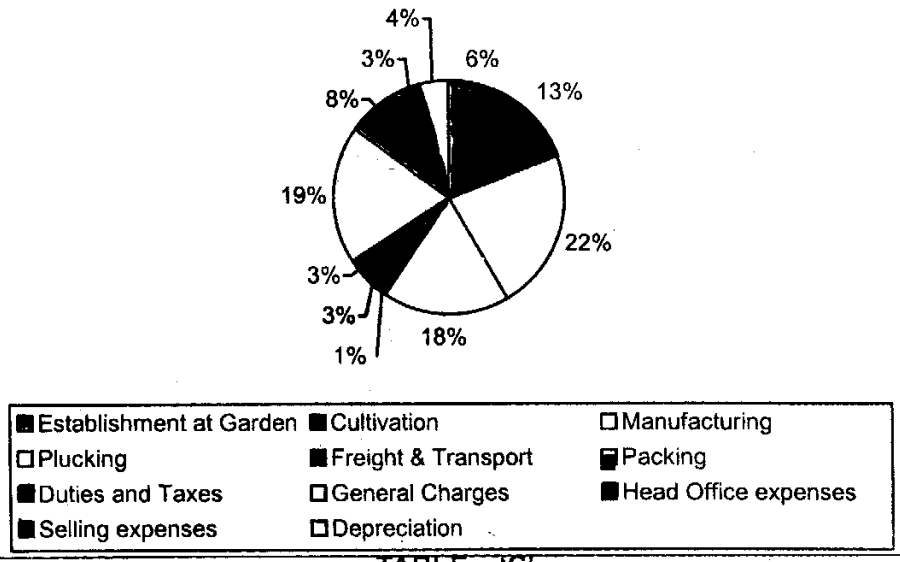


TABLE – 'C'

Estimated Cost Price And Sale Price During The Year 1998 – 99 to 2000 –2001.

(Figures in Rs.)

Period	Cost price	Sale price*	Sale-cost differential
1998-1999	55.48	68.79	13.31
1999-2000	58.12	57.09	(-) 1.03
2000-2001	58.02	44.64	(-) 13.38
Overall	57.15	57.47	0.32

(*Average auction price calendar year-wise.)

The sale cost differential for the period 1999-2000 and 2000-2001 was found to be very dismal. The sale price (average auction price on calendar year-wise) during the two-year period failed to cover the respective cost of production, which reflects the poor state of tea economy in Nilgiris. Improvement in quality standard seems to be of utmost importance to jack up the sale cost differential which would give impetus to the much needed improvement in profitability, attract larger investment and ensure better capacity to beat the cost of capital. Effort by Tea Board and the industry to boost up domestic demand coupled with Strategic Export Initiative would also be quite helpful.

Chapter - IX

Finance and Profitability :

Non-availability of sufficient number of balance sheet and profit and loss a/c. despite best efforts was a deterrent factor in compilation of the financial information necessary for the survey. Financial data could be collected from only a limited number of companies. Prima-facie, it was observed that almost all the respondent tea companies incurred losses during the two consecutive years of 1999-2000 and 2000-2001. A comprehensive analysis has been carried out based on some standard financial ratios which would reveal certain highlight on the financial performance of the tea companies.

The values of the ratios are summarized in the following table:

FINANCIAL RATIO ANALYSIS

		1998 - 1999	1999 - 2000	2000 - 2001
1.	Working Capital Ratio	1.67	1.21	1.09
2.	Profit after Tax as percentage of net worth	58.96%	17.76%	(-) 40.25%
3.	Debt equity ratio	0.19	2.56	2.64
4.	Debt net worth ratio	0.08	0.21	0.22
5.	Profitability ratio	0.97	0.24	0.29
6.	Return on capital employed	1.46	0.27	(-) 0.26
7.	Profit before Tax as percentage to Sales	129.00%	25.40%	(-) 33.78%

Interpretation of the ratios :

A. Working capital ratio = $\frac{\text{Current Asset}}{\text{Current liability}}$

B. Net worth = Capital + Reserve + Surplus.

C. Debt Equity Ratio = $\frac{\text{Secured loan.}}{\text{Paid up share capital}}$

D. Debt net worth Ratio = $\frac{\text{Secured loan}}{\text{Net worth}}$

E. Profitability Ratio = $\frac{\text{Profit before tax + Interest}}{\text{Net worth + Secured loan.}}$

F. Return on capital employed = $\frac{\text{Profit before tax + Interest.}}{\text{Capital employed.}}$

Where,

Capital employed = Total assets – Current liabilities.

G. Retention = Profit after Tax less appropriation plus depreciation.

Working Capital Ratio (Acid Test Ratio) as an indicator of liquidity strength of the tea companies actually declined from 1.67% in 1998-99 to 1.09% in 2000-2001. Fall in the ratio explained increasing dominance of current liabilities over current assets. Such decline indicated low availability of working capital which is bound to adversely affect the sustenance and development of tea economy in Nilgiri unless effective steps are immediately taken to get rid of the problem.

Sharp decline in profit after tax as percentage of net worth from 58.96% during the year 1998-1999 to (-) 40.25% during the year 2000-2001 reveals that the Nilgiri tea industry suffered serious set back during the consecutive two years of 1999-2000 and 2000-2001 as it failed to generate profit (estimated on the basis of available data). It might be due to depressed market conditions, dominance of unproductive expenses and failure to identify and control high cost areas.

Increment of Debt Equity Ratio from 0.19 during the year 1998-99 to 2.64 during the year 2000-2001 indicates liberal use of debts for financing the

capital needs of the industry. It increases the industries' financial risk especially when the profitability picture is very dismal. As such, calls for judicious utilization of secured loan.

Return on capital employed was estimated at 1.46 during the year 1998 – 99 which sided down to (-) 0.26 during 2000 – 2001. Identically, profit before tax as percentage to sales also showed similar declining over the three-year period.

Part – III

Summary of Recommendations :

** The estates under Public Limited companies and Public Sector undertaking may undertake extension planting phase-wise for augmenting both production and productivity.

** For optimal utilization of tea Board's Development Schemes, the estates should undertake long-term developmental activities like extension, replanting and replacement planting.

** As per suitability, rejuvenation and consolidation with inter row planting or uprooting and replanting may be adopted in the sections having wider spacing. In the process, the planting materials to be chosen should conform to quality improvement rather than being simply high yielding.

** To ensure the quality of made tea estates should have strict adherence to standard of plucking and pruning cycle as recommended by UPASI / TRF.

** As a step towards quality upgradation the survey team recommends reduction in the length of pruning cycle preferably to four years, as that would reduce the banji composition in harvested leaf.

** It is recommended for adoption of integrated shear harvesting programme only during the peak cropping periods with limited rounds.

** An optimal plucking average schedule be evolved taking due cognizance of quality of plucking and yield level.

** Adequate care and attention to be paid while transporting green leaf from field to factory to avoid damage of the leaf.

** The plucking intervals may be restricted to 8 to 10 days during high cropping periods and 10 to 12 days during lean cropping periods.

** To reduce the cost of production, enhance recovery percentage and qualitative upgradation of the finished produce, replacement of age-old and obsolete machinery with improved modern units were felt necessary.

** In order to conserve fuel, which is the costliest item, the estates should take up programme for setting up energy plantations within their grant area so that fuel demand could be met internally.

** It is suggested that the fermenting operation should be undertaken in a separate room with provision for maintaining temperature and humidity. Adequate supply of fresh air for proper fermentation should be ensured.

** It is also felt that the tea estates should lay proper attention towards maintenance of sanitation, hygiene of the manufacturing unit including storing and packaging sections to protect the intrinsic quality of tea.

** A suitable study be undertaken for optimal utilization of human resources in all stages of both field and factory operations.

** In the scenario of falling prices, it is imperative that qualitative upgradation be given top priority with a strategy for conversion to orthodox teas in keeping with Tea Board's recent Mid Term Export Strategy Initiatives, 2002-2007.