Chapter – 5
RESEARCH METHODOLOGY

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Chapter – 5
RESEARCH METHODOLOGY

In the previous chapter the conceptual frame designed for the research for the evaluation of the working has been detailed in length. On the basis of the foundation of this conceptual framework the critical analysis is made for which a research methodology is used. This chapter include the details of sample survey of employees of the organisation, the strategy applied for primary survey, selection of sample size, the design of questionnaire aimed to achieve the objectives of the research and to test the hypothesis framed for research, the methodology of data collection and analysis chosen for study and the limitations of research.

5.1 Sample survey study and strategy for primary survey:

This research was conducted through two important research routes one through the primary data analysis that was done through the random sample survey by means of questionnaires, discussions, interviews with the executives of the organisation and the next through secondary data analysis of the study using balance sheets and other company documents viewed through the lens of ratio analysis, SWOT analysis and other important financial evaluating analysis.

Primary survey and selection of sample and sample size:

The primary data analysis was conducted on the sample study of executives (sample size of 160 technical executives out of the total number of 317 executives – middle level management cadre and a sample size of 70 staff out of total number of 140 admin staff members - totalling to 230 number of respondents) through discussions, interviews and questionnaire to their officers and executives in charge of management. A total sample of 230 respondents were considered from company; a good sample size (which is around 50% of the number of middle level managers as well as staff members) to know and study the working pattern of the financial and other organisational aspects of this company under questionnaire survey.
The Joint Directors and General Managers were interviewed and issues were discussed regarding, future plans, objectives, and opinions about the improvement and turnaround plans.

Table 5.1: Details of the sample size and stratification

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Executive cadre</th>
<th>Population</th>
<th>Sample</th>
<th>Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Engineers (site)</td>
<td>210</td>
<td>110</td>
<td>Supervisory</td>
</tr>
<tr>
<td>2.</td>
<td>Asst Directors</td>
<td>65</td>
<td>30</td>
<td>Middle level management.</td>
</tr>
<tr>
<td>3.</td>
<td>Deputy Directors</td>
<td>42</td>
<td>20</td>
<td>Higher Middle management.</td>
</tr>
<tr>
<td></td>
<td>Total:</td>
<td>317</td>
<td>160</td>
<td>Middle level mgt.</td>
</tr>
<tr>
<td>4.</td>
<td>Joint Directors</td>
<td>07</td>
<td>only for interview and discussion</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>General Manager</td>
<td>04</td>
<td>only for interview and discussion</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Admin – staff:</td>
<td>140</td>
<td>70</td>
<td>Clerical &amp; administrative staff.</td>
</tr>
</tbody>
</table>

(For questionnaire survey sample size is 160 no’s technical and 70 staff – total = 230 nos.).

The strategy adopted in the sample classification is site engineers (sample numbering 110) are taken and considered as supervisory cadre who are directly involved in the execution of the work. Assistant Director and Deputy directors (sample numbering 50) are taken in this research conducted as Middle level management cadre, who are responsible for translating the plans made at top management( Joint directors, General managers and Managing director) by suitable instructions and control systems. So the supervisory engineering sample of 110 numbers and middle level mangers sample of 50 and addition 70 number of staff
members randomly chosen were given questionnaires seeking their responses based on which survey interpretation is made and conclusions are arrived at.

Though the sample size is sizable considering the total statistical population, the sample of officials was randomly selected and questionnaire was designed and Likert’s scale of study of their preferences on hypothesis was taken in the research study done by the researcher. As the sample taken is around 50% of the total number of middle level managers and staff –admin members and the facts, preferences and opinions drawn will give a fair, equitable, conclusive and objective position of the company and its strengths, weakness and present working and operational efficiency levels to arrive at conclusions derived and envisaged at the end of thesis.

5.2 Data collection and analysis methods:

The data collected from the survey was stratified, averaged, studied and a proper analysis was made employing chi-square and t-test at suitable places in accordance with the data. Interpretations were made putting the hypothesis test Conclusions were drawn which are given in the next chapter.

The questionnaire survey had inbuilt features that throw light on contributing factors of the profit generation such as long-term vision plans, long-term financial planning, project-management techniques. Further other factors like general organisational working pattern, teamwork, satisfaction level of employees, their contribution in the decision making process, long-term vision plan were also accommodated in the questionnaire.

5.3 Primary and secondary data collection:

The primary data analysis was made by way of random sample survey through questionnaires, discussions and interviews with top-level, middle-level and supervisory level executives formed first step. The second one the secondary data analysis was done by way of analysis of balance sheets, other company documents. Ratio analysis embedded with statistical and SWOT analyses were employed to assess the overall execution and operational efficiency of the company.
The primary research study consists of questionnaire distribution to the selected executives of the organisation and responses were received. They were given the English version questionnaires. The inferences interpretations derived from them are presented in the next few pages.

The other sources of secondary data that were drawn into this research were those directly connected with the organisation. Besides the company balance sheets, other financial documents, indirectly connected like reports of the Committee on Public Undertakings (COPU), KSBPE, Various reports published from Government of India, RBI Bulletins and publications, Economics and Statistical department of Government of Karnataka, finance management text Books, management journals, research organization records and research magazines, conference proceedings, related web sites were taken into account. The above explained primary and secondary data analysis was conducted by the researcher to test the null hypothesis. The results of both the analyses were statistically tested; studied using graphs, charts, stratification techniques and suitable statistical analysis detailed in the next chapter and the final conclusions were drawn.

5.4 Questionnaire design strategy and objectives:

The present research study in its primary survey conducted by way of survey of 230 samples of personnel working is classified and has been shown in the table. They were supplied simple questionnaires (shown in the next pages) and were interviewed on random basis for cross-verification.

The data was collected keeping in view the analysis, parameters of interpretation, suitable stratification required for final suggestions and conclusions such as the classification of the total random sample of 230 involving 160 technical respondents (110 Engineers, 30 Assistant Directors and 20 Deputy Directors and non-technical Administration staff of 70 numbers). The researcher wanted to elicit their preferences with regard to the objectives and hypothesis of research collectively as well as severally. So the stratification was maintained in the questionnaire level itself.
Those belonging to top management levels (decision making for diversification, governmental contracts, turn around plans and strategies) like Joint Directors and General Managers were interviewed. A finer understanding of future plans and objectives and their preferences with regard to the research objectives and hypothesis were considered before the final conclusions were drawn.

The results were then summarized, stratified and averaged using statistical methods and interpreted using charts, tables and statistical tools to arrive at final conclusions.

The questionnaire design was based on finding of the following:

1. The methods of evaluation that are used presently internally.
2. The working pattern
3. The present financial Management practices
4. The impact of organizational policy on financial performance.
5. The ways and means for improving its funding position
6. The working capital management
7. The ways for improving profitability of the organization
8. The appropriate organisational of re-structuring to improve the performance.

The questionnaire focused on the testing the hypotheses which are null hypothesis defined in beginning of the research after specific discussions and interviews with the executives of the research organisation and based on the research objectives mentioned above.,

The survey intends to find the following:

a) Whether the executives are effectively utilizing the different methods of evaluation of company like swot analysis, 7-S analysis, PERT & CPM analysis for project monitoring, Porter’s Five Forces for industry analysis and value chain analysis.

b) Whether the organisational working pattern, human resource management practices are effective and result oriented.

c) Check whether poor HRM practices have lead to negative financial performance of company in recent years between 2004-2005 and 2007-2008.
d) Whether there is professional approach in managing funds of the company

e) Whether the implementation of an effective professional management will have a leverage effect on sound financial performance.

f) Whether the consultancy work taken up by the company in past two to three years are yielding profits and results and are supported by all executives.

g) Whether the existing financial management is yielding optimum results and profits or not. If not for question then whether there is any need for drastic changes in financial management and its policy to improve company profits and performance.

h) Whether the present operating efficiency levels are reasons for its losses.

i) Whether the working capital management practices are the reasons for successive losses

j) Reasons for profit in the present years and previous years?

k) Whether there is any impact of organizational policy on financial management on the financial performance of research organisation.

l) Whether the company needs a turn-around plan and long-term financial strategy to increase its operational efficiency and profit margins.

m) Whether the company needs new financial systems supported by prospective and future oriented financial policy for better profits and sustainability.

n) Whether frequent changes in managerial positions affected by governments have adverse effect on the performance of company.

o) Whether there any requirement of new organisational structure which is more flat and less bureaucratic and liberal will help the company deliver better efficiency and profits.

p) Whether there is “team-working and team–effort” among the technical executives of different cadres supported by top management executives to deliver optimum performance for the company

q) Whether the employees are happy and satisfied with the working conditions and other benefits so as to deliver their best for the company

r) Whether there are participatory management practices in decision process by all the technical staff to deliver their best and contribute to company.

s) Whether the long-term-vision-plans, long-term-financial plans are defined and practiced.
Questionnaire designed for the research

5.4.1 Design philosophy and methodology for questionnaire design of technical Personnel

As the research scholar interviewed only educated respondents (either Engineering diploma or Engineering degree holders who form the middle level and are higher middle level in the management cadre) the questionnaire was straightforward and addressed issues which were focused in the objective and hypotheses of the research.

The design of the Questionnaire to find the following aspects:

1. The level and degree of efficiency of the overall financial management financial policies, working capital management, reasons for losses etc.
2. The level and degree of efficiency in Human resource management like teamwork, employee satisfaction, working conditions, promotions, transfers, motivation, self-esteem, belongingness etc.
3. The degree of operational efficiency and effectiveness of the company, the degree of awareness, application and usage of self-evaluating systems such as ratio-analysis, SWOT analysis, PERT & CPM for project time control and cost control, 5-force model analysis to know the position of company with respect to competitors (public bidding for government contracts introduced by 2003 and its effects on order positions), value chain analysis, 6-S model self-analysis for improving system efficiency and effectiveness and introducing Business unit models and ISO certification systems.
4. Whether there was any vision based plans such as the turn-around plans, restructuring plans, new organisational structure plans and aspects about the total and holistic (level of working) of the organisation that would bring better operational efficiency to the organisation.

The questions are not divided on the above classifications, but the broad classification has been arrived at to streamline for interpretation, inference and conclusions of research.

Two types of questionnaire were designed for the purpose of present research, one for the technical personnel (sample size -160) focussing directly on the objectives
of the research and test the hypothesis designed and other one for both the staff and technical personnel (sample size- 70 + 160 =230 ) to check HRM practices of the company and evaluation of working. In this Questionnaire Likert scale of preferences were used to quantify the subjective answers of respondents.

5.4.2 The specific aim and objectives of the second questionnaire:

These questionnaires were basically directed at finding Human –relations, handling ability of the top-level management and overall HR Health of the organisation. This simple questionnaires were not only distributed to the 70 staff members among non-technical clerical / admin staff but also to the 160 technical executives to know their opinions about the HR issues – which is as important as any technical, production and financial aspects in deciding the working efficiency of an organisation.

5.5 Statistical methods applied

Descriptive statistics

The Descriptive procedure displays univariate summary statistics for several variables in a single table and calculates standardized values. Variables can be ordered by the size of their means. In the present study descriptive statistics were calculated for individual statements as well as the total scores for each component.

Frequencies

The Frequencies procedure provides statistics and graphical displays that are useful for describing many types of variables. The Frequencies procedure is a good place to start looking at data. In the present study frequencies and percentages were calculated for responses given by the sample respondents.

Crosstabs (Contingency coefficient test)

The Crosstabs procedure forms two-way and multi-way tables and provides a variety of tests and measures of association for two-way tables. The structure of the table and whether categories are ordered determine what test or measure to use. In the present study, contingency coefficient tests were applied to see the association between responses of respondents in different designations for each statement.
Chi-Square Test

The Chi-Square Test procedure tabulates a variable into categories and computes a chi-square statistic. This goodness-of-fit test compares the observed and expected frequencies in each category to test either that all categories contain the same proportion of values or that each category contains a user-specified proportion of values. In the present study chi-square test was applied to find out the difference between groups of responses (frequencies) for each statement.

One-Way ANOVA

The One-Way ANOVA procedure produces a one-way analysis of variance for a quantitative dependent variable by a single factor (independent) variable. Analysis of variance is used to test the hypothesis that several means are equal. This technique is an extension of the two-sample t test. In the present study one-way ANOVA was applied to find out the significance of difference between mean scores of Engineers, Assistant and Deputy Directors.

One sample t test

The One-Sample T Test procedure tests whether the mean of a single variable differs from a specified constant. In the present study, one sample t tests were applied to find out whether the obtained mean value from the respondents is significantly different from the standard value specified by the researcher.

All the statistical calculations were done through SPSS 16.0 (2007) for windows

5.6 Limitations of the research:

As the research and survey that was conducted was confined to the evaluation of the working of single unique state infrastructure development public sector organisation, the complete working pattern of financial management of this company through several methods of financial and other type of analysis were conducted with the help of sizable survey of primary data of the company supported by secondary data analysis of company financial and other documents.

The conclusions and suggestions drawn in this thesis could be extended to and adopted in other state public sector undertakings. But as the product and service delivered by other public sector undertakings are different there may be a need to look
into other parameters which are company specific and region specific before directly adopting the conclusions of present research. This is another limitation of the thesis.

The rules, government control systems and autonomy exercised by the governments on state PSU’s differ because of state industrial cultures and because of changing elected bodies. This also acts as one of the limitations in total adoption of the suggestions the researcher has given in this thesis to other state PSU’s. But definitely with a few adoptive changes the suggestions of this thesis could be implemented for the improvement of the state PSU’s and they will be useful in bringing about improvement in any kind of company.

With greater researches into other state PSU’s in Karnataka as a continuation to this in-depth study of single state sector, a comparative and conclusive models of improvement for their working can be found and there by contribution can be made to the development of the state and country.