Chapter VII
CHAPTER VII
SUMMARY OF FINDINGS, CONCLUSION AND SUGGESTIONS

7.1 Introduction

A summary of the main findings are recapitulated in this chapter. Based on the conclusion drawn a few suggestions are made. The conclusion and findings emanating from the analysis of various functional aspects viz., capacity utilization, productivity, cost of production, price realized by members and profitability of INDCO tea factories are synthesized in this chapter. The logical culmination of the exercise is the presentation of the summary of findings, conclusion and suggestions.

The first INDCO tea factory came into existence on 26.09.1958 at Yedakadu village in the Nilgiris district in India, thanks to the plantation enquiry committee. In subsequent years, a number of INDCO tea factories were established in various areas of the study district considering the demands for such factories and the concentration of small tea growers. There was more demand for such factories from the small tea growers of Assam and other states. At the time of the study, there were 22 INDCO tea factories in India, of which 15 are in the study district of Tamil Nadu state with a membership of 20,241 covering 31678 acres. The main objectives of the INDCO tea factories were procurement of fertilizers, pesticides and house hold durables and supply of the same to its members on credit basis. Procurement of green leaves, production and sale of made tea to the best advantage of its members were its main functions.

7.2 Scope and methodology

In spite of yeomen services rendered by the INDCO tea factories to its members, it is reported that most of them have been plagued with a multitude of problems viz., poor capacity utilization, low productivity, high cost of production, un-remunerative price for members, low profitability, out-dated production technology and traditional production process, lack of loyalty on the part of members, stiff competition from private bought leaf factories, irregular and inadequate supply of green leaves etc., All the above problems have resulted in poor performance, operational constraints and financial crisis. In such a situation, there is a pressing need for strengthening optimum capacity utilization, higher productivity, controlling cost of production, payment of competitive price to its members and profitability. This study was conducted in Nilgiris
district of Tamil Nadu state because of the existence of more number of INDCO tea factories. It is pertinent to note that out of seventeen INDCO tea factories existed during 1987-88, two were closed during 1988-89 and the rest fifteen INDCO tea factories are functioning in the district, of which only three are running on profit and the rest are incurring loss. It is apparent that there is something wrong with the functioning, which has led to the present state of affairs. Against this backdrop, it is felt that the core performance parameters viz., capacity utilization, productivity, cost of production price realized by members and profitability are to be identified and thoroughly studied. So much so, the researcher made an attempt to analyze the variables such as capacity utilization, productivity, cost of production, price realized by members and profitability and suggest remedial measures for the betterment of INDCO tea factories. All these issues were probed and the following findings were drawn by means of a systematic analysis.

7.3 General performance of INDCO tea factories

Majority of the INDCO tea factories (60 per cent) were existence for long and their life span extended over to a few decades. The membership of the INDCO tea factories increased from 19,714 during 1997-98 to 20,241 during 2006-07 (an increase of 2.6 percent). The annual average membership was 1349. The membership position showed a fluctuating trend and the trends of active members was either declining or stagnant. The main reasons for such a state of affairs are mushrooming of private agents who gave liberal cash advance to small tea growers including the members of INDCO tea factories. These limitations are experienced by majority of the INDCO tea factories. A linear trend of membership Y=103.13+ - 0.11x was found and was negative but marginal. There were 50,408 small tea growers in the district. About 72.3 per cent of the small tea growers (36,430) belonged to be small and marginal farmer category. As much as 40.2 per cent of the (20,241) small tea growers were the members of INDCO tea factories.

The share capital of INDCO tea factories increased from Rs.911.42 lakh during 1997-98 to Rs.1156.21 lakh during 2006-07, representing an increase of 21.03 per cent. The annual average of share capital position worked out to Rs.77.08 lakh. The maximum and minimum share capital position was Rs.136.07 lakhs and Rs.27.86 lakhs respectively. A linear growth rate of Y=114.89 +2.56 x was found. The growth of share
capital was marginal. An increasing trend was noticed in total reserves also though it was meager. It increased from Rs.94.82 lakh to Rs.112.17 lakhs during the study period (an increase of Rs.20.35 lakhs only). The major portion of the reserve fund was invested in the INDCOSERVE and the rest were utilized for the business operation with the special permission obtained from Director of Industries and Commerce, Chennai. A linear growth rate of \( Y = 100.26 + 1.65x \) was found out, which implies a marginal growth rate.

The INDCO tea factories collected thrift deposits from the members at the rate of Rs.0.05 per kg of green leaves supplied. The amount so collected was deposited in the members' account as term deposit in the post offices for one year. Every year the thrift deposit was repaid to the members during last week of every December to celebrate their community festival. All the INDCO tea factories were acting as motivators to promote small savings which is one of their special features. Besides, the INDCO tea factories collected security deposit from its employees. The staff security deposit had increased from Rs. 1,35,000 during 1997-98 to Rs. 1,72,000 during 2006-07 (an increase of Rs. 37,000 only). The annual average staff security deposit for the reference period was Rs.10,000 only.

All the INDCO tea factories availed investment loans and subsidies under various schemes like Quality Up-gradation Programme, Special Purpose Tea Fund, Hill Area Development Programme and factory development loans from NCDC. All the INDCO tea factories availed cash credit facilities from Coonoor and Gudalur branches of TAICO Bank, Chennai. The total borrowings of the INDCO tea factories had increased from Rs.1109.69 lakh to Rs.1610.67 lakh during the study period which represents an increase of 32.3 percent. (Table 3.3) The proportion of borrowings to the total working capital ranged between 52.91 per cent and 56.07 per cent during the study period. A linear growth rate of \( Y = 16.66 + 12.17x \) was worked out. It is evident that the linear rate of growth in its borrowings was high. The working capital increased from Rs.2158.47 lakh during 1997-98 to Rs.2889.05 lakh during the study period, an increase of Rs.730.58 lakh. Major portion of the capital was deployed as investment capital. A linear growth rate of \( Y = 146.28 + 11.24x \) was computed which represent a high growth rate in the capital employed.
7.4 Business performance of INDCO tea factories

The total value of input supply increased from Rs. 277.69 lakh to Rs.291.43 lakh during the study period (an increase of 4.95 per cent). The linear rate of growth of input supply was $Y = 103.59 + 1.11 x$ which implies a sluggish growth. The arrival of green leaves was maximum during the first half of the year, that is during the months of May (59.29 lakh kg) followed by June (55.01 lakh kg) and July (46.77 lakh kg). Again the peak arrival was during September (48.10 lakh kg) followed by October (47.04 lakh kg) and November (45.45 lakh kg). It is observed that the slack period of arrival was from December to March. During seasons the INDCO tea factories are implementing quota system of procurement from its members based on the proportion of green leaves supplied at lean seasons. The quota is fixed as three times of the quantity of green leaves supplied during lean seasons. It is found that the members who had more acreage of tea garden, supplied green leaves both to INDCO tea factories as well as to private agents or bought leaf factories to manage during rush seasons. It was found that in Gudalur region the supply of green leaves was high in monsoon season.

It is found that there are two seasons for the green leaves harvest. The first season starts in April and extends upto to June and the second season starts in September and remains till November. The seasonal variation indices indicated that the variation was relatively high during first season. However, the arrival was relatively low in the second season. The purchase of green leaves stood at 563.71 lakh kg during 1997-98 declined to 555.73 lakh kg during 2006-07 (a decrease of 13.7 per cent). The average annual green leaves purchase for the study period was 501.65 lakh kg. The production of made tea also declined from 142.98 lakh kg during 1997-98 to 145.53 lakh kg during the study period (a decline of 10.1 per cent). The average annual production of made tea was 137.59 lakh kg. The value of sales showed a fluctuating trend. The value of sales stood at Rs.5236.49 lakh kg with a sale average of Rs.37.54 per kg of made tea during 1997-98 and it increased to Rs.8,244.44 lakh kg during 1998-99 with a good sale average of Rs.56.89 per kg of made tea. It decreased to Rs.6681.35 lakh kg with a sale average of Rs. 45.00 per kg of made tea during 2006-07 (a decrease of 41.53 per cent).

Similarly, the price paid to members per kg of green leaves stood at Rs.6.60 during 1997-98. It increased to Rs.10.60 during 1998-99. But, it decreased in the succeeding years and stood at Rs.8.03 during 2006-07 owing to poor realization of sale
value for made tea. The profit earned was very meager during the study period. It stood at Rs.0.33 lakh during 1997-98 and had increased to Rs.14.16 during 2006-07. The annual average profit earned was Rs.3.08 lakh. Meanwhile, the accumulated loss had increased from Rs.606.14 lakh to Rs.2096.61 lakh during the study period (an increase of 76.34 per cent). The competitive pressure from bought leaf factories/private agents affected the arrival of green leaves from members fuelled by comparatively higher cost of production than the bought leaf factories and lower price realization for made tea resulted in heavy losses.

The staff pattern of INDCO tea factories consisted of administrative staff and permanent laborers including technical staff and non-technical skilled laborers on daily wage basis. The number of permanent members on the staff stood at 320 during 1997-98 which decreased to 152 during 2006-07 owing to the announcement of Voluntary Retirement Scheme proposed by Department of Industries and commerce, Government of Tamil Nadu. The strength of casual workers had been fluctuating. The establishment and contingencies stood at Rs.324.69 lakh during 1997-98 and the same had decreased to Rs.234.83 lakh during 2006-07 (a decrease of 38.26 per cent). A linear growth rate of Y = 89.57 + 3.65 x was found. The Ministry of Industries and Commerce Government of India introduced and implemented family insurance scheme for the members of INDCO tea factories and the same was extended to all the small tea growers. During the study period, 36 members benefited from this scheme to the tune of Rs.2, 70,000.

7.5 Dimensions of capacity utilization, productivity, cost of production, Price realized by members and profitability

7.5.1 Capacity utilization

The initial installed annual production capacity of all the INDCO tea factories was 153.00 lakh kg of made tea. It was expanded to 273.26 lakh kg of made tea (an addition of 120.26 lakh kg). Only 40.00 per cent of the INDCO tea factories were above the annual production capacity of 20 lakh kg of made tea. So, it is obvious that majority (60 per cent) of the INDCO tea factories were small with the annual production capacity below 20 lakh kg of made tea.

Capacity utilisations of the INDCO tea factories increased from 44.33 per cent to 53.26 per cent during the study period (an increase of 20.14 per cent). The average
capacity utilization was only 49.10 per cent. Salisbury INDCO tea factory had the highest capacity utilization (73.52 per cent) followed by Pandalur INDCO tea factory (65.97 per cent). Kaumbalam INDCO tea factory and Ebbanad INDCO tea factory had the lowest capacity utilization of 34.88 per cent and 34.83 per cent respectively. Hence, lay off was announced by both these INDCO tea factories for six months each during the study period. The capacity utilization was higher in the INDCO tea factories of Gudalur region. Majority (80 per cent) of the INDCO tea factories had utilized less than 60 per cent of its production capacity. Only 20 per cent of INDCO tea factories achieved more than 60 per cent capacity utilization which were big INDCO tea factories.

The average capacity utilization of small and big INDCO tea factories were 46.49 per cent and 50.79 per cent respectively. But, the rate of increase in capacity utilization was higher in small INDCO tea factories (20.16 per cent) than the big INDCO tea factories (18.20 per cent). Likewise, the average capacity utilization of old and new INDCO tea factories was 47.37 per cent and 51.99 per cent respectively. The rate of growth showed 12.99 per cent for old INDCO tea factories and 20.29 for new INDCO tea factories.

The average capacity utilization of INDCO tea factories in Coonoor region and Gudalur region were 43.76 per cent and 61.82 per cent respectively. The rate of growth of capacity utilization was higher (21.67 per cent) in Gudalur region when compared to Coonoor region (13.12 per cent). The smaller INDCO tea factories as well as new factories showed better performance in capacity utilization. Likewise, INDCO tea factories located in Gudalur region performed better.

### 7.5.2 Productivity

A good number (40 per cent) of INDCO tea factories achieved the productivity range between 26.01 per cent and 27.50 per cent during the study period. However, during 2002-03 and 2004-05 two factories declared lay off and their productivity was above 29.01 percent. On the other hand, the year-wise productivity showed a fluctuating trend. The productivity ranged between 26.17 per cent and 26.89 percent. The annual productivity was 26.89 per cent during 2003-04 and was 25.90 per cent during 2004-05 followed by 25.94 per cent during 2005-06. The average annual productivity was 26.22 per cent for the study period. The reasons attributed for the fluctuation in productivity
was lack of awareness among members to nurture their tea gardens as well as the supply of fine leaves to private agents or QLPC’s.

The productivity performance ranged between 25.90 per cent and 26.89 per cent during the study period. The average productivity performance was 26.22 per cent which is above the stipulated limit of 25.00 per cent. However, during 2004-05 and 2005-06 the productivity was closer to the stipulated norm. The productivity performance level of majority (80.00 per cent) of INDCO tea factories exceeds the stipulated norm (> 25.00 per cent). Only twenty per cent of the INDCO tea factories were below the stipulated level (< 25.00 per cent). The productivity of INDCO tea factories in Gudalur region was 24.74 per cent where as it was 26.63 per cent in Coonoor region. In case of size and age of INDCO tea factories, the productivity was fluctuating. It was 26.85 per cent and 25.92 per cent for small and big INDCO tea factories respectively. Old and new INDCO tea factories showed the productivity level of 26.84 per cent and 25.97 per cent respectively.

7.5.3 Cost of production

The annual average cost of production per kg of made tea including green leaves cost for the study period was Rs.36.04 comprising raw material cost (Rs.21.57) followed by processing cost (Rs.10.33) which are the major components. The percentage of raw material component ranged between 59.91 per cent and 68.87 per cent. The percentage of processing cost component ranged between 24.96 per cent and 29.62 per cent during the study period. The realization price of made tea and arrival of green leaves are the critical cost centres in all the INDCO tea factories. The major share of cost of production was basic raw material (62.62 per cent) which was due to conversion ratio (4:1), lower price realization for made tea and poor quality of green leaves.

The average cost of production per kg of made tea excluding green leaves was Rs.13.62 and Rs.14.47 in big and old INDCO tea factories respectively. It was higher (Rs.15.37) in small INDCO tea factories followed by the INDCO tea factories of Gudalur region (Rs.14.48). If the quantity of arrival of green leaves is more the processing cost can be reduced to some extent.
7.5.4 Price realized by members

Major portion of the price realized for the made tea was received by the members for the quantity of green leaves supplied to INDCO tea factories. The small tea growers wanted a price which was commensurate with the existing market price. Even though the workable rate for the green leaves of members was below the market price, all the INDCO tea factories paid price which is equivalent to the prevailing market price. Obviously, it led to the financial burden affecting profitability. On the other hand, private agents and private bought leaf factories provided comparative price and at the same time exploited the small tea growers by way of under weighing the green leaves.

The average price realized for made tea was higher (Rs.40.71) in INDCO tea factories of Gudalur region whereas it was lower (Rs.35.29) in Conoor region. Similarly, big INDCO tea factories as well as new factories showed higher price realization (Rs.38.34 and Rs.37.35 respectively). On the other hand, small factories as well as old ones had lower price realizations (Rs.35.81 and Rs.35.80 respectively).

7.5.5 Profitability

Majority of the INDCO tea factories were running on loss during most of the years in the study period. Salisbury INDCO tea factory had good performance in getting profit when compared to all other factories. But, there was a turn-around during 2006-07, in which thirteen INDCO tea factories booked profit. It is found that on the one hand low price realization is the major cause for the loss. On the other hand adverse business result was mainly due to excess price paid to members for their green leaves. Hence, it is clear that the net loss was mainly due to excess price paid per kg of green leaves to members which is unavoidable. If the price realization for the made tea is higher they would be in a position to earn profit and make good the accumulated losses. The INDCO tea factories in Gudalur region had better profitability during the study period when compared to the INDCO tea factories in Coonoor region due to higher capacity utilization and better price realized for made tea. The average business loss of all the INDCO tea factories was Rs. 624.95 lakh. Big INDCO tea factories recorded better performance in terms of business result.
The size of the INDCO tea factory seems to be a noteworthy factor in deciding the performance. The big factories have shown better performance in all indicators except in respect of productivity in which the small factories have shown slightly better performance. Likewise, the new INDCO tea factories have shown better performance in all indicators except productivity, resulting in relatively better business result namely profitability. Similarly, the INDCO tea factories in Gudalur region are much better in capacity utilization and price realization for made tea as a result they achieved positive result in profitability.

Therefore, consistently good performance has been revealed in every aspects of performance by the big INDCO tea factories compared to small ones, by the new INDCO tea factories compared to old ones and by the INDCO tea factories in Gudalur region compared to those factories in Coonoor region. The existence of private bought leaf factories/private agents have negative effect on capacity utilization; whereas quantity of green leaves purchased, active members and price paid to the members have positive effect on increasing capacity utilization. However, the quantity of green leaves arrival significantly influenced the capacity utilization.

7.6 Analyses of variance

7.6.1 Capacity utilization

The multiple regression coefficient (R) value was 0.889, which indicated that there was a high correlation between the dependent variable capacity utilization and its related independent variables. The ‘F’ test value was 0.674, significant at 5 per cent level which indicated that capacity utilization was also significantly related to the set of independent variables. The R square value was 0.791 which was expressed in percentage as $R^2 = 79.1$. This means that 79.1 per cent of variation in capacity utilization was influenced by the set of independent variables.

The results of multiple correlation matrix states that the quantity of green leaves purchased (0.771**) significantly influenced the capacity utilization followed by price realized by members (0.701**) and the proportion of active members (0.636*). On the other hand, the variance with the findings in the existing literature between capacity utilization and the existence of private tea factories and agents were negatively correlated and not found significant. Even though there are number of private agents
and the private tea factories functioning in the area of operation of INDCO tea factories, they have not significantly influenced the capacity utilization.

The results of Friedman test indicate that significant difference does exist in capacity utilization across quantity of green leaves purchased, price realized by members, proportion of active members and the existence of private bought leaf factories/agents (chi-square = 46.238, p<.05). The arrival of green leaves is the best predictor of capacity utilization. So, every effort should be taken to increase the arrival of green leaves to the INDCO tea factories to optimize its capacity utilization. Hence, the hypothetical statement “capacity utilization of INDCO tea factories is influenced by the existence of private agents/ PBLF’s and price realized by members” is rejected.

7.6.2 Productivity

The wastage component, power consumption and fuel charges have positive effect on productivity but not to a significant extent. That means, wastage, power consumption and fuel charges were well within the limit. The quantity of wastage was well maintained and controlled in all the years of the study period. Elimination of the wastage while manufacturing tea would help to bring down cost. Standard stipulation of wastage allowed was two per cent of the total quantity of made tea. The percentage of wastage to the quantity of made tea was below 2 per cent. It ranged between 0.99 per cent and 0.19 per cent. The average wastage worked out to 0.23.

The multiple correlation coefficient (R) value was 0.399 which indicated that there was a low correlation between productivity and the set of independent variables. The ‘F’ test value was 0.070 at 5 per cent level which indicated that productivity is related but not significant extent to the set of independent variables. The R square value was 0.159 which was expressed in percentage as $R^2 = 15.9$ per cent. This means that only 15.9 per cent of variation in productivity was influenced by the set of independent variables.

Multiple correlation matrix results show that the power consumption, fuel charges and wastage component of sample units have a positive relationship with productivity but not significantly. The results of the Friedman test indicate that significant difference do exist in productivity across power consumption, fuel charges and wastage component (chi-square=26.533, p<.05). Power consumption is the best
predictor of productivity. Hence the hypothetical statement "Productivity is influenced by wastages and power consumption in INIDCO tea factories" is rejected.

7.6.3 Cost of production

The share of raw material component ranged between 59.91 per cent and 68.87 per cent and processing cost ranged between 24.96 per cent and 28.91 per cent of total cost of production. The realization price of made tea and arrival of green leaves were the critical cost centres in all the INDCO tea factories. The major share of cost of production was basic raw material (62.62 per cent) which was due to conversion ratio (4:1), lower price realization for made tea and poor quality of green leaves. The multiple regression coefficient value was 0.642, which indicated that there was a high correlation between cost of production and the set of independent variables. The F value was 1.000 at 5 per cent level which indicated that cost of production was related to the set of independent variables. The R square value was 0.412 which was expressed in percentage as R square = 41.2 per cent. This means 41.2 per cent of variation in cost of production was influenced by the set of independent variables.

The multiple correlation matrix results of cost of production shows that there exist a significant relationship between cost of production and its basic raw material i.e., green leaves (0.764**) followed by capacity utilization (0.645**). The results of the Friedman test indicate that significant difference do exist in cost of production across material cost, capacity utilization, processing cost, general overhead, selling and distribution cost (chi-square=74.324, p<.05). Material cost is the best predictor of cost of production. Hence, the hypothetical statement "cost of production(of INIDCO tea factories) is influenced by capacity utilization" is rejected

7.6.4 Price realized by members

The multiple regression coefficients (R) value was 0.904, which indicated that there was a high correlation between price realized by members and its related independent variables like auction price of made tea and productivity. The F value was 0.766 at 5 per cent level indicated that price realized by members is related to the set of independent variables. The R square value was 0.816 which was expressed in percentage as R square =81.6 per cent. This means that 81.6 per cent of variation in price realized by member was influenced by the set of independent variables.
The multiple correlation matrix results show that auction price for the made tea (0.838**) followed by productivity (0.755**) were significantly associated with the price realized by the members. The existence of private agents and private bought leaf factories are not significantly related with the price realized by members. The results of the Friedman test indicate that significant difference do exist in price realized by members across auction price, productivity, and existence of private tea factories/agents (chi-square=54.773, p<.05) Auction price for made tea is the best predictor of price realized by members. Hence, the hypothetical statement “Price realized by members is influenced by auction price of made tea “is accepted.

7.6.5 Profitability

Profitability had a positive significant relationship with the price realized by members. On the other hand, cost of production, productivity and capacity utilization had the positive relationship but not significant. The multiple correlation coefficient (R) value was 0.727 which indicated that there was high correlation between profitability and the set of independent variables. The ‘F’ test value was 0.341 at 5 per cent level indicated that profitability is not associated with the set of independent variables. The R square value was 0.529 which was expressed in percentage as R² =52.9 per cent. This means that 52.9 per cent of variation in profitability was influenced by the set of independent variables. The multiple correlation matrix results states that profitability was significantly correlated with price realized for made tea (0.817**) There exist a positive correlation between profitability and capacity utilization (0.665**). It was observed that both cost of production and capacity utilization (.754**) were influencing factors for profitability. It is inferred that effective measures should be taken to reduce the cost of production by increasing the capacity utilization. The losses incurred by the INDCO tea factories were mainly due to lower price realization for the made tea. So, steps should be taken to inculcate the practice of plucking fine leaves among the members and supply the same with higher prices.

The results of the Friedman test indicate that significant difference do exist in profitability across auction price, capacity utilization and cost of production (chi-square=59.253, p<.05). Productivity is the poor predictor of profitability. Auction price is the best predictor of profitability. The business results/profitability of INDCO tea
factories) influenced not only by capacity utilization but also by cost of production and lower price realization of made tea" is accepted.

7.7. Category-wise analysis

For the purpose of analysis, the INDCO tea factories were classified with three categories: On the basis of annual production capacity, as small and big, on the basis of dates of commencement of production as old and new and on the basis of geographical area and rainfall as Coonoor region and Gudalur region. Majority (73.33 per cent) of the INDCO tea factories were located in Coonoor region due to the existence of more number of small tea growers. The rest of the INDCO tea factories were located in Gudalur region. A good majority of the INDCO tea factories were small and old.

7.7.1 Capacity utilization category-wise

The multiple correlation matrix results show that the arrival of green leaves had significant correlation with capacity utilization irrespective of the size and age of the INDCO tea factories. The number of active members had significant correlation with capacity utilization only in respect of INDCO tea factories in Coonoor region. So, active involvement of members will lead to increase in the capacity utilization. There exists a significant relationship between the price realized by the members irrespective of the age of the factory. In case of both old and new INDCO tea factories capacity utilization could be increased through higher price paid to members. Whereas, the existence of PBLF’s / private agents were negatively correlated but not to a significant extent in all the categories of INDCO tea factories. The Friedman test results show that active members was the best predictor with capacity utilization irrespective of size, age and region of the INDCO tea factories followed by the arrival of green leaves. Price realized by members was also influenced the capacity utilization of all the INDCO tea factories irrespective of size, age and region. Existence of private bought leaf factories / agents had a least influence with the capacity utilization of INDCO tea factories. The Chi-square results confirmed that capacity utilization was significantly influenced by all its related independent variables irrespective of size, age and region of INDCO tea factories. On the other hand, the influence was best in big INDCO tea factories and least in old INDCO tea factories.
7.7.2. Productivity category-wise

The multiple correlation matrix result of productivity shows that power consumption, fuel charges and wastage component are positively correlated with the productivity of INDCO tea factories in Coonoor region. But the same was negatively correlated with the INDCO tea factories in Gudalur region but not significant. The wastage component was negatively correlated but not to a significant level with productivity irrespective of the size and age of INDCO tea factories in Gudalur region. Whereas small factories and the factories in Coonoor region it was not significantly correlated and positive. The Friedman tests result confirmed that significant difference do exist in the productivity across power consumption, fuel charges and wastage component irrespective of size, age and region of the INDCO tea factories. Wastage of material is the best predictor of productivity followed by power consumption and fuel charges in all the categories of INDCO tea factories. The chi-square results show that productivity had significantly influenced by independent variables irrespective of size, age and region of the INDCO tea factories. It was more in small, old and factories in Gudalur region. Productivity had the least influence in the case of new and factories in Coonoor region.

7.7.3 Cost of production category-wise

The multiple correlation matrix result shows that the material cost had significant correlation with cost of production irrespective of size, age and area of the INDCO tea factories. The processing cost had a significant correlation in small INDCO factories. In case of the factories in Gudalur region processing cost, overhead cost and selling and distribution cost had a significant correlation with cost of production. Capacity utilization had a significant correlation with the cost of production of old INDCO tea factories. In big INDCO tea factories, processing cost and general overhead cost had negative correlation.

The Friedman test results of cost of production state that significant difference do exist in the cost of production across material cost, processing cost, general overhead, selling and distribution cost and capacity utilization irrespective of the size, age and region of the INDCO tea factories. Selling and distribution cost is the best
predictor of cost of production and capacity utilization is the poor predictor followed by material cost and processing cost.

The chi-square results of cost of production had a significant influence with independent variables irrespective of size, age and region of INDCO tea factories. It had more influence on small, old and factories in Gudalur region. Cost of production has not much influenced in case of big and new factories and factories in Coonoor region.

7.7.4 Price realized by members category-wise

The multiple correlation matrix results of the price realized by the members had significant correlation with the auction price of made tea irrespective of the size of the INDCO tea factories. In case of old and the factories in Gudalur region also it is significantly correlated. At the same time, negative correlation with the price realized by the members irrespective of size, age and the region of INDCO tea factories was found.

The Friedman test results of the price realized by members indicate that significant difference do exist in price realized by members across auction price, productivity and existence of private bought leaf factories/private agents. Existence of private bought leaf factories is the best predictor of price realized by members. Auction price is the poor predictor of price realized by members followed by productivity. The chi square results of price realized by members also confirm that had a significant influence in all the categories of INDCO tea factories irrespective of size, age and region. The influence was high in the INDCO tea factories of Gudalur region followed by big and old INDCO tea factories. On the other hand, it was low in INDCO tea factories of Coonoor region.

7.7.5 Profitability category-wise

The multiple correlation matrix results of profitability show that the auction price had a significant negative correlation with profitability irrespective of the size and age of the INDCO tea factories. In case of small and old tea factories the price had a positive significant correlation with profitability, whereas it was negatively correlated with big and new INDCO tea factories. The Friedman test results of profitability showed a significant influence in all the categories of INDCO tea factories irrespective of size, age and region. The influence was high in the INDCO tea factories of Gudalur region followed by big and old INDCO tea factories. On the other hand, it was low in
INDCO tea factories of Coonoor region. The chi-square results show that profitability was significantly influenced by the independent variables in all the categories of INDCO tea factories. The influence was high in case factories in Gudalur region followed by old and small INDCO tea factories. The factories in Coonoor region had least influence followed by big and new factories in case of profitability.

7.7 Production and marketing practices of the respondents

Majority of the respondents among members and non member respondents are males. A majority belongs to middle age group. So far as women were concerned, elder women are found larger in number among members compared to women non member respondents. All the respondents belong to backward community namely ‘Badaga’ who are the single largest community in the district. By and large the literacy level of the respondents was high. Literates and persons with higher level of education are found more among member respondents as compared to non member respondents. This indicates that literates and persons with better education are more likely to be the members of INDCO tea factories. Majority of the respondents have a small family. Non member respondents are more likely to have a small family compared to member respondents. Agriculture including tea garden and vegetable cultivation were found to be the prominent occupation among the respondents as a whole. However, all the respondents owned tea garden and 34.84 per cent of the respondents also cultivate vegetables like potato, carrot etc., Dairying was widely prevalent subsidiary occupation of a good number of non member respondents compared to member respondents. Tea cultivation dominated the cropping pattern in around 70 per cent of the cultivable land.

The annual income of the majority of the respondents (60.32 per cent) ranged from Rs.50000 to Rs.1 lakh. Meanwhile, the annual income of 32.90 per cent of the respondent was below Rs.50000. The annual income a few respondents (1.93 per cent) were above Rs.1.5 lakh who are non members. All the respondents possess the tea garden. Majority of the respondents both among members (70.17 per cent) and non members (58.91 per cent) possess tea garden upto 3 acres. The average area of tea garden was higher among the non member respondents. Small and marginal farmers are more likely to be the members of INDCO tea factories. A good number of respondents (42.52 per cent) borrowed loans from cooperative banks, followed by private agents (29.44 per cent). A good number of member respondents availed institutional finance
when compared to non member respondents. Thus the member respondents have better access to institutional source of finance.

All the respondents were aware of the time and quantity application of fertilizers. Majority of the respondents (77.74 per cent) applied fertilizers 3 times in a year. It is noted that the awareness about the applications of inputs was much higher among the members than among the non member respondents. All the member respondents opined that the prices of fertilizers in INDCO tea factories are reasonable. Majority (54.94 per cent) of respondents were aware of the quality upgradation programme and field demonstration. The extent of awareness was moderate among the member respondents.

Majority of the respondents (52.26 per cent) were benefited from QUP. The member respondents were benefited less (37.02 per cent) when compared to non member respondents (73.64 per cent). Majority of the respondents (57.42 per cent) did not avail the pruning loans and subsidies. Among the member respondents, majority of them (67.96 per cent) did not avail the benefits. All the respondents opined that numbers of procedures are to be carried out for getting pruning loans and subsidies. Majority of the respondents (53.72 per cent) reported that they were handicapped with inadequate securities and lengthy procedures. Majority of the member respondents also reported similar reasons for not availing the benefits. Lack of capability and knowledge about such schemes, low income and small land holdings were their constraints to avail the loans and subsidies.

Overwhelming majority of the respondents (88.75 per cent) among the members (87.29 per cent) as well as non members (90.70 per cent) did not receive the farm guidance services. They reported that there is neither farm science clubs nor the demonstration plots in the selected villages. Majority of the respondents (65.16 per cent) harvested 3500 to 4000 kgs per acre. Meanwhile, 34.84 per cent of the respondents harvested more than 4000 kgs per acre. It was noted that productivity per acre of the member respondents was higher than that of the non member respondents. Member respondents were more knowledgeable in maintaining their tea garden than the non member respondents. The annual average yield per acre was found to be 4100 kg. Majority of the respondents (75.48 per cent) sold second grade green leaves at Rs.6 per kg, whereas only 24.52 percent of the respondents sold their green leaves to the maximum extent of Rs.15 per kg as they are plucking fine leaves. The minimum and the maximum prices received for the green leaves were Rs.4 and Rs.15 respectively per kg.
A good number of respondents (39.96 per cent) preferred private agents as the channel to sell green leaves. INDCO tea factories were preferred by 35.35 per cent of the member respondents. Quality leaves procurement centres run by self help groups and private tea factories were preferred by 13.23 per cent and 15.48 per cent of the respondents respectively. It was estimated that 48.62 per cent of the marketable surplus was handled by INDCO tea factories followed by private agents (45.25 per cent). The role played by INDCO tea factories in the purchase of green leaves from small tea growers was found to be relatively higher when compared with other marketing agencies. All the respondents had reported that the prices offered by the different market agencies are less but comparable. They viewed that both INDCO tea factories and private bought leaf factories offered same prices whereas in case of private agents it was Rs.0.50 less than the market price. All the respondents opined that there was a price advantage in selling through INDCO tea factories due to correct weighing of green leaves, whereas the private bought leaf factories and private agents indulge in under weighing. Majority of the respondents (58.39 per cent) were members of INDCO tea factories. Among the member respondents majority (56.35 per cent) had transacted with their INDCO tea factories. Only 43.65 per cent of the member respondents were not involved in the business affairs due to their indebtedness with the private agents and absence of fine leaves purchase by INDCO tea factories.

A good number of member respondents (39.78 per cent) joined the INDCO tea factories between ten to twenty years back. Meanwhile, 33.70 per cent of the member respondents were members for more than two decades. The average period of membership was nineteen years. Hence, membership drive should be strengthened to increase membership.

The member insurance scheme (a score of 102) was found to be the major reason for preferring INDCO tea factories for marketing their green leaves by the members. Correct weighing of green leaves in the INDCO tea factories ranked second, the score being 98. The other reasons for marketing green leaves to INDCO tea factories in the order of rank are negligible volume of rejection (score 95), encourage savings habit (score 95), procurement centre is nearer to the tea garden (score 74) and supply of household durables on credit (score 72). The indebtedness of small tea growers to agents was the major reason for the preference of private agents/private factories to sell their green leaves. The quota system at the seasons adopted by INDCO factories was the
main reason for the member respondents to divert their green leaves to private agents (score 120). In case of non member respondents wide range of services like free transportation of green leaves from the tea garden by the agents was the main reason for the supply of green leaves to them. Absence of purchase fine leaves by INDCO tea factories was also one of the main reasons for preferring private agents.

Conclusion

Under utilization of installed capacity, higher procurement price and high cost of production are considered important problems in majority of the INDCO tea factories. Low level of active members, poor quality of green leaves supply and keen competition from private agents were also considered the problem faced by a few INDCO tea factories. Under utilization of installed capacity resulted in diseconomies of scale and high cost of production adversely affected the profitability of INDCO tea factories. The INDCO tea factories were run with formidable losses during the study period. The critical factors for the loss were low price realization of made tea and excess price paid to members for their green leaves. However, earning of profit is not considered sufficient to sustain the status of INDCO tea factories. But, it is a necessary condition for them to improve the quality of made tea so as to attract sales in the competitive environment.

SUGGESTIONS

On the basis of the findings of this study, the following suggestions are offered to improve the business performance and service effectiveness of the INDCO tea factories so as to augment their profit and economic viability.

Coverage of more members

There were 50,408 tea growers in the district. About 72.3 per cent of the tea growers (36,430) were found to be small and marginal. 55.6 per cent of the (20,241) small tea growers were covered under the membership fold of INDCO tea factories. So, there is scope for enrolling more membership. Since the Nilgiris district comprises villages with a single dominant community (i.e. badaga), the village leaders may be contacted by the INDCO tea factories in their service area and membership drive can be made to bring those non members under its membership fold.
Increasing proportion of active membership

The membership of the INDCO tea factories increased from 19,714 to 20,241 during the study period (an increase of 2.6 percent). The membership position showed a fluctuating trend and the proportion of active members was either declining or stagnant. Active membership means more of transaction and increased proportion of active membership can ensure increased capacity utilization. So, attempts should be made to enroll new members, retain existing members and improve the active members. Propaganda, personal contacts and dispensation of efficient services can motivate the members to be more active and involved towards the INDCO tea factories. Self Help Groups may also be admitted as members.

Opening new procurement centres

The area covered by each procurement centres of the INDCO tea factories reported to be wider and lack easy accessibility to the tea gardens of small tea growers. Since, green leaves procurement is the core activity of INDCO tea factories with increasingly competitive challenges from private agents, new procurement centres should be established in prospective villages or the vicinity of the tea gardens of small tea growers. It enables and encourages the small tea growers to become members and enhance the arrival of adequate green leaves. To solve the problems of inadequate arrival of green leaves during lean seasons INDCOSERVE or the INDCO tea factories may involve contract system of purchase even from non members on experimental basis.

Additional trough capacity

Majority (80 per cent) of the INDCO tea factories had utilized less than 60 per cent of its production capacity. Only 20 per cent of INDCO tea factories achieved more than 60 per cent of capacity utilization, and such factories were probably big INDCO tea factories. So, the trough capacity may be expanded in small INDCO tea factories in order to cope with the inflow of green leaves and manage during rush seasons.

Inter linkage or tie up arrangement among the INDCO tea factories

Adequate and regular arrival of green leaves alone will result an increased sustenance of capacity utilization. An arrangement for the transfer of excess green leaves purchased among the INDCO tea factories should be formulated and practised
through a strong network mechanism and tie up arrangement between them to maximize capacity utilization and avoid a situation where the purchase of green leaves is withheld.

**Institutional framework for advisory and extension services**

Small tea growers especially the members of the INDCO tea factories should follow modern cultivation practices and focus on productivity and ensure more arrival of green leaves. The INDCOSERVE may appoint agricultural officers to guide the members regarding improved cultivation practices at farm level. A separate form guidance department may be established for advisory and extension services to small tea growers. Farm science clubs or agricultural clinics may be established by INDCO tea factories at all the prominent centres to render technical advice on tea culture from time to time to its members.

**Development loans for pruning, re-plantation and subsidies**

Tea bushes over the age of fifty years resulting uneconomic low yield need to be uprooted and replaced by a new variety of tea. Tea Board and Nationalized banks should come forward to facilitate loans by giving subsidy for re-plantation under various schemes of Tea Board. The elaborate procedure and formalities prevalent for obtaining pruning loans and subsidies should be simplified. Special Purpose Tea Fund should be extended to small tea growers liberally to expand their area under tea.

**Quality of green leaves**

All efforts should be taken to procure good quality green leaves to get better sale average for made tea. However, none of the INDCO tea factories purchase fine leaves. A good number of member respondents (40.06 per cent) supplied fine leaves to PBLF’s, private agents and QLPC’s. So, INDCO tea factories should also purchase fine leaves at premium prices from its members as well as from self help groups.

**Economy of size**

The size of the INDCO tea factory is an important factor in deciding efficiency and performance. Since large size INDCO tea factories have greater scope for better performance, before establishing the INDCO tea factories the minimum efficient size
should be determined and the existing small INDCO tea factories may be helped to enhance the capacity.

**Modernization**

The findings revealed that new INDCO tea factories have better performance record. Therefore, a scheme of modernization of machineries and equipments should be drawn out and implemented for the benefit of the old factories with subsidy components of Tea Board of India.

**Cost reduction measures**

The major components of the cost of production were raw material cost and processing cost. While raw material cost is an essential element, cost control should be exercised in respect of costs other than raw material. Efforts must be taken to reduce the processing cost and overhead cost. The overhead cost components add burden to the INDCO tea factories since they contribute to the sizable portion of cost production. Simultaneously, the INDCO tea factories should increase its production capacity by adequate procurement of green leaves and thereby reduce the cost of production to some extent.

**Enhancing productivity**

The productivity performance of majority (80.00 per cent) of the INDCO tea factories exceeds the stipulated norms of 25.00 per cent (i.e., 26.22 per cent). Only a few INDCO tea factories showed poor performance (24.74 per cent), which are functioning in Gudalur region. The reasons attributed for the better performance in productivity were higher proportion of active members and supply of quality green leaves. It was found that the members of the INDCO tea factories in Gudalur region supplied only second grade green leaves which resulted in low recovery rate. So, strict quality control on basic raw material should always be maintained. However, differential price can be fixed for such better quality leaves. The INDCOSERVE should have an in-house maintenance section to look after the production plants of the affiliated INDCO tea factories. Increased productivity of the INDCO tea factories is essential to improve profitability.