

CHAPTER ONE

Introduction

CHAPTER - I -

1.1. INTRODUCTION:

The present study deals with Foundry Industry, in the Industrial Estate, Sangli.

1.2. SIGNIFICANCE OF THE FOUNDRY INDUSTRY:

The art of the metal casting dates back to very ancient times. The rust-free Ashoka Pillars, standing in Delhi, the intricate designs of 'Panchaloka' idols, the various antiques at different museums in India, support this fact. Since the end of the Nineteenth century, 'Bengal Iron and Steel Company' began production of ferro-manganese in blast furnace followed by 'Tata Iron and Steel Company' in 1919. The engineering industry started its base of the metal casting art and got slowly converted into an industry to serve as an ancillary for engineering industry. At present, there are around 5800 numbers of foundry units operating in India. Out of these, 4100 units (70%) manufacture ferrous castings and about 1700 units manufacture non-ferrous castings.

Foundry Industry is considered to be the basic and parent industry for the development of engineering industry.

Foundry Industry caters to the demand for castings of twenty-one sectors.

1. Railways
2. Steel plants
3. Machinery
4. Industrial Machinery
5. Sugar plants.
6. Cement plants.

7. Paper pulp plants
8. Thermal power plants
9. Mining processing plant.
10. Earth Moving Machinery
11. Fertiliser chemical - petrochemical plants
12. Diesel engines
13. Automobiles
14. Agricultural process pumps
15. Valves
16. Electric Motors
17. Power distribution system
18. Machine Tools
19. Compressors
20. Public health engineering
21. Sawing Machines.

1.3. SCOPE OF THE STUDY:

The city of Sangli has acquired an important place from the point view of trading activities in South Maharashtra. Today, it is also trying to achieve importance in the small scale industrial sector. Hence a survey of the Foundry units established in the '**Industrial Estate Co-Operative Society Ltd., Sangli** has been undertaken in the study.

The study will cover the following aspects of the foundry business.:-

- 1) Marketing and Demand forecasting.
- 2) Production Capacity Utilisation.
- 3) Production Quality Control.
- 4) Financial Management.

5) Low - cost Modernisation.

6) Labour

The data, from various foundry units under survey has been collected upto the end of 1986.

The theoretical aspect will serve as the perspective and framework for the analysis of the field work data of the foundry units established in the Industrial Estate, Sangli.

1.4. OBJECTIVES OF THE STUDY:

The study was initiated keeping in view the following objectives :

1. To present an overall picture of the situation of the foundry units in the Industrial Estate, Sangli.
2. To ascertain the problems faced by the foundry units in the Industrial Estate, Sangli.
3. To explore the possibilities of finding solutions to these problems on the basis of analysis of discussion with the owners, managers, employers and others connected with these foundry units.

1.5. METHODOLOGY:

Methodology of this dissertation is basically that of Applied Research. There are two types of researches in social science i.e. Pure Research and Applied Research. Applied Research is pragmatic as it can test the theories or basic assumptions empirically and often takes the form of a field investigation. It aims at collecting the basic data for verifying the existing theories.

1.5.1. PRIMARY SOURCES:

This dissertation is an empirical study of the foundry units within a pre-defined scope.

The tools of interview, field survey, schedules questionnaire observation have been used to collect the data and information from the foundry units. The Proprietors of the foundry units along with their managers, supervisors were contacted and the problems related to the foundry industry were discussed with them.

Besides, officers of Small Industries Service Institute, (SISI), Kolhapur officers of Productivity Council Kolhapur officers of Industrial Estate, Sangli, Officers at District Industrial office, Sangli, have also been contacted. Apart from this a few raw material suppliers were also contacted.

1.5.2 SECONDARY SOURCES :

In the secondary sources, the data was collected through the library method for the theoretical aspects. The list of such books and material is given in Bibliography. The references are also indicated in the concerned chapters, at appropriate places (Footnotes etc.)

It was observed that the Industrial Estate, Sangli has six foundry units and these units are heterogeneous in character. A detailed study of all these units was undertaken. Information thus collected was then compiled, tabulated and analysed.

1.6 LIMITATIONS OF THE STUDY:-

1. As the foundry units belong to the private sector, initially there was some reluctance on the part of management to disclose information. After being assured that the information was being collected strictly for academic purposes and would be treated as entirely confidential, they extended full co-operation. Even so, the possibility

of some information being held back cannot be overlooked. An attempt has been made to overcome this limitation to the extent possible by applying suitable techniques.

2. It was possible to collect all necessary financial data of only one unit. The remaining foundries expressed their inability to disclose their confidential financial information. Therefore, the field work of financial management consists of the discussion of only one foundry unit. The conclusions about the financial matters therefore pertain only to foundry E. However, suggestions of a general nature about the other firms also have been made in the concluding chapter.
3. The limitation common to all Micro-analysis in social science is well known. The conclusions and suggestions with regard to a few units cannot be applied to the whole group. Therefore, the conclusions and observations of the study cannot be made directly applicable to the foundry business as such.

At the same time, under similar circumstances and environments it can be said that these conclusions may be applied with some discrimination. Further, with appropriate modification to suit the differences, in size, technology and other relevant factors, it is possible that that they could serve some useful purpose.

1.7. DEFINITION, OBJECTIVES, ORIGIN OF INDUSTRIAL ESTATE :

1.7.1 DEFINITION :- (1)

"An industrial estate is an attempt to provide, on a rental basis, good accomodation and other basic facilities, to groups of small entrepreneurs who would otherwise find it difficult to secure these facilities at a reasonable price."

1.7.2 OBJECTIVE OF THE INDUSTRIAL ESTATE :

The objectives, underlying the establishment of Industrial Estates in India are as follows :-

1. To encourage the growth of small scale industries.
2. To shift small scale industries from congested areas to the estate premises with a view to increasing their productivity.
3. To achieve decentralised development in small towns and large villages.
4. To encourage the growth of ancillary industries in the township, surrounding major industrial undertaking, both in public and private sector.

1.7.3. ORIGIN OF THE INDUSTRIAL ESTATE:

Industrial estates were first started in U.K. before world war-II (2). The success of industrial estates in U.K. induced the small Scale Industries Board in India to suggest the Government of India to establish industrial estates and accordingly, the first industrial estate was constructed at Rajkot.

(1) Dhar and Lydall, 'The Role of Small Enterprises in India Economic Development'. Asia publishing House, 1961.

(2) Dhar and Lydall, op. cit.

Maharashtra is one of the highly industrialised states in the country and it has developed the largest number of co-operative industrial estates.

1.8. THE SANGLI INDUSTRIAL ESTATE CO-OPERATIVE SOCIETY LTD., SANGLI.

The Sangli Industrial Estate Co-operative Ltd., Sangli, came into existence on the 4th October, 1960, with the combine efforts of the District Committee, Sangli, the Sangli Municipality and The Deccan Manufacturers' Association, Sangli, a view to creating employment opportunities for unskilled, semi skilled and skilled workers and to encourage entrepreneurship. (3)

The Industrial Estate has 153 small industrial units it, out of which six are foundry units. In the present study, the foundry units have been coded, in order to conceal their identity. The foundry units which were studied are :-

- 1) Bhide Associates Centricast Pvt. Ltd.,
- 2) Arunath Enterprises.
- 3) Kulkarni Engineering Associates Pvt.Ltd.
- 4) Anusuya Equipments.
- 5) Kanchan Industries.
- 6) Ganesh Metal works.

(3) 'Bye-Laws', The Sangli Industrial Estate Co.Operative Limited, Sangli.

1.9. THE FOUNDRY INDUSTRY - ITS MEANING AND OPERATIONS:(4)

1. DEFINITION:

It is process of metallic products, by melting the metal, pouring it into a cavity known as the mould, and allowing it to solidify. In this way the molten metal takes the shape of the mould. This product is then cleaned and machined to the desired dimensions.

2. BASIC STEPS IN THE CASTING PROCESS (5)

1. Designing and Pattern making.
2. Mould and Core making.
3. Melting and Pouring
4. Cleaning of the casting

The pattern is a model of the job and is made of suitable material. The success of the casting depends a lot on the quality and the design of the pattern. Wood, metal, plastic, wax or mercury are the common materials for pattern - making. The size of the pattern is never kept the same as that of the desired casting. Various allowances such as shrinkage, machining, draft, rapping, distortion, mould wall movement are given while making the pattern.

The next step is moulding. The mould Material can be metallic as well as non-metallic. Moulding sand is the

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- (4) West Thos D, American Foundry Practice' John Wiley and Sons, New York, 1960
- (5) Abramov G, 'Foundry Practices for Young Workers' MIR publishers, Moscow.
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most common mould material. The basic requirements of proper moulding sand are : refractoriness, permeability, green strength, dry strength, flowability, collapsibility. Sand binders, additives and water are the constituents of the moulding process.

Cores are the basis of sand and are required to form the hollow interiors of the castings.

Various types of furnaces are used for melting the metals. They are blast furnace, rotary furnace, pit furnace, cupola , arc furnace etc. Different temperatures are required for melting different metals, therefore, different types of furnaces are utilized. After the metals are melted, the molten metals are poured into moulds and cores and are left to solidify.

After the solidification of the molten metal in the moulding boxes, the next step is the cleaning of castings. The solid castings are taken out, are decored (if necessary) and are sent to the shake-out station where the sand is allowed to fall in a pit. The cleaning operation consists of mainly three operations namely: removal of dry sand cores, removal of extra parts like risers, sprues, gates and cleaning of the casting surface.

At this stage, foundry operations proper are over. The machining operations are undertaken at a machine-shop. It has been observed that many foundry units have their own machine shops, established on the same premises. However, as the scope of study is restricted only to the foundry activity, the activities of machine shop though complementary for the castings, have not been included

in the present study.

1.10. PLAN OF THE DISSERTATION:

The dissertation is divided into eight chapters.

The first chapter is introductory in nature. It explains the scope, the objectives and methodology of the study. It also includes a brief description of nature of the foundry operations.

The Second chapter deals with Marketing and Demand Forecasting. It explains the concept of strategic marketing planning i.e. planning, pricing, promoting and distributing a product. It explains the economic characteristics of the product, the requirements for demand forecastings, the techniques for forecasting, criteria for a good forecasting method and characteristics of foundry goods.

The third chapter, 'Production' Capacity Utilisation' explains various concepts of capacity and its measurement, such as Engineer's Approach and Economist's Approach.

The Fourth chapter 'Production: Quality Control' deals with meaning and definition of quality and how the quality can be improved and maintained in the actual foundry process. The chapter also explains the concept of 'Quality Circle'.

The Fifth chapter, 'Financial Management' deals with budgetary policy, break even analysis, investment policy and inventory control of a firm.

The Sixth chapter is devoted to Low Cost modernisation. It deals, inter alia, with concept and importance of modernisation.

The Seventh chapter deals with 'Labour' aspect. It explains methods of recruitment, methods of training, wages, and industrial disputes and settlement machinery.

The eighth chapter is devoted to Conclusions and Suggestions

All the chapter are divided . two parts, the first part is fully devoted to theoretical presentation and the second part, to the field work of the six foundry units. All chapters contain necessary diagrams, charts and tables.

The Bibliography has been appended at the end.