CHAPTER III

Research Methodology

Highlights:

- Statement of Research Problem
- Research Objectives
- Research Hypothesis
- Sampling Design
- Research Instrument
- Data Collection Method
- Validity and Reliability Test
- Pattern of Analysis
- Limitation of Study
Chapter III  
Research Methodology

Previous chapter highlighted various causes of organizational decline and other aspects of turnaround concerning types of turnaround, turnaround strategies, performances, models etc. applicable for various types of organizations under different contexts. It also discussed various aspects of past studies conducted in the field of dairy. On the basis of the previous chapter, this chapter elaborates the statement of problems and mentions research objectives based on such problems. The chapter also emphasizes on formulation of hypothesis, designing research tool, data collection methods, validity-reliability test and limitations of the study.

Research methodology is the science and philosophy behind all research which goes into the heart of how we know what we know and allow us to understand the very strict constraints placed upon our concept of what knowledge actually is. The concepts that underpin this subject of methodology also enable us to become critical as well as analytical in the face of knowledge (John Adam, Hafiz, T. A. Khan, Robert Raeside and David White, 2007). However, the term methodology is also used in a rather more specific sense, as almost a synonym for research design. In this sense, it indicates the practical way in which the whole research project is organized. The overall methodological approach is carefully related to the aims of the study (Paul Oliver, 2008).

So, research methodology is the way to systematically solve the research problem. Why a research study is undertaken, how the research problem is defined, in what way and why the hypotheses are formulated, what type of data are collected and what particular method is adopted, why particular technique of analyzing data is employed and a host of similar other questions are usually answered when we talk of research methodology concerning a research problem or study (C. R. Kothari, 2004).

3.1 Statement of Research Problem:

The perspective of the study was the concept and theories of organizational decline and turnaround of declining organizations in the context of deep crisis situation of government organizations. Under this perspective the study was focused on the dairy industry of West Bengal on which industry much works have yet not been done. The dairy industry of West Bengal is mainly represented by 5- state government dairies, 1- joint venture dairy, and 1- co-operative based dairy of the state government along with few other private dairies. These 5 state dairies are: Haringhata Dairy, Central Dairy, Durgapur
Dairy, Burdwan Dairy and Krishnanagar Dairy. On the other hand, Metro Dairy Limited is the only joint venture dairy in the state with the partnership of the Government of West Bengal, Keventer Agro Limited and NDDB (presently ICICI). Mother Dairy Calcutta is the co-operative based dairy of the Government of West Bengal which was established and initially managed by the NDDB. However, presently it is managed by the Milk Federation after its take over by the state government in 1995. In addition to these dairies, there are some private dairies functioning in West Bengal. Thacker’s Dairy and AMUL are the leading private dairies in the arena of dairy business of West Bengal.

The milk market of West Bengal is estimated to have grown at above 6% growth rate per annum during last 5 years. Keeping parity with this growing market, the business performance of Metro Dairy Limited is gradually expanding. The Mother Dairy Calcutta is also maintaining its leading position in the dairy business in West Bengal. Even, the newly entrant private companies are also performing well. But the performance of the State Dairies is just opposite to the joint venture and cooperative dairies. The performance of these state government dairies is very frustrating with heavy losses for year after year. The severity of sickness of these dairies is now so acute that the survival of these dairy units has been critically threatened. Under this situation, the present study was conducted on the state government dairies, Metro Dairy Limited and Mother Dairy Calcutta i.e. between the ruined organizations and better functioning organizations.

Here, the research problem is to find out the basic causes / reasons for such organizational decline of the state government dairies as well as to find out the factors of corporate success for the Metro Dairy Limited and the Mother Dairy Calcutta. Whether there are any remedial actions / revival strategies for the state government dairies those can be formulated from the success story of Metro Dairy Limited and Mother Dairy Calcutta? Finding out the answers of all such questions is the real problem of this study.

3.2 Research Objectives:

The overall purpose of the research is to critically examine the key management functions of the state government dairies and to formulate / develop suitable turnaround strategies relevant under deep crisis situation. Therefore, the study focuses on the state government dairies, Metro Dairy Limited and the Mother Dairy Calcutta those are characteristically service providing organizations as well as manufacturing organizations. These state government dairies play a major role in the society by safeguarding the rural milk producers from exploitation by the middlemen and thus help them to get proper
prices for their produces. Simultaneously, these state government dairies ensure the interest of the consumers by providing clean, unadulterated milk and milk products on reasonable price. Apart from those, these dairies generate employment opportunities to the thousands of people directly and indirectly. In the perspective of such social aspects, the state government dairies are basically meant for greater social value than the corporate value. Unfortunately, due to various reasons the survival of these dairies has been severely threatened and thereby the social services those are usually performed by these dairies are being seriously hampered. Under this situation, two broad objectives of the study are basically fixed to revive these state government dairies. These are:

1. To find out the basic reasons / causes for organizational decline of the state government dairies by:
   - Critically examining the present status of the production processes of the state government dairies,
   - Evaluating the present status of the financial and cost control activities of the state government dairies,
   - Analyzing the present status of the marketing and distribution system followed by the state government dairies, and
   - Assessing properly the present status of the human resources management of the state government dairies.

2. To suggest / formulate remedial measures / actions for the state government dairies to turnaround them from their present critical state by:
   - Assessing the key organizational functions of the Metro Dairy Limited and then Mother Dairy Calcutta those are responsible for their corporate success,
   - Identifying the critical adverse internal factors faced by the state government dairies with help of a comparative study of such factors faced by the Metro Dairy Limited and the Mother Dairy Calcutta,
   - Diagnosing the critical adverse external factors faced by the state government dairies with the help of a comparative study of such factors faced by the Metro Dairy Limited and the Mother Dairy Calcutta, and
   - Understanding how the Metro Dairy Limited and the Mother Dairy Calcutta manage such adverse internal and external factors to keep them better functioning.
On the basis of Research Objectives

Formulation of Hypothesis

Designing Research Instrument (Questionnaire)

Pre-test (Pilot study)

Sampling Design

Conducting Test (Survey to the sample)

Data Analysis (t-test, Correlation, Regression)

Focus Group Interview (Physical verification of test findings)

Re-test (validity & Reliability test)

Interpretation & Generalization
3.3 Research Hypothesis:

A hypothesis is an assumption or claim about some characteristics of a population, which is tested to support or reject on the basis of empirical evidence. Null hypothesis is the presumption that is accepted as correct unless there is strong evidence against it. Therefore; the following hypotheses called non-directional were formulated to test the equality or inequality of relationship among the organizational parameters (Gaur & Gaur, 2009):

<table>
<thead>
<tr>
<th>Hypothesis (Ho)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>H01</td>
<td>There is no significant difference in the general administration and other management practices between the State Dairies and the Metro Dairy Limited.</td>
</tr>
<tr>
<td>H02</td>
<td>There is no significant difference in the general administration and other management practices between the State Dairies and the Mother Dairy Calcutta.</td>
</tr>
<tr>
<td>H03</td>
<td>There is no significant difference in the overall organizational performance between the State Dairies and the Metro Dairy Limited.</td>
</tr>
<tr>
<td>H04</td>
<td>There is no significant difference in the overall organizational performance between the State Dairies and the Mother Dairy Calcutta.</td>
</tr>
<tr>
<td>H05</td>
<td>Some critical adverse internal factors equally affect the organizational performances of the State Dairies and the Metro Dairy Limited.</td>
</tr>
<tr>
<td>H06</td>
<td>Some critical adverse internal factors equally affect the organizational performances of the State Dairies and the Mother Dairy Calcutta.</td>
</tr>
<tr>
<td>H07</td>
<td>Some critical adverse external factors equally affect the organizational performances of the State Dairies and the Metro Dairy Limited.</td>
</tr>
<tr>
<td>H08</td>
<td>Some critical adverse external factors equally affect the organizational performances of the State Dairies and the Mother Dairy Calcutta.</td>
</tr>
<tr>
<td>H09</td>
<td>Some relevant turnaround actions are equally required for the State Dairies and the Metro Dairy Limited in the context of their present organizational performances.</td>
</tr>
<tr>
<td>H10</td>
<td>Some relevant turnaround actions are equally required for the State Dairies and the Mother Dairy Calcutta in the context of their present organizational performances.</td>
</tr>
</tbody>
</table>
3.4 Sampling Design:

The study being a descriptive research adopted probability sampling based on statistical method (Boyd, Jr., Westfall & Stasch, 2002). The organizations of interest under the study were collectively the five State Government Dairies, the Metro Dairy Limited and the Mother Dairy Calcutta. Research populations of all these organizations were constituted with higher / senior level officers/managers, junior level officers/managers, technical officers and supervisors of the concerned dairies. Therefore, the research population of the state government dairies was constituted with the above categories of employees along with such categories of employees of Milk Federation since one state dairy (Krishnanagar Dairy) is presently run by the Milk Federation. Similarly, the research population in respect of Metro Dairy Limited was also constituted with the senior/higher level managers, middle level managers and junior level managers of the dairy. In respect of Mother Dairy Calcutta, the research population was constituted with senior / higher level managers, middle level managers and junior level managers / officers of the dairy.

Stratified random sampling design was adopted for sampling purpose of the research populations of these three categories of dairy organizations. In case of each dairy organization, the respective research population was sub-divided into two sub-populations called strata on the basis of their homogeneous nature of job status and job responsibility. One stratum of the state government dairies was formed with higher and middle level government officers including senior and middle level managers of the Milk Federation. The junior technical officers, supervisors of the State Dairies including junior managers of Milk Federation constituted other stratum of the research population of the state government dairy units.

Similarly, the research population of the Metro Dairy Limited was also sub-divided into two strata. One stratum was constituted with senior and middle level managers of the dairy while the other stratum was formed with the junior level managerial staff like senior executives and executives. In respect of Mother Dairy Calcutta, the population of interest for the research was also sub-divided into two strata. One stratum was constituted with the senior level and middle level managers while the other stratum was formed with the junior level managers and officers of the dairy. The stratification plan adopted just before conducting the main survey is hereby exhibited in the following page:
Table 3.2
Stratification of the Sample Dairy Organizations

<table>
<thead>
<tr>
<th>Sample Dairy Organization</th>
<th>Stratum - I</th>
<th>Stratum - II</th>
</tr>
</thead>
<tbody>
<tr>
<td>State Government Dairies</td>
<td>(i) Government officers of higher and middle level positions</td>
<td>(i) Junior level government officers and Dairy Supervisors</td>
</tr>
<tr>
<td></td>
<td>(ii) Senior and middle level managers of Milk Federation</td>
<td>(ii) Junior level managers of Milk Federation</td>
</tr>
<tr>
<td>Metro Dairy Limited</td>
<td>Senior level and middle level managers</td>
<td>Junior officers, Senior Executives &amp; Executives</td>
</tr>
<tr>
<td>Mother Dairy Calcutta</td>
<td>Senior level and middle level managers</td>
<td>Junior officers, Technical Officers and Superintendents</td>
</tr>
</tbody>
</table>

Sources: Respective Dairy sources

The employees’ lists of the aforesaid managerial cadres were treated as the respective sampling frames in respect of all the concerned dairies under study from which the sampling units were drawn. Actual strengths of such categories of employees of the concerned dairies which constituted the research populations are mentioned below:

Table 3.3
Population Size of the Sample Dairy Units

<table>
<thead>
<tr>
<th>Name of the Dairies</th>
<th>Population size of Stratum-I (Senior and middle level officers/managers)</th>
<th>Population size of stratum-II (Junior managers/officers etc)</th>
</tr>
</thead>
<tbody>
<tr>
<td>State Government Dairies</td>
<td>37</td>
<td>90</td>
</tr>
<tr>
<td>Metro Dairy Limited</td>
<td>13</td>
<td>26</td>
</tr>
<tr>
<td>Mother Dairy Calcutta</td>
<td>49</td>
<td>91</td>
</tr>
</tbody>
</table>

Source: Official sources of the Dairies

Determination of Sample Size:

It is revealed from the above table that the employees’ strengths of the concerned dairies; specifically, the strengths of the particular categories of employees which constituted the research populations of interest were very small. Since the sizes of the research populations (both stratum-I and stratum-II) of all the sample dairy organizations were very small, a convenient sampling process was adopted to determine
sample size which is somehow rare in the field of business research. The research plan adopted was to include all the elements of the respective research populations of the dairies under both the main study and re-test. On the basis of the said plan, sample sizes of the dairies for the main study were determined straightway by selecting sixty percent employees from the concerned research populations of the respective dairies which assured higher precision rate. According to the above plan, the respective sample sizes of the dairies for the main study are:

<table>
<thead>
<tr>
<th>Name the Dairies</th>
<th>State Dairies</th>
<th>Metro Dairy Limited</th>
<th>Mother Dairy Calcutta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employees' Strength</td>
<td>37</td>
<td>13</td>
<td>49</td>
</tr>
<tr>
<td>Sample size selected (60% of employees' strength)</td>
<td>22</td>
<td>8</td>
<td>29</td>
</tr>
<tr>
<td>Employees' Strength</td>
<td>90</td>
<td>26</td>
<td>91</td>
</tr>
<tr>
<td>Sample size selected (60% of employees' strength)</td>
<td>54</td>
<td>16</td>
<td>55</td>
</tr>
</tbody>
</table>

However, remaining forty percent of the populations of each of such dairy organizations were also selected straightway during re-test for validity and reliability of the research study.

**Selection of Sampling Units:**

Selection of sampling units for the samples of the dairies as presented in the above table was made by using random number table. The employees list of the higher/senior level government officers/managers including middle level officers/managers of the State Government Dairies and Milk Federation were considered for the sampling frame of stratum-I of the State Dairies (the managers/officers of the Milk Federation were included with the state government dairies on behalf of Krishnanagar Dairy since the dairy is presently looked after by the Milk Federation). For selection of 22 units from this frame, all elements were assigned the numbers of two digits serially numbered from 01 to 37. Then, starting from an arbitrary place in the random table, 22 two digit numbers were chosen from 01 to 37. The employees, thus selected constituted the sample for stratum-I of the state government dairies. In case of stratum-II of the state government dairies, 54
employees were selected from the sampling frame of 90 employees following the same procedure using random number table where the employees were serially numbered from 01 to 90. In similar way, 8 sampling units from stratum-I and 16 sampling units from stratum-II were selected for the samples of Metro Dairy Limited using random number table. 29 employees for the sample of stratum-I and 55 employees for the sample of stratum-II were selected for Mother Dairy Calcutta following the same procedure by using random number table.

However, it is fact that all the selected employees did not take part in the survey. There were still some employees who refused to participate in the survey. It is observed that 21 employees out of 22 took part in main survey from stratum I and 46 employees participated from stratum II out of 54 employees for the state government dairies. In respect of Metro Dairy Limited, all the selected employees of both stratum I and stratum II participated in the survey. Finally, in case of Mother Dairy Calcutta, 26 employees out of 29 took part from stratum I and 49 employees out of 55 selected employees participated from stratum II. On the basis of such participation of the sampling units in survey, the actual sample sizes of the dairies based on responses are mentioned below:

<table>
<thead>
<tr>
<th>Name the Dairy</th>
<th>Stratum I</th>
<th>Stratum II</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Selected</td>
<td>Respons e</td>
<td>Actual sample</td>
<td>Selected</td>
</tr>
<tr>
<td></td>
<td>Sample</td>
<td>Rate</td>
<td>size on the</td>
<td>Sample Size</td>
</tr>
<tr>
<td></td>
<td>size</td>
<td></td>
<td>basis of</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>responses</td>
<td></td>
</tr>
<tr>
<td>State Dairies</td>
<td>22</td>
<td>95.45%</td>
<td>21</td>
<td>54</td>
</tr>
<tr>
<td>Metro Dairy Limited</td>
<td>8</td>
<td>100%</td>
<td>8</td>
<td>16</td>
</tr>
<tr>
<td>Mother Dairy Calcutta</td>
<td>29</td>
<td>90%</td>
<td>26</td>
<td>55</td>
</tr>
</tbody>
</table>

3.5 Research Instrument:

The research instrument i.e. the data collection tool used in the study was a close ended, structured, non-disguised questionnaire. This particular type of data collection tool was adopted to measure the attitude of the research populations to meet research objectives. The term 'measure' here suggested the existence of precise attitudes which were susceptible to quantification. The manner in which the objectives were expressed
suggested a positivist epistemology which in turn leaded to use of measurement within a questionnaire (Paul Oliver, 2008).

The structured questionnaire was constructed with three parts viz. part-1, part-2 and part-3. Part-1 of the questionnaire was designed to collect the biographical details of the respondents. Part-2 of the questionnaire was constituted with six questions having five items (variables) in each question to examine the present status of the sample dairies. These questions covered key/main organizational functions of the dairies in terms of their management related functions, financial & cost control activities, human resources management, technical & operational activities and other miscellaneous activities. This part of the questionnaire was also used to measure the present organizational performances of the concerned dairies. Five point Likert type rating scale was used to measure the attitudes of the respondents. Five points were distributed among very good, good, average, poor and very poor choices where very good choice was given the highest score of 5 and very poor choice was given the least score of 1.

On the other hand, part 3 of the questionnaire was designed to diagnose the adverse critical factors (both internal and external) which stand against the organizational performances of the dairies and to suggest suitable remedial actions necessary for the organizations under their present situation. First two questions of this part having six items (variables) in each question were employed to assess the critical internal and critical external causes / factors faced by the dairies. Remaining four questions of this part with four items (variables) in each question were constructed to assess/suggest some relevant reviving actions for the dairies. Such actions covered some relevant areas of core organizational functions; like finance and cost control related actions; OD and HRD related actions; productivity, efficiency and quality related actions; and strategic / market related actions. Five point Likert type scale was considered at the time of designing this part to measure the attitudes of the respondents drawn from the respective research populations. The respondents were asked to mark a box matched with their personal agreement or disagreement about the statements related with the above functions. The attitude towards strongly agreed was provided with the highest score of 5 and strongly disagree choice was given the least score of 1. A copy of such questionnaire is annexed in the appendices of this thesis.

However, the content and designing of the constructed questionnaire was modified /developed to some extent with the help of a pilot study conducted on 24 employees (9-
employees from State Dairies, 5- employees from Metro Dairy Limited and 10- employees from Mother Dairy Calcutta) belonging to both stratum I and stratum II of the sample dairies before administering this questionnaire in the main survey.

3.6 Data Collection Method:

Two types of data i.e. both the secondary data and the primary data were collected for the purpose of the research. Two distinct types of procedure were adopted for collection of secondary data and primary data from the respective sources. Such as:

Collection of Secondary Data:

Since the State Government Dairies, the Metro Dairy Limited and the Mother Dairy Calcutta were the sample organizations under the study, the secondary data were explored from the relevant sources of the concerned dairies which provided necessary information about these dairies related with the research / study. These sources were:

(i) Published documents of the State Government of West Bengal containing necessary information about the sample dairies.

(ii) Published reports of the respective government departments (Department of Animal Resources Development, Department of Industry & Public Enterprises.

(iii) Statistical reports of the Government of West Bengal published by the Department of Animal Resources Development.

(iv) Other relevant publications including books, magazines and other periodicals.

(v) Technical and trade journals.

(vi) Own data archives of the sample dairy organizations,

(vii) Some other unpublished reports, status reports etc.

(viii) Website

Primary Data Collection:

The method of collecting primary data was different than the method of collecting secondary data. The sources of primary data were basically the research populations of the sample dairy organizations viz. the State Dairies (collectively), the Metro Dairy Limited and the Mother Dairy Calcutta. For the purpose of data collection, a structured questionnaire was designed and subsequently administered to the research units (i.e. respondents) drawn from the respective research populations of the selected samples of the dairy organizations under study. By face to face contact, the respondents were requested to
response questionnaire supplied to them at their working place with due permission of the concerned dairy authorities. However, before undertaking this process of such main survey, a suitable questionnaire was first designed and later developed with the help of pilot study conducted on a small group of employees drawn from the research populations of the sample dairies.

3.7 Validity & Reliability Test:

The validity and reliability tests were undertaken with the help of focus group interview and conducting re-test by administering the same questionnaire on the samples of remaining employees of the respective research populations of the concerned dairies. Such test was done to evaluate the measurements of the variables and to ensure the quality of research data, research design, methods and the overall accuracy of the result obtained in main study.

3.7.1 Focus Group Interview:

Morgan (1988) gives good advice on the running of focus groups which, as the name suggests, focuses on specific issues and is a favourite tool of the market researchers. The purpose of conducting focus group interview was the physical verification of the findings obtained in main survey. It helped the researcher to assess the representativeness of the original survey and to make correct interpretation. Three focus groups were constituted with 6 persons in each group those were drawn from both the sample dairy organizations and the private dairy organizations of West Bengal. However, a few persons of the group interview already took part in the main survey, but most of other people did not take part in the original survey. Focus group-I was formed with the higher / senior level officers and top level managers of the government dairies, joint sector dairies and private dairies. Group-2 was constituted with the dairy technologists and other industry experts in this field of both government and non-government organizations. Group-3 was formed with the representatives of all concerned employees associations and trade unions of the concerned dairies.

Focus group interviews were conducted separately on these three focus groups emphasizing the issues those were found striking in the original survey. The issues confronted in the interview covered the issues of existing management practices of the dairies, operational aspects of the dairies, productivity and employees' efficiency, profitability, marketing and product distribution, financial parameters, production status etc. The formation of three focus groups is mentioned in the following page:
Table 3.6
Formation of Focus Groups

<table>
<thead>
<tr>
<th>Focus Group</th>
<th>Group Members</th>
</tr>
</thead>
</table>
| Focus Group – I | 1. Milk Commissioner, West Bengal  
2. Additional Milk Commissioner (Project)  
3. Chief General Manager, Mother Dairy Calcutta  
4. Managing Director, Metro Dairy Limited  
5. Officer on Special Duty, Thacker Dairy  
6. Officer on Special Duty, AMUL |
| Focus Group – II | 1. Labour Welfare Officer, Haringhata Dairy  
2. Deputy Milk Commissioner (WB), Central Dairy  
3. Dairy Manager, Thacker Dairy  
4. General Manager, Metro Dairy Limited  
5. Manager (production), Mother Dairy Calcutta  
6. Head, PR & Corporate Communication of GCMPF for AMUL |
| Focus Group – III | 1. General Secretary, WB Dairy Development & Animal Husbandry Workers Union (State Co-ordination affiliated)  
2. General Secretary, WB Dairy Technologist Welfare Association (State Co-ordination Committee affiliated)  
3. President, W. B. Dairymen's Association – AH  
4. Secretary, Mother Dairy Employees Union  
5. Secretary, Metro Dairy Employees Union (CITU-affiliated)  
6. Representative of W. B. Directorate Employees Association (Co-ordination Committee affiliated) |

3.7.2 Re-test:

Same sampling method i.e. stratified random sampling method was adopted on remaining 40% of the research populations of the sample dairies for the purpose of re-test. The re-survey was conducted four months after the main survey. The same questionnaire was administered on the remaining members of the research populations belonging to stratum-I and stratum-II of the sample dairy organizations those constituted the samples for re-test. However, all the selected employees in the samples drawn from the State Dairies, Metro Dairy Limited and Mother Dairy Calcutta did not participate in survey. It is observed that 14 employees out of 15 took part from stratum-I in case of State Dairies while the respondent numbers for stratum-II were 32 out of 36. In respect of Metro Dairy Limited, all the selected employees from both stratum-I and stratum-II participated in the re-survey. In case of Mother Dairy Calcutta, the numbers of respondents from stratum-I was 18 out of 20 selected sampling units while it was 32 respondents out of 36 numbers of selected sampling units for stratum II.
Table 3.7
Sample Sizes of the Dairies in Re-Survey

<table>
<thead>
<tr>
<th>Name of the Dairies</th>
<th>Actual Population Size</th>
<th>Sample size in re-test</th>
<th>Actual sample Size on the basis of responses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Stratum-I</td>
<td>Stratum-II</td>
<td>Stratum-I</td>
</tr>
<tr>
<td>State Dairies</td>
<td>37</td>
<td>90</td>
<td>15</td>
</tr>
<tr>
<td>Metro Dairy Limited</td>
<td>13</td>
<td>26</td>
<td>5</td>
</tr>
<tr>
<td>Mother Dairy Calcutta</td>
<td>49</td>
<td>91</td>
<td>20</td>
</tr>
</tbody>
</table>

3.8 Pattern of Analysis:

Analysis of the study was done with the help of some statistical methods like descriptive statistics, independent sample t-test, bivariate correlation analysis and standard multiple regression analysis using SPSS. Such as:

**Descriptive Statistics:** Descriptive statistics were used to measure the central tendencies of the research variables which provide information about representativeness of the data set. Arithmetic mean (simply mean) was considered to summarize data with a view to observe comparative status of the research variables of the sample dairies as well as to conduct other statistical tests in a meaningful manner.

**Independent Sample t-test:** Independent sample t-test was conducted to test the null hypotheses formulated for the purpose of the study. Since such test is employed to compare between the means of two independent groups, the independent sample test was used to observe any significant differences between the State Dairies and Metro Dairy Limited as well as between the State Dairies and Mother Dairy Calcutta.

**Bivariate Correlation Analysis:** The correlation analysis was undertaken to measure the relationship between the independent variables and the dependent variable of the sample dairies under study. Practically, bivariate correlation was used to measure the strengths of relationship between the dependent variable (here, organizational performance of the dairies) and the independent variables (here, core organizational functions, adverse factors and proposed reviving actions).

**Standard Multiple Regressions:** Regression analysis was used to assess the relationship between one dependent variable (i.e. organizational performance) and several other independent variables (organizational functions, adverse factors etc.) in case of each of the sample dairies and to measure how strongly each independent variable predicted the dependent variable of the dairies.
Table 3.7 Sample Sizes of the Dairies in Re-Survey

<table>
<thead>
<tr>
<th>Name of the Dairies</th>
<th>Actual Population Size</th>
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<th>Actual sample Size on the basis of responses</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Stratum-I</td>
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<td>Stratum-I</td>
</tr>
<tr>
<td>State Dairies</td>
<td>37</td>
<td>90</td>
<td>15</td>
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<tr>
<td>Metro Dairy Limited</td>
<td>13</td>
<td>26</td>
<td>5</td>
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<tr>
<td>Mother Dairy Calcutta</td>
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<td>20</td>
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</tbody>
</table>

3.8 Pattern of Analysis:

Analysis of the study was done with the help of some statistical methods like descriptive statistics, independent sample t-test, bivariate correlation analysis and standard multiple regression analysis using SPSS. Such as:

**Descriptive Statistics:** Descriptive statistics were used to measure the central tendencies of the research variables which provide information about representativeness of the data set. Arithmetic mean (simply mean) was considered to summarize data with a view to observe comparative status of the research variables of the sample dairies as well as to conduct other statistical tests in a meaningful manner.

**Independent Sample t-test:** Independent sample t-test was conducted to test the null hypotheses formulated for the purpose of the study. Since such test is employed to compare between the means of two independent groups, the independent sample test was used to observe any significant differences between the State Dairies and Metro Dairy Limited as well as between the State Dairies and Mother Dairy Calcutta.

**Bivariate Correlation Analysis:** The correlation analysis was undertaken to measure the relationship between the independent variables and the dependent variable of the sample dairies under study. Practically, bivariate correlation was used to measure the strengths of relationship between the dependent variable (here, organizational performance of the dairies) and the independent variables (here, core organizational functions, adverse factors and proposed reviving actions).

**Standard Multiple Regressions:** Regression analysis was used to assess the relationship between one dependent variable (i.e. organizational performance) and several other independent variables (organizational functions, adverse factors etc.) in case of each of the sample dairies and to measure how strongly each independent variable predicted the dependent variable of the dairies.
1.7 Limitation of the Study:

Geographically, the study was limited with in the state of West Bengal. But from the view point of business aspect, the study was confined only in the dairy sector of the state. Since the research was focused on the effect of state government ownership with different shares on the organizational performance of the dairy units, the study was limited within State Dairies (100% ownership), Mother Dairy Calcutta (a state government project under co-operative set-up) and Metro Dairy Limited (joint venture with 47% government share). The private dairies operating in West Bengal were not basically considered in the study, though 2-such private dairies were included for comparison discussions in focus group interviews. Even, other co-operative based dairies of other states of the country were also not come under the purview of the study. No other joint venture dairy organizations within and outside the state were also studied in the research.

Apart from the above, the study was characteristically concerned with some specific groups of employees, particularly; the administrative and managerial employees like; higher and senior level government officers / dairy managers, middle level government officers / dairy managers and junior level government officers and managers of the State Dairies, Metro Dairy Limited and Mother Dairy Calcutta. Therefore, the other categories of employees of all the sample dairy organizations were not included in the study, although such categories of employees composed the major portion of staff strength of the respective dairies on consideration that they are lack of required level of knowledge and expertise about the industry. There was also no scope of study on other stakeholders like distributors, retailers, customers, raw materials suppliers etc. related with the sample dairy organizations and private dairies operating in the state of West Bengal.

Therefore, the purview of the study was limited with in the higher / senior level government officers / dairy managers including the middle level and junior level officers and managers of the State Dairies, the Metro Dairy Limited and the Mother Dairy Calcutta presently operating in the dairy industry in West Bengal.

Conclusion: The statement of research problems and the objectives of the research have been explained in this chapter. The chapter has dealt with research hypotheses, research tool, data collection methods, sampling design and validity – reliability test. Pattern of analysis and limitation of study have also been presented in this chapter.

On the basis of the research objectives, formulated hypotheses and other methodological approaches, the next chapter presents the analytical procedures and in detail.