Chapter 2

Research Methodology

In the present thesis, specific systems of quality management with reference to industries in Nashik are studied.

History of Nashik and its industries

Nashik has been a center of human population since Stone Age. The great sage and seer, Agasti Rishi lived on the banks of river Godavari. Shri Ram and Seeta had made Nashik their temporary abode during their years of banishment in the forest. Nashik had flourished in the reign of Samrat, Ashoka and the Satwahan kings. During the Mogul period, Nashik was named as Gulshanabad as it was famous for its roses. It was in 1757, that this name was changed to Nashik. The first municipality in Nashik was established at in 1864 and the first corporation came into being in 1882.

There are evidences in history showing that Nashik was industrially advanced from ancient times. Nashik district was known for the manufacturing of consumer articles right from brass and copper utensils, blankets, paper, silk Paithanis to silver and gold articles with fine designs. In 1882, a paper factory at Yeola and in 1933, a Sugar factory at Ravalgaon was established by the famous Walchand group industries. The first soap factory started in Nashik in 1936 and the same year witnessed the powerloom factories at Malegaon. The printing press of Government of India started at Gandhinagar in 1944.

But the Industrial development of Nashik took impetus with the M.I.D.C. allotting 101 Acres land for establishing industries. The famous Mig manufacturing factory of Ozar near Nashik was an outcome of that. At present, the industrial development on Nashik-Pune Highway is going to be
one of the greatest in Asia Continent. Also, Grape export has been an important agricultural trade in Nashik since 1991.

As per the definition Central Government – Industries up to 3 crores of investment on machinery are called small-scale industries. Around 8465 small-scale industries on temporary level and 10052 on permanent level have been registered in Nashik. Industries consist of agriculture based, forestry based, mineral, food, beverages industries, rubber and plastic industries, chemical industries, leather industries and electronics industries.

Large scale industries, which are apparently above 3 crores of investment in machinery, require industrial license from the Ministry of Industries, Government of India. Nashik Industrial estate boasts of 174 medium and large-scale industries providing employment to around 75834 people. Satpur, Ambad, Sinner Dindori, Peth, Vinchur Malegaon, Satana, Igatpuri and Manmad have been registered industrial estates of MIDC Nashik. Nashik Industries also have 12 industrial estates working on co-operative basis.


Nashik industrial estate is selected for research for the sake of convenience as well as due to its diversity.

When it was decided to conduct research, a survey of Nashik industries was conducted. It was found that most of the industries have implemented quality systems to improve the quality of their products, services or processes. Also they are keen in making the changes and innovations. Considering all these factors, Nashik industrial estate was selected for the study.
Study objectives

This essentially is an analytical study to understand systems of quality management adopted by the industries in Nashik. Following are the objectives of this study-

1. To identify quality systems adopted by different industries in Nashik.
2. To understand the methodology of implementation of each quality system selected for study.
3. To understand tools and techniques to implement these systems.
4. To analyze the performance of these systems.
5. To find out the ways to increase the effectiveness of these systems.
6. To find out the possibility of combining two or more systems at a particular stage, in certain aspects for better results.

Hypothesis

A statement of hypothesis indicates what a researcher proposes to do in relation to a particular topic or subject of enquiry. Hypothesis becomes the first and basic step towards the research. It is a primary or foundation steps for every sound and well directed research.

Quality management is the key for effective image Building. The institution that manages with the right quality prepositions improves its transactions, activities and overall system of management. It is rightly said that quality is not valued and it is priceless. It is in this context essential to know, how a particular institution adopts and implements quality management systems. It is equally essential to evaluate the type of quality management system implemented by these units and its relationship with overall business performance. This invites a need for serious research enquiry and to identify areas where quality management systems have proved effective or
otherwise. From this point of view, the researcher has formulated the following hypotheses:

H 1: Quality management system is the basic ingredient of success, which is still not properly implemented by the industries in Nashik.

H 2: There is a need to improve the overall functioning at the operational levels, for which quality management system is the ideal solution. However there is a gap in the perception of the management and the workers regarding the role and utility of quality management systems.

H 3: Most of the industries have adopted a piece meal approach towards improvement of quality at operational level. This has resulted into lack of proper understanding of quality system in its border context and in totality.

Selection of specific systems of Quality management
There are many systems of Quality Management like Total Quality Management [TQM], QCC, Small Group Activities [SGA], Kaizen. Total Productive Maintenance, Six Sigma, etc.
In the present thesis, I have studied four quality systems –
- Quality Control Circle, [QCC/QC]
- UNIDO
- Total productive maintenance [TPM]
- Six Sigma.

During the survey of Nashik industries, it is found that the system of quality circle, though old, has been rejuvenated in Nashik industrial estate and at this stage it was very interesting to study the results and effectiveness of this system and the changes (if any) taken place in the working of Quality Circle.
The other three quality systems studied here, that is UNIDO, TPM and Six Sigma are relatively latest quality systems and have been adopted by some industries in Nashik. It is that found these three systems have potential in them. Believing that the study of these three systems will be beneficial to the industries in Nashik in future, they have been included in this thesis.

One more important aspect of studying these systems is that the QCC has bottom up approach. It means they start at grass root level where the workers or machine operators join the circle voluntarily. Though management support is important for sustaining and successful working of Quality Circles, directives regarding the working of Quality Circle do not come from management. Whereas in case of other three systems studied here, there is top down approach. It means the top management decides to implement the system of TPM or/and Six Sigma or UNIDO and the directives regarding their working come from the management. In this different situation, it is important to study the different aspects of these systems.

Quality circles or Quality Control Circles [QCs/ QCCs] are found in many big, medium or small industries in Nashik.

UNIDO quality program is being implemented in one automobile industry in Nashik since Nov 2003 selected for the purpose. Because of its unique features it has been included in this research.

Total Productive Maintenance and Six Sigma systems of quality management are found in big manufacturing industries in Nashik since last few years.

All this systems run parallel to each other, each having its own methodology with an ultimate aim of improving the quality of product or service. Present study will help to understand the methodology of these systems, result achieved there by and their effectiveness in the given circumstances.
RESEARCH METHODOLOGY

For the purpose of the research, the universe of the study has a territorial limitations viz. Nashik city. In order to select a suitable sample, a random, stratified method of sample selection is used. The norms of sample selection are:

- Accessibility to the research
- Availability of data.
- Nature of management activities implied
- Size of the staff
- Relevance to the research topic
The researcher has used a mix of methodology data for collection. Considering the nature of the study, a variety of tools and instruments of data collection are used. This is necessary due to the fact that there are different and diversified respondent samples. A table explaining the data sources with their justifications is given below-

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Nature of respondent class</th>
<th>system</th>
<th>Tool of data collection</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>workers</td>
<td>QCC</td>
<td>Questionnaires</td>
<td>To collect comprehensive information</td>
</tr>
<tr>
<td>2</td>
<td>workers</td>
<td>QCC</td>
<td>Personal visits</td>
<td>To understand actual working of the units under study.</td>
</tr>
<tr>
<td>3</td>
<td>College Teachers</td>
<td>QCC</td>
<td>Questionnaires</td>
<td>They are running successfully in colleges.</td>
</tr>
<tr>
<td>4</td>
<td>Bank Employees</td>
<td>QCC</td>
<td>Personal interactions</td>
<td>To understand how exactly it is working in Service industry &amp; its performance.</td>
</tr>
<tr>
<td>5</td>
<td>Workers</td>
<td>TPM</td>
<td>Personal visits</td>
<td>To understand actual working in the plant.</td>
</tr>
<tr>
<td>6</td>
<td>Managers</td>
<td>TPM</td>
<td>Personal visits</td>
<td>To understand the edifice of TPM.</td>
</tr>
<tr>
<td>7</td>
<td>Managers</td>
<td>UNIDO</td>
<td>Personal visits</td>
<td>A latest method can be understood only after interactions.</td>
</tr>
<tr>
<td>8</td>
<td>Black belts</td>
<td>Six Sigma</td>
<td>Questionnaires</td>
<td>To understand the working, performance of Six Sigma.</td>
</tr>
<tr>
<td>9</td>
<td>Black belts</td>
<td>Six Sigma</td>
<td>Personal Visits</td>
<td>To understand their views regarding this latest tool as it is in its initial stages.</td>
</tr>
<tr>
<td>10</td>
<td>Six Sigma and other Quality consultant</td>
<td>Quality Systems</td>
<td>Personal interactions</td>
<td>To Analyze the importance &amp; future of these systems.</td>
</tr>
</tbody>
</table>
Secondary Sources were used to understand the methodology of QCC and Six Sigma as well as the information necessary to do and present the research. They are
1 Various Books
2 Magazines
3 Web Sites

The researcher assured the respondents of the secrecy and confidentiality of the data collected from them. Hence in the present thesis, the case studies are given only numbers.

The research work has been presented in the form of case study method. Case studies have been developed with reference to the organisations selected and the quality systems in this study implemented. The selected case studies have been presented in this thesis.