

A Case Study of Belagavi Foundry Cluster

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Abstract

Growth of foundry industry is considered to be a sign of growing economy in India, as many major industries like automotive, agriculture, power etc., depend on casting supply. India is the third largest manufacturer of casting in the world. The article highlights the status of foundry industry operating in Belagavi. The study also covers issues and challenges faced by the foundry industry. It is found that foundry industry in Belagavi is facing operational issues such as professional management, increasing cost of production, availability of skilled manpower to meet changing technology and many more. Authors have compiled the data using primary source as well as from secondary sources such as industry specific reports, magazines, and relevant websites and presented it in the form of research article. This research article provides readers, overview of foundry cluster in Belagavi and may also be used for further research work.

Keywords: Foundry, Foundry Industry, Foundry Cluster, Castings, Skilled manpower.

Introduction

India is known for metal castings from the time of Harappa Civilization (S. Ramnarayan, 1995). Foundry industry across the globe is considered as mother industry as most of the industries use components made out of metal castings in various forms. Foundry industry caters to sectors like Automobiles, Auto Components, Railways, Power, Tractor, Earth Moving Equipment, Pumps, and many other light and heavy engineering industries. Corresponding growth in foundry industry is vital to sustain growth in auto and other engineering sector. Foundry industry has huge potential to generate employment in India in coming years. Currently, the total direct employment in foundry industry is approximately five lakhs. Foundry industry, like other sectors has issues and challenges. Presently, the foundry industry is going through a tough time because of slowdown in manufacturing sector as reported by Financial Express. Belagavi is one of the major foundry hub in India and operating from more than 35 years. This paper highlights overall scenario of Indian foundry industry with special focus on foundries in Belagavi city.

Objectives of the Study

- To study foundry industry in India
- To study the profile of foundries in Belagavi
- To understand the issues and challenges faced by Belagavi foundries

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Literature Review

The research paper authored by Ramnarayan S (1995) discusses the history of Indian foundries. Author had conducted detailed study of 25 foundries to understand the functioning of foundries and hurdles faced by them in upgrading technology, which hold true even today.

Oudhia S. P, Metallurgist & Foundry Technologist has extensively written about foundry industry in Metal World magazines highlighting the state of Indian foundries and future ahead. His articles have provided factual information as well as analysis regarding business scenario for foundries.

The news articles from The Hindu, Financial express, and Business Standard have been referred to present the latest information regarding the industry. Industry specific reports such as

Indian Foundry Industry

According to Foundry Informatics Centre (FIC), there are approximately 5000 foundries operating in India, out of which more than 90% are classified under micro, small and medium enterprises. Rest of the foundries are large units. India is the third largest casting manufacturer in the world after China and USA. Nearly ten million tons of components are produced annually by the industry. Foundries are categorised in to two types ferrous and nonferrous. Annual turnover of the industry is about \$19 billion as per FIC including exports amounting to \$3 billion.

There are about 19 major foundry clusters in India, located in, Agra, Batala, Jalandhar, Ludhiana, Pune, Kolhapur, Sholapur, Rajkot, Mumbai, Ahmedabad, Belagavi, Coimbatore, Chennai, Hyderabad, Howrah, Kolkata, Indore, Faridabad, and Gurgaon. Clusters are known for the production of castings for typical end use markets such as auto components, mining, tractors, or pumps and valves.

Belgaum Foundry Cluster (BFC)

Belagavi is a major centre for foundry industry in Karnataka for the production of ferrous castings which, cater to the sectors like Pumps & Valves, Tractors, Automobiles, Machine tools etc. There are more than 150 foundries operating in Belagavi, which are classified under the category of Small, medium and large units. 1.6 Lakh tons of casting is produced per annum, worth INR 700 Cr. The foundry units at Belgaum are distributed by variety of end-use applications such as automotive/oil engines (31 %), Pumps/Valves (21%), Electric Motors (10%), Tractors/Agricultural implements (7%), Food processing 5% and others (26 %).

Belgaum Foundry Cluster (BFC) was formed in the Year 2004 with the support of Government of India, under the aegis leadership of Mr Ram Bhandare and other prominent foundry men from Belagavi. The Belgaum foundry cluster provides common facilities & eco-system to promote foundries in Belgaum. Vision of BFC is "To make Belgaum Foundry a global sourcing hub for casting and machine components" as stated in the brochure.

Objectives of Belagavi Foundry Cluster

- To support foundries in Belagavi and nearby areas to enhance effectiveness and competitiveness
- To achieve excellence through world class infrastructure for the growth of foundry units
- To make foundries internationally competitive
- To promote clean and green environment by facilitating to install Energy Efficient Pollution Control Equipment
- To provide training for developing skilled labour for foundries.
- To develop latest technology & common ERP and Simulation Software for the cluster

Important Features of Belagavi Foundry Cluster

- BFC ranks number one in the production of castings in Karnataka state.
- Among the top ten highest casting producers in India

- Export target of INR 350 Crores (on an average) achieved per annum
- Facility for Sand reclamation upto ten thousand tonnes per month

Major Facilities Provided by Belagavi Foundry Cluster

- Optical Emission Spectrometer for analysing chemical components in Metal casting
- 3D Co-ordinate measuring machine for inspection of casting with high accuracy measuring system
- Vertical machining centre
- Common Effluent Treatment Plant
- Training programme on Foundry Technology under skill development scheme for workers and supervisors in association with Gogte Institute of Technology, Belagavi
- Facilitating road construction in industrial areas

Issues and Challenges

The respondents expressed the following as some of the critical issues and challenges faced by foundries especially referring to small and medium scale units. These issues listed below, are also supported by the literature review carried out for the study.

- Lack of infrastructure
- Outdated technology in many small scale foundries
- Issues related to management of waste
- Increase in manpower expenses
- Challenges related to attracting and retaining skilled manpower
- Lack of availability of advanced foundry related training institutions for skill development
- Increased competition from global market and growing customer expectations
- Demand uncertainties due to slowdown in economy
- Issues related to productivity, quality and capacity utilization
- Lack of professionalism in management of foundries.

Sample Design

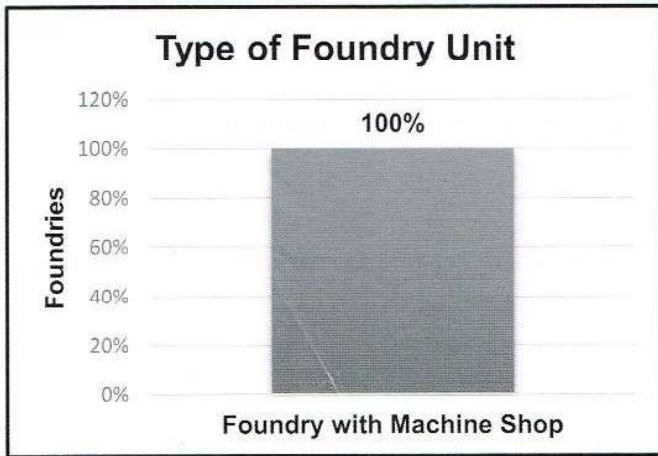
All foundries from Belagavi city were considered as population for the survey. To study the general profile of foundries, sampling frame of 155 foundries was prepared using the data provided by Belgaum Foundry Cluster, The Institute of Indian Foundry men (IIF)-Belagavi Chapter and data available on State Government agency websites to draw the sample. Since the defined population for survey is finite in nature, the sample size was calculated using the formula developed by Hogg and Tanis (Hogg R. V, Tanis E. A, 2009). Sample size considered for the study was 100 units. The persons responsible for managing the units and in some cases senior supervisors were the respondents who provided the required information.

Data Collection

Primary data was collected to understand profile of foundries in Belagavi in terms of type of foundry, classification of foundry by size, age of the foundries, employee strength, production of castings per annum, about quality certification etc. Field visits to foundries and discussion with few eminent foundry owners from Belagavi, which is one of the major foundry cluster in India, has provided critical information and understanding to authors regarding the industry scenario. The secondary data was collected from various sources like industry related magazines, reports and websites.

Data Analysis and Findings

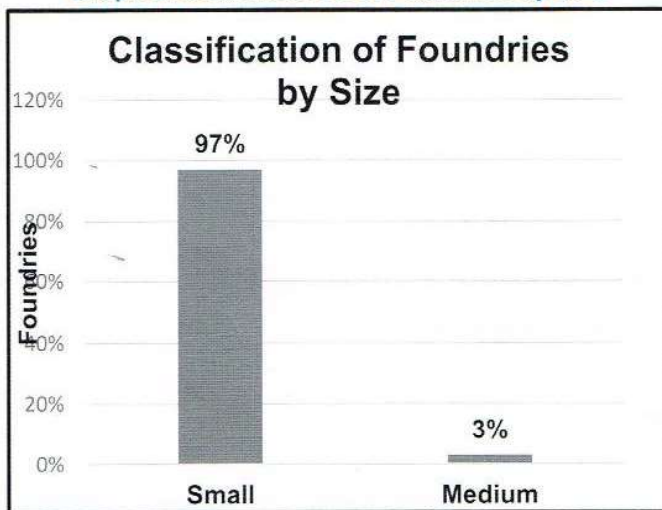
Graph 1. Type of Foundry Unit



Finding 1

All 100 foundry units, considered for the study have their Machine Shops to supply machined castings/components to their customers as per their specifications as shown in Graph 1

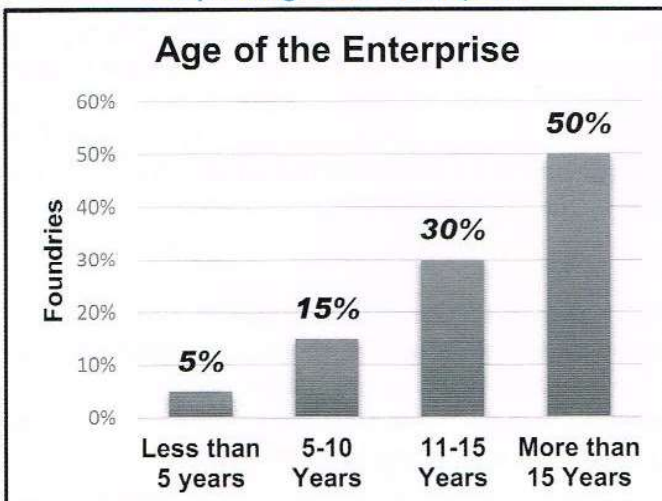
Graph 2. Classification of Foundries by Size



Finding 2

Out of 100 foundry units, 97% are Small scale and 3% are medium scale as shown in Graph 2

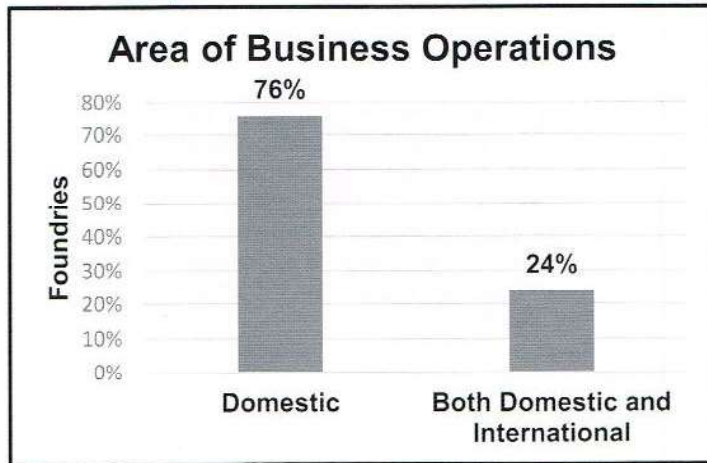
Graph 3. Age of the Enterprise



Finding 3

It is found that 50% of the foundries under study are operating for more than 15 years. 30% units are operating since 11 to 15 years, 15% between 5 to 10 years and 5 % units are less than 5 years old as shown in Graph 3

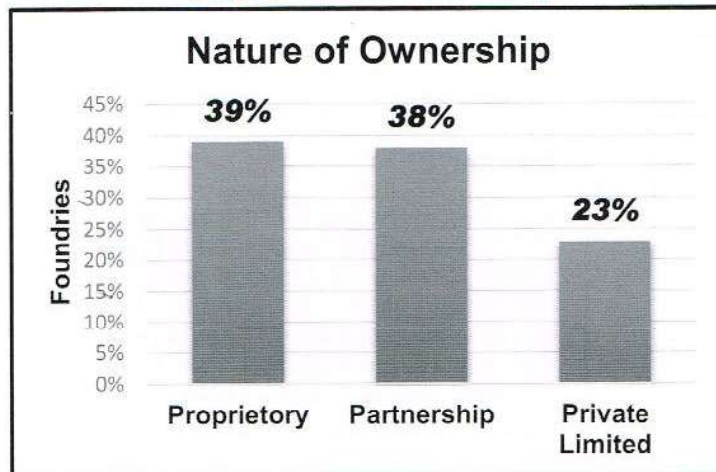
Graph 4. Area of Business Operations



Finding 4

It is found that 76% of the foundries under study are operating in domestic market and 24% operate both in domestic and international market. Belagavi foundries, which operate in international market, export components to the USA, Germany, West Asia etc., as shown in Graph 4

Graph 5. Nature of Ownership



Finding 5

It is found that 39% of the foundries come under Proprietary Ownership, 38% are partnership units and 23% are registered as Private limited as shown in Graph 5

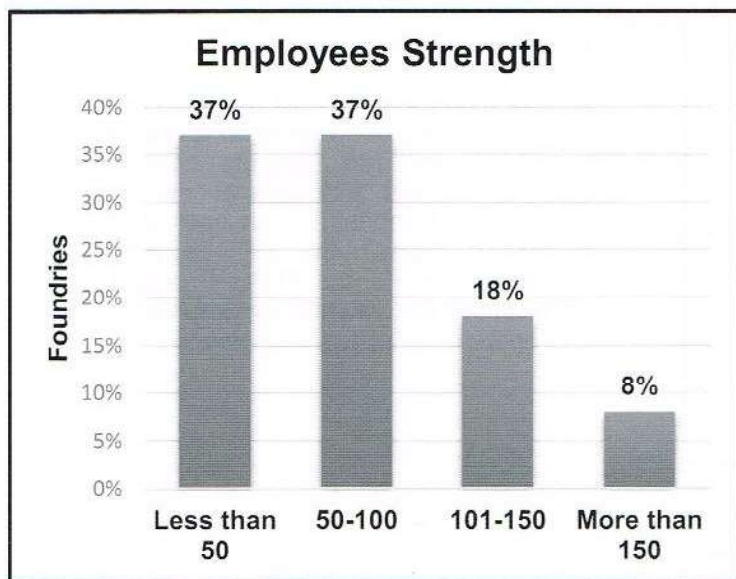
Graph 6. Foundries with Quality Certification



Finding 6

It is found that 100% of the foundries under study have quality certifications namely, ISO 9001:2015, ISO 9001-2008 and other relevant certifications as per their business requirement as shown in Graph 6

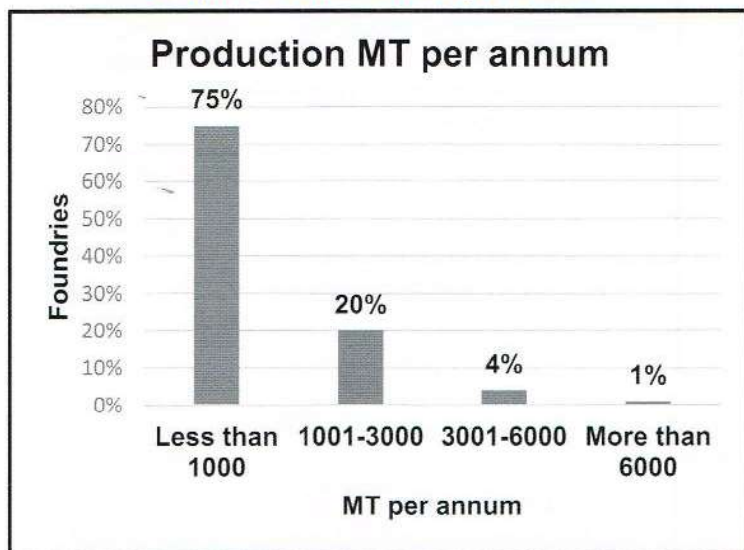
Graph 7. Employees Strength



Finding 7

It is found that majority of the foundries (37%) have their employee strength less than 50 and between 50-100 respectively. 18% foundries have employee strength between 101 to 150. and only 8% units have employees more than 150 as shown in Graph 7

Graph 8. Production MT per annum



Finding 8

It is found that majority of the foundries (75%) produce less than 1000 MT per annum. 20% units produce between 1001-3000 MT per annum. 4% between 3001 to 6000 MT per annum and only 1% produce more than 6000 MT per annum as shown in Graph 8

Limitations of the Study

The study covers only small and medium scale foundries. Around nine large scale foundries in Belagavi are not included in this study.

Suggestions & Conclusion

The study indicates that all the foundries surveyed have machine shops along with casting production. According to the survey participants for having in-house machine shop is to improve overall workflow, reduction of wastage, to avoid recasting and to increase productivity. Majority of the foundries are small scale units and half of the surveyed foundries are more than 15 years old. Castings are exported from 24 foundries out of 100 units studied, to different countries namely, the USA, Germany, and few European countries as told by the respondents. All 100 foundries have quality certification and it is a good indicator of quality consciousness, which is most essential to cater to global market. The study concluded that

Belagavi is contributing significantly Indian Foundry industry and Belgaum Foundry Cluster is actively contributing towards the present needs of the foundries in and around Belagavi in terms of skill development and providing advanced technology assistance.

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