Chapter 2

DESIGN OF THE STUDY

Introduction

An unique feature of tea industry in Tamil Nadu is the prevalence of a large number of small tea gardens. The total number of small lea growers in Nilgiris below eight acres is between 15000 and 20000. The average holding is about one hectare; the average yield is less than half of the larger producer\(^1\). The small tea estates are economically weak due to the combined effect of various factors. The small tea growers, by and large, were selling green leaves to the private bought leaf tea factories. The owners of such factories exploited the small tea growers through unscrupulous trade practices which include very low price, underweighment of the tea leaves, quality cuts, and delayed payments. In order to protect and promote the interests of the small tea growers especially in the area of ensuring remunerative price for their produce and to impart them technical knowledge on improved methods of tea cultivation the idea of establishing cooperative tea factory was conceived. Cooperative venture among the small tea growers was considered as more suitable for providing integrated services such as input supply, marketing, financing, technical training and research so as to increase the
productivity of the small tea growers and to fetch them the remunerative prices. Further, the problem of raising cost of cultivation would be difficult to be borne by the smaller units than by the larger ones. A solution to this problem lies in evolving a system of cooperation among several tea garden or collaboration between smaller units and a neighbouring larger counterpart.

The Plantation Enquiry Committee (1956) strongly favoured the idea of establishing tea factories in cooperative sector. The Committee on Tea Marketing (1978) strongly, recommended a separate track of attention to small growers by opening more cooperative tea factories in order to protect their interest and to improve price realization by the small growers. All these developments culminated in the birth of Kundah Industrial Cooperative Tea Factory popularly known as INDCO-1 at Yedakkad in Nilgiris District. The factory was registered in 1958 and commenced its commercial production in 1962. The principal objective of the factory was the promotion of common economic interests of small tea growers by providing facilities for marketing their products. The factory had the distinct merit of combining freedom and opportunity of the small men with the benefits of large scale management and organisation for bringing about a measure of prosperity. This cooperative venture was recognised as one of the most important institutional means for small tea growers to attain
economic development. Encouraged by the success of this venture, more number of tea factories were organised over a period of time. There are, at present 17 cooperative tea factories. The area covered by these tea factories is 30,000 hectares, which constitute around 61 per cent of the total area owned by the small tea growers.

The total membership of the factories in 1998-99 was 21,062. These factories procured 552.49 kgs. of green leaves and produced 141.62 lakhs kgs. of made tea. The total sales was 145.21 lakh kgs, the value of which was Rs.8,244.44 lakhs. The production of made tea of the cooperative tea factories constituted 13.18 per cent of the total production of made tea in Nilgiris District and their share in South India is 5.17. The cooperative tea factories has, thus, made a significant contribution to the tea industry in the country.

Statement of the Problem

The survival, continued existence and the sustainability of the cooperative tea factories largely depend on their effective service to their members which in turn hinges, among other things, on effective financial management. The financial management encompasses four functional areas namely, capital budget decision, capital structure decision, working capital decision, and surplus decision. The first two functional areas are quite important in any organisation and are
interrelated, but they are not routine in nature. Such decisions are not taken quite often. The last one may not pose much problem as surplus decision in cooperative organisation is largely influenced by the provisions of the Cooperative Societies Act. The working capital decision is a very crucial decision as it affects the day to day affairs of the organisation. The gross working capital (current assets) constituting 45 to 60 percent of the total assets in the cooperative tea factories requires serious attention, as it has its strong influence over the liquidity and profitability of the factories. Neglect of any one of the components of the current assets is likely to affect the profitability and also the liquidity of the factory. Hence, adequate attention need to be paid on the management of working capital. The key issues which need to be addressed are: How is working capital managed? Is there adequate or inadequate working capital? How is working capital financed? Is it financed by short term funds or long term funds? How are various components of working capital like cash, receivables and inventory managed? What is the influence of working capital on profitability? There are different working capital variables which do have influence on profitability. Which of the variables have influence over profitability? The study, by finding answers to these issues, would make an attempt to evaluate the management of working capital in cooperative tea factories. Such a study would throw more light on the management of working
capital in the selected factories and would also indicate strong and weak spots in the management of working capital. Hence the study.

Review of Related Studies

Many studies on working capital management have been undertaken. They are mostly related to private sector corporate enterprises in India. A few studies are also attempted on working capital management in cooperatives. All studies have mostly focussed on liquidity, adequacy or inadequacy of working capital, and impact of working capital on sales and profitability. Studies undertaken in corporate sector enterprises followed by studies attempted in cooperative sector are presented.

Debasish Sur: The study on working capital management of Colgate, Paimolive(India) Ltd, covering a period often years from 1980 to 1991 has primarily employed ratios to identify the components of working capital responsible for changes in working capital. Data for the study have been drawn from published annual reports of the company.

The findings of the study are: the liquidity position is poor; liquid assets were not sufficient to meet the short-term obligations; the major chunk of the current assets were invested in inventory; the
current assets to total assets have declined due to expansion modernisation; better management of debtors and a higher percentage of investments in cash has affected the profitability of the company.

Siddharth G.Das; The objective of the study is to ascertain the efficiency or otherwise of the use of working capital in relation to sales by the selected pharmaceutical firms. This study is confined to 15 large pharmaceutical companies in public sector covering a period of ten years. The data for the study have been collected from the "Bombay Stock Exchange Directories". The findings of the study are: i. all the firms registered a high working capital turnover which means greater efficiency in the employment of the working capital; ii. in all the cases the companies were active to assume risk and reduced the size of working capital in relation to sales which resulted in increase in the working capital turnover; and, iii. the companies have maintained only that size of working capital sufficient to the requirement of production and sales.

Debasish Banerjee and Manash Kumar Hazra: The authors have made an in-depth study of Grasim Industries, Gwalior, (a pioneer fibre industry) with particular reference to working capital management covering a period of 5 years (1985-86 to 1989-90). The objectives of the study are: i. analysis of the variation of working capital by preparing the comparative fund flow statements;
ii. examination of the sources of financing of working capital; iii. ascertaining the shortage or excess; iv. identification of the item of working capital responsible for changes in working capital and studying the relationship between sales and working capital.

The data for the study were gathered from Industry Analysis published in a Chartered Financial Analyst (Jan-Feb. 1991). Tools used for the analysis include percentages, averages, ratios, trend analysis, linear regression model and chi-square test. The study concluded that more than half of the total assets of the company (56 per cent) is of current assets and is used for the working capital purpose. The use of higher percentage of (41 per cent) long term funds for financing working capital imply greater risk taken by the company; the company has experienced either excess or shortages of working capital in all the years under study; a good proportion (65 per cent) of the company's current assets were invested outside the business as loans and advances; and even though the sales and working capital shows an increasing trend, the rate of growth in working capital was much higher than the growth rate of sales because the major portion of the companies short term assets were invested outside the business. As a result, the increasing trend in working capital doesn’t reflect in the trading results of the company.
Vijayakumar A. and A. Venkatachalam: The authors have made an attempt to study the impact of working capital on the profitability of a public sector sugar corporation in Tamil Nadu. For the purpose of establishing definite relationship between working capital ratios and profitability ratio, correlation analysis has been applied. A linear multiple regression model was used to identify the influence of profitability. The main findings are: i. the company has followed a moderate working capital policy as the current asset to total assets is little less than 50 per cent; ii. inventory constitutes 67 percent and loans advances formed 15 percent of the working capital; iii. the decreasing trend of long-term funds used for financing the working capital shows that the corporation utilised its long-term funds more effectively by investing them in fixed assets; iv. the company has experienced excess of working capital in all the years under study; v. the liquidity position of the corporation is satisfactory during the study period, as the current and liquidity ratios remained equal or above the standard norms throughout the period under review; vi. the average current ratios of Tamil Nadu Sugar Corporation stands at 2.39 for the entire period, (a standard of 2:1 is considered satisfactory); the liquid ratios of the Tamil Nadu Sugar Corporation has moved from 0.47 to 1.73 during the entire period (standard norm 1:1); the impact of working capital ratios on profitability showed both negative and positive trends; and, vii. the excess of current assets lias adversely affected the profitability of the corporation,
Indrasena Reddy P., and K. Someswar Rao: The prime objective of working capital management is to manage the firm's current assets and current liabilities in such a way that a satisfactory level of working capital is maintained. Working capital management policies have a great effect on a firm's liquidity and profitability. Keeping this background in view, an attempt is made to examine the working capital management practices in public enterprises by selecting Hindustan Cables Limited (HCL).

The main objective of the study is to measure the efficiency of HCL in the management of working capital over a period of five years ("1989-90 to 1993-94). The Study has revealed that the liquidity position of HCL is satisfactory as its liquidity ratios have been above the standard norms throughout the period of study. The turnover ratios have indicated that management of current assets has not resulted in improvement of sales. An important observation is that the proportion of debtors to current assets declined from 53.18 per cent to 41.79 per cent whereas the proportion of inventory to current assets increased from 37.12 per cent in 1989-90 to 41.99 per cent in 1991-92. Thereafter, a reversal in the trend was noticed indicating a sign of improvement in inventory management and a setback in the control over debtors. In other words, the advantages gained in working capital management from the declining share of inventory has been offset by the increasing share of debtors to total current assets.
Further, there has been changes in the amount of working capital of HCL from year to year. The study has concluded that the working capital management is not upto the expected level.

Basu, S.N.: The study with a focus on management of working capital has analysed the working capital of eight major tyre companies in India and its impact on profitability. The findings are: 1. the management of working capital of major tyre manufacturing companies needs to be improved from the view point of short-term obligations; and, ii. the companies’ profitability shows downward trend from 7.5 to 3.8 per cent because of increase in the selling price of tyres due to high cost of raw materials, power, coal and high incidence of tax.

Uma Subramaniam: Besides reviewing the financial performance of road transport corporation in Tamil Nadu, the study aims at analyzing the working capital position and utilization of the same in the sample transport corporation before and after bifurcation; it also aims at studying the factors which influence working capital position.

The results of the study indicated that there has been no improvement in the financial performance of either the parent corporation or in the off-shoots and the bifurcation has not brought any improvement in the liquidity position. Some Corporations have
used short-term funds to meet the long-term requirements. The utilization of working capital has not shown any significant changes even after bifurcation. A comparative study of factors both physical and financial influencing the size of working capital shows a negative figure in majority of the years thereby indicating inadequacy of current assets to meet current liabilities on which management has no control.

Radhe S. Pradhan: The study of financing pattern of working capital in Indian Industries has aimed at determining the size of short-term financing used to finance current assets and the distribution of short-term financing amongst its various components in the context of selected Indian industries.

This study is based on relevant financial data collected mostly from the balance sheets presented in "The stock Exchange official Directory of Bombay" covering seven industries viz., cement, coal and mining, paper, pulp and cardboard, electrical equipment and cables, food products, tea plantations and sugar and breweries. Each of these industries is represented by six companies.

The findings of the study reveal that the use of current liabilities in financing current assets varied widely across time. The author
concludes that major sources of short-term financing in Indian industries are loans and advances and sundry creditors.

Hyderabad, R.L. has made an attempt to evaluate the working capital investment and financing policies of 756 non-government and non-financial large public limited companies in India. The study utilized the RBI bulletin, September 1998 for its data base analysis and covered three years as study period. The study deals with current asset investment and financial policies of the selected companies. The findings of this study are: i. the majority of companies had a higher investment in current assets than in fixed assets; ii. a small figment of industries followed an aggressive policy; notable among them are tea, cement, electricity generation and supply concerns iii. financing approach of a large majority of companies have revealed the practice of excessive use of short-term funds/current liabilities; and iv. the companies with better current assets position have thrown to the wind the advantage by using short-term funds.

The researcher suggested that the companies should employ more of long term funds to improve overall working capital position and to monitor the level of current assets in order to avoid the risk of excessive investment in current assets.
Smith Beumont: in his study on "Modeling Associations between Working Capital and Operating Profit: Survey Findings" has covered 135 industrial firms listed on the Johannesburg Stock Exchange (JSE). The survey is based on secondary data covering a period of one decade. The author has applied step-wise forward regression analysis to model the underlying relationship between the working capital (independent variable) and operating profit (dependent variable). Coefficient of variation ($R^2$) were also used to assess how much of the variation in the dependent variable explained by the independent variable included in the regression equation. The author has found that step-wise forward regression indicated the traditional working capital leverage measure of total current liabilities divided by gross fund flow displayed the greatest association with operating profit.

Studies reviewed so for were in the corporate sector. Such studies were also carried out in cooperative sector. They are presented here.

Bishnupriya Mishra, The study on the management of working capital in the Orissa State Cooperative Milk Producers Federation (OMFED) during the period 1980-81 to 1987-88 has the prime objective of determining the quantum of working capital and its relation to the total assets of the federation. The other objectives are:
examining the sources of financing of working capital; estimating the extent of excess of or inadequacy of working capital; and identifying the factors responsible for the excess or inadequacy of working capital.

The study has revealed that investment in working capital in relation to the total investment was considerably low because of the lower capacity utilisation of the different factories managed by Orissa State Milk Producers Federation. The working capital financed through long term sources decreased from 65.9 percent in 1980-81 to 10.8 percent in 1984-85. It has subsequently increased to 19.3 percent and 20.5 percent in 1985-86 and 1986-87 respectively. It could be seen that the federation had not relied much on long term funds during the period 1983-84 to 1987-88; In 1982-83, 1984-85 to 1987-88 the federation had excess working capital than the normal requirements; whereas in 1980-81, 1981-82 and 1983-84 the federation suffered shortage of working capital and also the federation did not follow any uniform policy with regard to the determination of working capital investment.

Mohan, S: The focus of the study was on assessing the liquidity position of the cooperative spinning mills in TamilNadu. An important indicator of efficient management of working capital is the maintenance of adequate liquidity to meet the short term obligations as
and when they mature. Current and quick ratios have been calculated to measure the liquidity position of the selected mill.

The analysis of current and quick ratios among the selected mills indicates that the mills suffered from inadequacy of the working capital. The ratios that were calculated did not satisfy the standards prescribed. The liquidity of spinning mills was not sound and it is more critical in sick mills. There are many inadequacies in the practices followed by the cooperative spinning mills in working capital management. The reasons are: i. the selected mills functioned at the mercy of banks so the experts (financial experts/executives) had no say about the working capital practices; ii. more importance is given for inventory for allocating working capital to the mills, the allocation to the inventory is made in most cases according to the cost of production for a month; iii. all the mills have the negative net working capital because of operating and non-operating losses and utilisation of current funds for non-current requirements. This expedites the technical insolvency of the mills which indicates that there is no adequate control system and iv. the main symptom of inadequacy of working capital is the shortage of cash to meet the current obligations.

Mahesh Chand Garg: He has studied the working capital management in State Cooperative Marketing Federation of Rajasthan
(RAJFED) using ratio analysis. He concluded that the problem of working capital in Rajasthan Cooperative Marketing Federation has been mostly surplus investment in current assets like receivables and cash than of inadequacies. Long-term funds have been used in financing the working capital.

Narayanasamy, N:¹⁹ His study on factors influencing the relationship between capital structure and cost of capital in selected larger cooperatives in Tamil Nadu is confined to all the sugar and spinning mills in the cooperative sector in Tamil Nadu which commenced production prior to 1983-84. Though the primary objective was to understand the relationship between capital structure and cost of capital, it has also made an attempt to ascertain the liquidity of the mills. The study proved that the mills chosen suffers from poor liquidity position.

Murals, P:²⁰ He conducted a study on financial management in cooperative and private sector sugar mills in Andhra Pradesh. The study besides analysing the financial management practices in the selected mills has dealt in great length the management of working capital in cooperatives. The study revealed that the mills have not adopted any modern inventory control system for proper management of working capital. The study also revealed that inventory management, particularly the management of sugar in process and the
stores and spares items are not properly taken care of. Poor management practices were also witnessed in the management of cash and loans and advances.

Vijayakumar A, and A. Venkatachalam: Their study aimed at ascertaining the association of profitability with the working capital in 13 sugar mills of which 6 were in cooperative sector and 7 in private sector. The impact of working capital on profitability has been examined by computing co-efficient of correlation and regression between profitability ratio and working capital ratios namely; current ratio, liquidity ratio, working capital turnover ratio, inventory turnover ratio, cash turnover ratio and receivables turnover ratio.

The inferences of the study clearly revealed that liquidity ratio, inventory turnover ratio, receivables and cash turnover ratio influenced the profitability of the selected sugar mills in Tamil Nadu.

Studies on Cooperative Tea Factories

Sapre A. R, and K.CheUappam22 in their study on the cooperative tea factories in India made a comparative survey of the cooperative tea movement in Nilgiris in the temporal dimension.
The study came out with the finding that the coverage of cooperative tea factories was impressive. Out of the total area under tea cultivation by small tea growers, the cooperatives' coverage was 73.21 per cent. However, the cooperative coverage to total area under tea formed only 15.13 per cent.

The review of progress during the study period revealed that the cooperative tea factories had gone nearer to their members, and were offering technical guidance to them in regard to manuring, pruning, spraying insecticides, etc. They are also maintaining nurseries of their own and are supplying clones to their members at 50 per cent subsidy. Year after year the quantity and value of manure supplied to the members increased. The direct employment provided by these factories also increased significantly.

The study brought to limelight, the increasing cost of production in the cooperative tea factories, which rose from Rs.3.35 per kg. in 1968-69 to Rs. 14.54 per kg. in 1982-83. There had been a steady increase in the made tea production and the sale of made tea during the above period.

Case studies conducted by Ramakrishnan, Chellapan and Sapre identified under-utilisation of capacity as the principal factor which contributed for the cumulative loss in the cooperative tea
factories. The case studies also identified the reasons for under-utilisation of capacity which include drought conditions, disloyalty of members and fluctuation in leaf price.

Baluswami, N: in his study on operational efficiency of industrial cooperative tea factories in Tamilnadu has i) studied the operational efficiency of cooperative tea factories in Nilgiris, ii) examined the factors contributing to the operational efficiency of the factories, iii) evaluated the economic impact of the tea factories on member-growers. The study was confined to twelve cooperative tea factories in Nilgiris. The study also canvassed data from 100 members and 50 non-members of the factories.

The operational efficiency of the cooperative tea factories was ascertained from two angles viz., i) the enterprise aspect of cooperatives, ii) the associative aspects of cooperatives. The results of the study revealed that cooperative tea factories are operationally efficient in their enterprise aspect when compared to associative aspect. The mean average of compound index is 52.77. Hence the degree of efficiency of cooperative tea factories cannot be considered as of a high order. The relatively lesser degree of development in the associative aspect reflects the commercial orientation of these factories at the cost of cooperative character and indicates the absence of an integrated approach to cooperative development.
The study further revealed that productivity, business efficiency and efficiency in pricing are the principal factors which influence the operational efficiency of the factories. Together they contribute more than 90 per cent in the operational efficiency. Among the three, productivity was identified as the principal factor explaining 52 per cent of the operational efficiency.

Regarding the economic impact of the cooperative tea factories on the members, the study reported that there was no evidence to attribute the better economic condition entirely to the cooperative tea factories. The study however revealed that the economic impact of these factories was more visible among the members of better off sections as they have better access to the services of tea factories.

The studies done in cooperative sector includes cooperative banks, cooperative sugar factories and cooperative spinning mills. They are mostly undertaken to ascertain adequacy or inadequacy of working capital and sources of finance. Study undertaken in cooperative tea factories has its focus on assessing the operational efficiency. A comprehensive study on the various aspects of working capital management is not attempted in the cooperative tea factories. Hence, this study.
Scope of the Study

The present study has a focus on the management of working capital in the cooperative tea factories with particular reference to how the different components of working capital are managed and how they are financed. It also aims at estimating the working capital requirements of tea factories. The study has made an attempt to ascertain the association between components of working capital and the profitability.

Objectives of the Study

The present study aims at evaluating the efficiency in the management of working capital in the cooperative tea factories in Tamil Nadu. Management of working capital is a function of the performance of the business in respect of production and sales as well as strategy of financial management as evident in fund flow analysis. Therefore, the study includes a review of the performance of tea factories with regard to registered area, procurement, production and fund flow analysis. The specific objectives of the study are to:

i) measure the performance of tea factories in respect of registered area, capital structure, procurement, production, sales and profit;
ii). analyse the strategy of management in mobilisation and deployment of resources with the help of fund flow statements;

iii) estimate the requirements of gross working capital and net working capital for the factories and compare them with availability of working capital in the tea factories in order to gauge the adequacy of working capital in these factories;

iv) gauge the management of working capital with the help of operating cycle; and

v) examine the association between working capital ratios and operating profit of the factories.

Hypotheses

© High current ratio and quick ratio would lead to decrease in operating profit.

® High inventory turnover, receivables turnover, sales to net working capital turnover result in increase in operating profit.

© High long-term loan to working capital would lead to decrease in operating profit.

® High accounts receivable to accounts payable ratio would result in decrease in operating profit.
© There is an inverse relationship between current liabilities divided by gross funds flow and operating profit.

© There is an inverse relationship between cash conversion cycle and net trade cycle and operating profit.

® Comprehensive liquidity index is inversely related to operating profit.

© Net liquid balance to total assets is inversely related to operating profit.

Definition of the Concepts used

*Working Capital Management*: Working capital management refers to management of current assets and current liabilities and the relationship between the two.

*Performance*: Performance of factories would mean the ability of the factories to carry out various activities in relation to the objectives laid down.

*Traditional Working Capital Measures*: The traditional working capital measures include traditional working capital position ratios, traditional working capital activities ratios and traditional working capital leverage ratios.
*Alternative Working Capital Measures:* Alternative working capital measures include cash conversion cycle, net trade cycle, comprehensive liquidity index and net liquid balance divided by total assets.

*Operating Profit:* Operating Profit is equivalent to earnings before interest and taxes.

*Working Capital variables:* An important objective of the study is to find out the relationship between profitability and the various working capital variables that influence profitability. Four broad categories of working capital variables are considered. They are (i) traditional working capital position ratios, (ii) traditional working capital activity ratios, (iii) traditional working capital leverage ratios, and (iv) recently developed working capital measures of liquidity. In determining the relationship, operating profit was treated as dependent variable and the working capital variables have been treated as independent variables. (See Exhibit 2.1).
### Exhibit 2.1

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Independent Variable</th>
</tr>
</thead>
</table>
| Operating profit (Earnings before interest and taxes) | (1) Traditional Working Capital Position ratios  
  (a) Current ratio  
  (b) Quick ratio  

  (2) Traditional Working Capital Activity ratios  
  (a) Inventory turnover  
  (b) Accounts receivable turnover  
  (c) Accounts payable turnover  

  (3) Traditional Working Capital Leverage ratios  
  (a) Long term loan divided by net working capital  
  (b) Accounts receivable divided by accounts payable  
  (c) Total current liabilities divided by gross fund flow  
  (d) Sales divided by net working capital  

  (4) Recently developed working capital measures of liquidity  
  (a) Cash conversion cycle  
  (b) Net trade cycle  
  (c) Comprehensive liquidity Index  
  (d) Net liquid balance divided by total assets |
Methodology

The study is empirical in nature. Survey method was followed. Data requirements for the study were met by using both primary and secondary sources.

**Sampling:** The study is confined to cooperative tea factories in Tamil Nadu. There are 17 cooperative tea factories in Tamil Nadu. Of which, 15 were selected for the study. The criteria followed in selecting the factories was the age of the factories. The factories which were in the age bracket of less than three have not been considered, as they were comparatively young and may not be amenable for statistical analysis. The factories selected for the study are given in exhibit 2.2.

**Exhibit 2.2**

**Factories selected for the study**

<table>
<thead>
<tr>
<th>Name of the factory</th>
<th>Date of Registration</th>
<th>Date of commencement of Production</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kundah</td>
<td>29.09.1958</td>
<td>29.02.1962</td>
</tr>
<tr>
<td>Kotagiri</td>
<td>24.01.1962</td>
<td>19.03.1965</td>
</tr>
<tr>
<td>Karumbalam</td>
<td>19.03.1965</td>
<td>27.12.1966</td>
</tr>
<tr>
<td>Kilkothagiri</td>
<td>05.02.1965</td>
<td>26.12.1966</td>
</tr>
<tr>
<td>Mercunad</td>
<td>26.02.1965</td>
<td>20.05.1967</td>
</tr>
<tr>
<td>Mahalinga</td>
<td>19.03.1965</td>
<td>16.05.1967</td>
</tr>
<tr>
<td>Manjoor</td>
<td>26.02.1965</td>
<td>10.09.1967</td>
</tr>
<tr>
<td>Ithaiar</td>
<td>28.06.1965</td>
<td>15.09.1967</td>
</tr>
<tr>
<td>Pandalur</td>
<td>28.08.1966</td>
<td>27.10.1974</td>
</tr>
<tr>
<td>Salisbury</td>
<td>02.08.1980</td>
<td>05.09.1983</td>
</tr>
<tr>
<td>Frontier</td>
<td>23.06.1981</td>
<td>12.10.1986</td>
</tr>
<tr>
<td>Kinnakorai</td>
<td>22.02.1986</td>
<td>07.04.1989</td>
</tr>
<tr>
<td>Bikatty</td>
<td>02.05.1986</td>
<td>11.07.1991</td>
</tr>
</tbody>
</table>
Tools for the Data Collection: An interview schedule has been drafted and pretested, taking into account the objectives of the study. The schedule aims to canvas data on the performance of the cooperatives tea factories with reference to their objectives, membership, capital structure, procurement, production, sales, profit and influence of working capital variables on the operating profit of the cooperative tea factories.

Sources of Data: The study is based on primary as well as secondary data. The data related to origin, objectives, and various functions of the cooperative tea factories, policies related to procurement of tea leaves, production, sales, and management of working capital were gathered from the by-laws, annual reports and through personal interview with the Managing Director, Chief Accountant, Industrial Cooperatives Officer and Tea Maker. Data on production, sales, various forms of assets, liabilities, income and expenditure were drawn from the audit and annual reports of the factories.

Limitations: The study is not devoid of limitations. Though designed and executed well, the present study is confined only to the cooperative sector, and exclude public sector and private sector units including private 'bought leaf factories. Hence the results of the study may not be applicable to other sectors, though they are also engaged in
the processing of green leaves into made tea. Those units, other than cooperative factories had to be kept out of the purview of the present study due to several practical considerations and operational constraints more particularly the wide differences in size, ownership, resources, cost structure, management, employment, mode of operations and location and availability of data.

*Period Covered:* The study covered a period of ten years from 1987-88 to 1996-97.

*Frame Work of Analysis:* The study employed different statistical tools which range from simple statistical devices like averages, percentages, ratios etc to sophisticated techniques like regression analysis. Averages, percentages and ratios were used to analyze the performance of cooperative tea factories in Tamil Nadu with reference to indicators such as area registered, membership, pattern of funds, procurement, production, sales, profit etc. An attempt was also made to predict the soundness or otherwise of cooperatives tea factories using an index called Z-score developed by Altman.27 Strategy and tactics of management in mobilisation and application of resources has been studied with the help of fund flow analysis. Also, an attempt has been made to compare the requirements and availability of working capital in the factories under study.
Efficiency of the management of working capital has been gauged with the help of operating cycle of working capital.

The techniques employed to study the relationship between working capital measures and the operating profit ranged from simple descriptive statistical tool to complex techniques like correlation and regression analysis. Step-wise, forward regression analysis was undertaken to express the underlying relationship between working capital measures (independent variable) and operating profit (dependent variable). The co-efficient of variations ($R^2$) is used to know how much of the variations in the dependent variable is explained by the independent variable included in the regression analysis. The emphasis in the study was on determining association; hence independent variables in the regression models were used for explanatory and not for predictive purposes. The T test and 'F' statistics were applied to test the correlation and regression co-efficiency.

It must be noted here that while employing the fund flow analysis, estimating the working capital requirements and calculating the operating cycle, the fifteen cooperative tea factories have been categorised into five groups based on “area registered under tea” for each factory. The groups so formed are given below:
Group No. | Area registered Under tea | Factories which fall under each group
--- | --- | ---
1 | Less than 1000 | Bikatty,
2 | 1000-1500 | Karumpalam, Kinnakorai and Kilkothagiri
3 | 1500 - 2000 | Kotagiri, Manjoor and Mercunad
4 | 2000 - 2500 | Kundah, Ithalar, Kaikatty, Frontier Mahalinga and Pandalur
5 | Above 2500 | Kattabettu and Salisbury

The reason for selecting "registered area under tea" as a criterion for forming group is that it is a major factor in determining the production and other subsequent key activities of the factories.

To study the association between working capital variables and operating profit, the factories have been divided into four groups (see chapter 7 for details).
Organisation of the Study

The study comprises eight chapters.

Chapter 1 Provides an introduction to working capital management with particular reference to cooperatives. Chapter 2 deals with the design of the study. It discusses the problems under study, offers review of literature and lays down the methodology of the study. Chapter 3 dwells upon the performance of the cooperative tea factories and also predicts the success or otherwise of the cooperatives tea factories. Chapter 4 has its focus on strategy and tactics of management in mobilisation and application of resources using fund How analysis. Chapter 5 makes an attempt to estimate the working capital requirements of the tea factories. Chapter 6 deals with the operating cycle of cooperative tea factories. Chapter 7 examines the association between working capital variables and operating profit. Chapter 8 provides the summary of findings, conclusion and suggestions.
Reference


5. Ibid., p.1.


