

# A Study on Howrah Cast-Iron Foundry Industry: Problems and Prospects

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## ABSTRACT:

The present study explores the organization of foundry business in Howrah. It examines the network of the production system, and the dynamics of people who make the network by performing at various positions of the network. The Indian Foundry & Forging industry is one of the most important industrial segments in India, being the second biggest manufacturer of casting products world-wide after China. Grey iron casting, which traditionally has been the forte of foundry units of Howrah, shares more than half of the total casting manufactured and exported out of India. This sector has been regarded as one of the biggest employment generators, next only to agriculture. The iron cast and forging industry alone generates millions of employment opportunities that directly affects the marginalized section of the society, as they continue to be the major source of skilled and unskilled labour supply in such industries. The Howrah cast iron foundry cluster happens to be the first organized modern industrial cluster in India. The cluster used to be considered the Sheffield of India. By the end of 20<sup>th</sup> century and start of the 21<sup>st</sup>, the foundry cluster allegedly showed negative growth as alarming number of smaller foundry units closed down. The challenges the foundry industry of Howrah sector is facing are many and diverse. These industries face bottlenecks of low skill levels, inadequate infrastructure both physical and financial, and the general unorganized nature of production. The Howrah cluster is characterized by informality, smallness, technical and structural limitations, use of contract labour, low levels of production, and a status quo orientation. The article tries to throw light on present industry organization, and how it works. It also tries to find out various problems plaguing the industry, as well as what the industry people think as ways to solve them.

**KEYWORDS:** Cast-Iron, Foundry, Industry, Howrah, Problems, Organization.

## 1. INTRODUCTION:

The metal and iron casting foundry industry in the Micro, Small and Medium Enterprises sector (MSME)<sup>i</sup> constitutes a vibrant segment of Indian economy with their manifold contributions in generation of employment, mobilizing the latest resources of capital and skill. The sector is estimated to employ about 42 million persons in over 13 million units throughout the country. It is well known that the MSMEs provide maximum opportunities for both self-employment and jobs after agriculture (Government of India, 2009). The metal and iron casting industry, one of the most important divisions under MSME sector, gives employment to more than half a million people directly and three times as many indirectly in India. At the same time, its ancillary industries provide direct employment to about 200,000 people, contributing directly to the livelihood of more than three quarters of a million people (Singh et al., 2010). However, the incidence of sickness is very high in such small-scale enterprises. The Development Commissioner for Small-Scale-Industries identified some causes of sickness such as shortage of working capital, non-availability of raw materials, etc. (Singh and Prasad, 2007). Other factors include workplace stress and employees' attitude towards work (Gupta and Tyagi, 2009), the gender discrimination and ethical issues (Amin and Banerjee, 2006), attitude towards innovation (Dasgupta and Sahay, 2011), quality of service and customer satisfaction (Satapathy et al., 2012), lacunae in Governmental policies for cluster development (Mehra, 2012), managerial effectiveness (Sharma et al., 2013), etc. Since small units in West Bengal fall in line with all India trend, hence the call for the study.

Over the years problems and prospects of MSMEs have garnered attention from international scholars as well (Gerrad et al., 2003; Hamilton and Dana, 2003; Morris et al., 2000, 2002, 2006; Spence, 1999; Tagoe et al., 2005; Woldie and Adersua, 2004). A substantial amount of work has been done on the Indian MSMEs (Bhowmik, 2009; Brush, 1952; Chandrasekhar, 1997; Gandhi, 2003; Murthy, 2000; Sengupta, 2001). West Bengal garners much attention from the scholars, especially Howrah industrial cluster (e.g. Chakravarty and Bose, 2011; Das, 1999; Datta, 2004; Mitra, 2001; Mukhopadhyay, 1998; Owens and Nandy, 1978; Rajeev, 2003, 2008; Roy, 1972; Sen, 2009). The focal points of some of these

studies may be narrowed down to the followings. Das Gupta (1994) establishes relationship between social security and insurance arrangements in India with regard to factory workers. Chakrabarti et al. (2008) explores economics of pollution control technology and modernized production system in foundries in India. Rajeev (2008) examines the investment pattern in labour and technology in Indian MSMEs. Chakravarty and Bose (2011) reveal the impact of different institutions on the manufacturing output of the small-scale industries. Ray and Ray (2011) explore the impact of HR practices on employees' job satisfaction in the context of iron and steel firms of India. Meyer (2012) and Mehta (2012) review India's policy with regard to entrepreneurship and innovation. While Singh and Vohra (2009) explore the current state of recruitment policy and management, Pradhan (2011) elaborates on factors driving the MSME in-house R&D activities. Roy Chowdhury (2011) opines that irrespective of global financial meltdown, because of strong backward linkages the small businesses with lower diversification of product base have a relatively homogeneous impact across the world. Dasgupta (1998) analyses West Bengal's industrialization experience, relative to the performance of seven other leading industrialized states of India. De Haan's (1997) extensive work on industrial labour in West Bengal explores problems of migrant workers in Kolkata. Maiti (2013) exposes the precarious condition of labour force in India. Banerjee et al. (2002) laments the poor condition of the MSME sector in West Bengal in spite of having all the necessary ingredients for growth.

However, most of these studies are principally based on positivist paradigm of policy-making. Their suggestive remedies of aiding the industry in terms of external infusion of funds and subsidies only aim at providing short-term-quick-result reliefs. But strategies of aiding external environment work only if the MSMEs have the internal capabilities for taking advantage of the same (Manimala and Kumar, 2012). That is why it has not met with much success especially in developing countries, where MSMEs are inherently weaker than their counterparts in developed countries (ibid. 2012). Finding out core problems and strengthening the internal capabilities of MSMEs, therefore, has become a top priority and nowadays it is positioned as an alternative or supplementary strategy for MSME development. In the same spirit, some of the more recent works on Indian MSMEs, instead of focusing on external problems, have put adequate emphasis on other internal factors as well. These include studies on entrepreneurship (Nayak et al., 2007), on influence of organisational cultural values (Gupta et al., 2009), cross-cultural study of MSMEs from four regional cultures in India (Singh and Sharma, 2009), organisational culture in Indian organisations (Agrawal and Tyagi, 2010), effect of Indian cultural values in organizations (Singh, 2010), detailed study of different networks and supply chains in MSMEs and their problems (Kumar et al., 2011). Sahu (2010) provides empirical evidence on the pattern and magnitude of subcontracting in MSMEs and across its different industry groups and analyses whether there are any sector-specific features in functions and linkages. The present study investigates regional peculiarities and specific work culture of Howrah foundry industry and finds the following objectives emerging at the micro level of the organizational units.

## **2. THE OBJECTIVES**

1. To study the organizational processes of Metal and Iron Casting foundry units
2. To identify the major problems in the Metal Casting industry and at different enterprises, and understanding urgent strategies for developing the units

## **3. METHODOLOGY**

The report follows a descriptive analytic style to present the findings supplemented by qualitative and quantitative information as and when required. This study aims to relate empirical findings to relevant

theoretical ideas in the pragmatic way. The researcher designs the report with summary of the empirical findings as per objectives stated; and the outline of theoretical analysis of the findings in the later parts of the report, namely in the dissemination section. In Neo-Marxist tradition (Mollona, 2005; Schmidt, 2011), this work aims to explain and analyse the trajectory of sub-optimal production in the foundries using undervalued labour; their low response to increased competition; technological obsolescence (together with a survival strategy characterized by focusing on the lower end of the domestic market) that the production organization and related institutions reproduce.

#### **4. THE AREA**

The foundry industry cluster of Howrah has been selected for the empirical study for the reason that it happens to be the first organized modern industrial cluster in India (Cumming, 1908). It was set up during the British rule, when Kolkata, erstwhile Calcutta, was the political and commercial capital of India. The history of the foundry cluster, along with the jute industry, is synonymous with the rise of British mercantile colonialism in India. The cluster used to be considered the Sheffield of India. The challenges the foundry industry of Howrah sector is facing are many and diverse. These industries also face bottlenecks of low skill levels, inadequate infrastructure both physical and financial, and the general unorganized nature of production (Dasgupta, 1999). The Howrah cluster is characterized by informality, smallness, technical and structural limitations, use of contract labour, low levels of production, and a status quo orientation (Das, 1999).

#### **5. THEORETICAL FRAMEWORK**

The study combines a Neo-Marxist analysis of the capitalist labour process with an anthropological focus on the ideology of social capital, and explores the cultural specificity of processes of labour commodification. It aims to relate the tradition of industrial anthropology that developed from Marx's seminal study (1976 [1867]) of the capitalist labour process – and his focus on the commodified nature of wage labour – with recent anthropological studies on labour commodification (Carrier, 1992; Goddard, 2000; Hart, 1983). These anthropological studies have variously incorporated Marx's symbolical analysis of labour commodification.

In my theoretical analysis, I focus on the subjective and symbolical ways through which manual workers see themselves and the relations of production in which they are embedded. In fact, the workers of the same factory have ambiguous and conflicting views of the value of their labour. The permanent workers use labour as inalienable social capital. Temporary workers consider labour as a commodity in the production process in the unstable, unprotected marginal labour market. On the one hand these oppositional moralities obscure the fact that the workers pertain to the same space of poverty and exploitation both in and outside the factory, while on the other, they allow the workers to articulate long-term strategies of reciprocity. The work in its theoretical part aims to expose this dichotomy that exists within the same space of Howrah foundry industry that would help us in understanding the problems and prospects of Howrah foundry industry better.

#### **6. SELECTION OF SAMPLE**

For this study, purposive, and in some cases, snowball-sampling technique is used.

Thirty-six (36) foundry units from areas (namely Belgachhia, Salkia, Bamungachhi) of Howrah district are selected for the study. Of these, twelve (12) foundry units are from Belgachhia, seven (07) from Salkia, eight (08) from Bamungachhi, and nine (09) from Benaras Road. These units have been chosen because of the following factors:

- i. Locational Accessibility and permission for research work: All the above-mentioned units permit access for the research work. The owners along with the management consent and permit the research.
- ii. Cross – Sectional Representation: The units have been purposively chosen in a way so that therein lies variation in terms of size, total turn over a year, number of employees, number of owners and their ethnicity, number of years they are in business, locational advantage, etc. The rationale behind the choice is so that it represents a credible and acceptable cross section of the Howrah Foundry culture.

## 7. METHODOLOGY

The basic method of this study is ethnography<sup>ii</sup>. A qualitative research design, with data gathered through focus group interviews and case studies, is employed to examine the problems as experienced first-hand by the participants and their possible solutions as envisaged by the participants.

Gathering data through participant observation<sup>iii</sup>, the researcher tries to enter and become a part of the actual context in which people pursue their work, learning first-hand how they accomplish their work on a daily basis; how they talk, behave, and interact; and how they understand and experience their work, spending sufficient time there to understand and learn how to conduct themselves according to the norms of the setting. Observations are logged and converted into field notes on a daily basis. Interviews provided another avenue for gaining observations. For this research purpose, interviews have been organized from highly structured ones to semi-structured or semiformal conversation guides; along with free flowing, informal exchanges. In many cases subjects have been interviewed multiple times to gain their stable and changing perspectives on events as they unfold. As a matter of practice, interviews are usually tape recorded and transcribed verbatim.

Focus group interviews have been conducted in Bengali, guided by questions that are consistent with the objectives of the study. The questions are based on the responses to a short, open-ended questionnaire that is distributed to all members prior to the focus groups (68% response rate). The individuals have been encouraged to offer multiple responses (Santos and Reynaldo, 2000) on a single theme.

## 8. DATA COLLECTION AND ANALYSIS

The study involves 43 in-depth, one-on-one interviews, along with focus group studies. In these interviews, participants talk about their personal concerns and daily problems faced in this industry, their experiences with production process, their understandings and experiences of facilities and amenities provided in this industry – or the lack of it. They also share their ideas of how the current situation might be improved. They are encouraged to list up all problems and possible solutions for each of them.

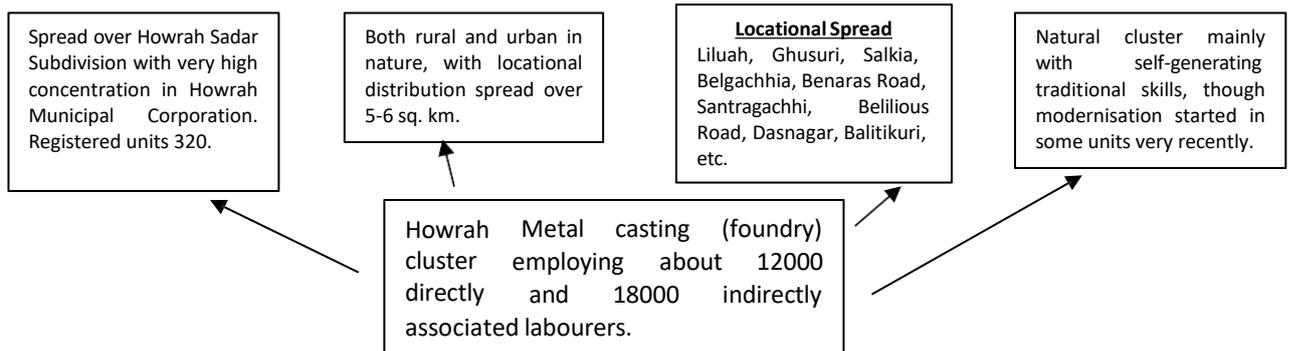
The questionnaire data are thematically analysed. From the themes, a set of focus group questions is developed, intended to facilitate additional exploration of the issues and ideas raised in the questionnaire responses. Focus group interviews are digitally recorded, transcribed verbatim, and analysed for thematic content. Preliminary data categories are developed and organized according to participants' perspectives on the issues. The analysis moves from participants' concrete experiences (of facing problems in their daily affairs of working inside the industry) to increasingly general and abstract thematic categories (like financial, infrastructural, and so on). Because of the Howrah Foundry industry's small membership, the sample size from which to invite participants for this study is limited.

Findings used to develop the model came from consistent statements from multiple sources (Roy, Chakrabarti, and Das, 2013).

## 9. ORGANISATION OF METAL CASTING FOUNDRY INDUSTRY: PRODUCT AND MARKET CONTEXT

### Foundry Industry in Howrah: An Overview

Figure 1: Howrah Metal and Iron Casting Foundry Industry



Since the 1970s, the foundries of Howrah have to undergo profound changes in the labour processes (Bhowmick, 2009). Drastic decline in orders for castings, especially from the railway industry, and lockouts preceded by labour stoppages have brought about changes in the nature of employment in the foundry industry. Thereafter, labour is mostly employed on contract. Only a few foundry owners employ permanent workers. In every foundry there is a panel of contractors who by themselves maintain the payroll of temporary and freelance workers. A contractor, in a foundry, is not merely a labour contractor in the usual sense of the term, but something more than that. In some cases, the foundry owner contracts out the whole process, starting from moulding to loading to finished castings. The contractor gets compensation based on labour and time taken to finish the product. Although the contractors are not direct employees in the foundry, they are not outsiders in a foundry, rather very much internalized in the production organization. Sometimes when the labour contractors manage to secure orders of castings, they buy molten metal from the foundry owner and then organize moulding and casting operations with his own labourers. The kind of subcontracting prevalent in Howrah is a mixture of both industrial subcontracting and labour subcontracting. Beyond that, it is also sharing of management responsibilities in securing orders as well as that of transportation and delivery. In Howrah foundry industry, these contractors also provide the owners a way by which they can evade taxes by under-invoicing, manage to run the foundry units with minimal number of permanent labourers, and share the risk of losses in the production, if any.

Normally the worker works 08 hours per day (with overtime it goes upwards to 10-12 hours/day), but this varies according to the nature of work. In a 'charging day', i.e., the day in which melting operation is carried out, the cupola furnace runs for four to eight hours according to the size of the units. In most of the small foundries, there are one or two fixed 'charging days' in a week. With decreasing orders, the number of charging days in a month is reduced. As a response the recruitment of skilled permanent workers related to furnace activities dries up; and the number of freelance, temporary, and contract labourers escalates. On an average, the labour cost paid by the owner is about Rs.2000/- to 3000/- per ton of castings<sup>iv</sup>, which is disposed of by the contractor to his group of workers according to their occupational grades.

In most of the units studied so far, periodic wage increment of the workers has been either stopped or reduced to a mere formality. In one such interaction with this researcher, a prominent labour union leader said that in recent times they could not push workers' demands even in bigger units. The changing political climate is favouring industrialists and they apprehend threats of lockouts or closure, which could even destroy their existing opportunity of earnings. According to one foundry unit manager, the militancy in the bargaining process reduced significantly as the patronage from the state leadership in favour of pressure tactics is now unavailable. However, the unions still bargain quite adamantly for higher wages but are not insistent on filling up vacancies or making the contract workers permanent. Obviously, the labour unions prioritise insiders' interests (permanent workers') over the outsiders' (non-permanent workers). Firm level workers and the unit level leaders understand that if the management can reduce the production cost by way of hiring contract workers or farming out production partly to the unorganised sector, it is easier to bargain for better wages. This is corroborative of micro findings and macro-observations; and does question the hypothesis of 'vulnerability of organised workers' (De Haan, 1997) directly. Further, in order to be confirmed, a worker needs to work on contract or casual basis in a firm. Labour unions play a very important role in this process of confirmation. According to management, the union leaders understand that it is easier to control the workers as long as they are on the contract/casual basis. Further, an ex-union leader mentioned that in some cases the permanent workers (and the unit level leaders) themselves practice subcontracting with the existing contract labourers and do some other business during the office hours, safeguarded by the representative union. As the contract/casual labourers are also union members, the question of union membership and membership levy does not pose a real problem for the union as the trend of 'contracting' perpetuates. The management maintain that the union leaders always resist any increase in work load even for a short while under emergency especially in the private firms. The labour however takes contradicting stand in the same issue. Though the contracts between the permanent workers and the management is always a written one it is difficult to make it complete in every sense considering all contingencies explicitly (Hart et al. 1987). The permanent workers often take advantage of this incompleteness. Consequently, management of all large firms mention that they are weary of taking the permanent workers in confidence to promote technical modernisation of a large-scale. Technological modernisation can lead to human asset specific conditions and in turn to costly haggling (see Chakravarty, 2002) especially in the context of an institutional failure where workers' union fail to work as a governance structure facilitating transaction between the workers and the management (Williamson, 1985).

According to some of the senior members of the industry who were once owners/managers/labourers, earlier the state was indifferent to the ground reality of industrial relations and improving work ethic at the shop floor. But nowadays the senior union leaders are seeking to improve the work ethic among permanent workers of the manufacturing units. But the management feel that permanent workers have got habituated not to work and work only on overtime payment. One foundry owner went as far as stating that In Bengal, 'overtime' virtually means extra payment without extra hours of work. Now while senior leaders at the state level ask cadres and unit-level leaders to cooperate with the management at the shop floor, the workers passively resist. The management informs tremendous increase of absenteeism among permanent workers in recent years. While this fact can be corroborated by field observations, many permanent workers blame lack of work at the factory site because of decreasing orders and low wage structure that makes it impossible for them to maintain their family in rising sustenance cost. That is why they have to look to outside sources of additional income.

It may be pertinent to note here that some owners are highlighting a new kind of labour union activity, which is in some sense a departure from the earlier prevalent and orthodox '*gherao* culture'. At present

labour believes in exerting a new kind of indirect or surreptitious pressure; the contemporary motto appears to be 'go slow on work'. Nowadays, the management seldom have to encounter a written charter of demands, what it has to face is some kind of continuous indirect pressure, which is a serious deterrent to production.

It has been observed that the unit level representative unions have enormous hold over the contract/casual labourers. The management of the foundry units maintained that they could not recruit contract workers directly. Moreover, according to some independent labour unionists and ex-employees, the unions also play a role in determining the renewal of the contracts for these workers. Further, working in close association with the local party, the labour union leaders often help the retrenched workers to get a rickshaw or an auto rickshaw licence or even a job as helper in the construction sector. A patron-client relationship thus develops especially with proliferation of jobless workers. In another context, Bardhan et al. (2009) shows how this patron-client relationship helps CPI (M) to remain in power in rural Bengal.

## 10. ORGANISATION OF PRODUCTION

The organisation of production in foundry units of Howrah is unique in character. There are three major types of foundries according to their production structure: 'Group-A' foundries producing three to four types of finished products; 'Group-B' those selling only molten metal and letting out floor area for moulding; and 'Group-C' units engaged in some fixed job work as well as selling molten metal.

The traditional production is 'popularly' called as *galamāl* (molten metal) and the second category of operation represents the unadulterated version of this typical system. The owner of a foundry owns a cupola furnace and floor-moulding area, employs his own workers for furnace operations, and sells liquid metal to intermediaries. The skilled labour works as intermediary, secures orders for diverse castings, purchases liquid metal from cupola furnace owners, employs shop floor workers for moulding, and sells castings as per orders. This situation suited well in a protected market, where orders from engineering industries, railways or textiles and jute mills, fed these foundries with abundant demand.

## 11. PROBLEMS AND SOLUTIONS: ACTIONS AND STEPS SUGGESTED BY PARTICIPANTS FOR THE BETTERMENT OF THE INDUSTRY

The present research has obtained data on various perspectives involving holistic development of the Howrah industrial cluster. The purpose is to understand situations closest to hearts of the people concerned and what they feel effective remedies should be. These are: 1) Irregular fluctuation of the cost of raw materials to be regularized; 2) To ensure supply of raw materials directly to the units or a group of units or their association; 3) Introduction of divided blast cupola furnace and other pollution control devices; 4) Uninterrupted power supply; 5) Modernization and up gradation of technology; 6) Regular and transparent energy audit; 7) ISO-Certification, ISI Marks, and other such Total quality management<sup>v</sup> marks; 8) Easy credit options with low interest; 9) Awareness programme and follow up action on technology up gradation, pollution control, ISO Certification, energy audit, and product standardization; 10) Information technology with latest e-commerce, and e-business facilities for global marketing; 11) Setting up of testing centres; 12) Development of social and industrial infrastructure, etc. (Roy, Chakrabarti, and Das, *in press*).

The respondents are eager to point out various problems plaguing the industry nowadays, and the best possible means of countering them. From the study conducted with 36 sample foundry units in Howrah district, some interesting patterns emerge. Participants seemed to be the most vocal on issues of modernization of the cluster. Out of all the responses, the subject of external infusion of capital or

money remains oft-repeated point. Across all the problems discussed, some agencies have found that repeated favours among the participants have been the issues of Government intervention, work culture improvement, labour union assistance, better facilities, strengthening co-operative measures, revamping current corruption in the administration, among others. On the subject of offering counter measures for shifting demand pattern in the market, some issues of stern orthodoxy might be identified. The findings point a finger to their belief in traditional knowledge and resistance to be introduced to the latest of e-commerce. Similarly, on environmental pollution, most of them refuse to accept the sole accountability and puts the entire blame to corrupt Government officials. This intolerant, and somewhat prejudiced attitude towards anything administrative might signify an anti-establishment mood in the cluster as a whole. Some participants went as far as to allege sabotage of the cluster by shady state government officials, if not Government itself. This widespread feeling of mistrust in the administration, frustration at the lack of basic infrastructure, and disappointment with worsening work culture, such strong emotions are rampant in cluster have been sensed by the researcher while doing his fieldwork. Nevertheless, the study also reveals a strong desire among the participants to make the cluster stronger, as evidenced in their enthusiastic participation and sustained collaboration with the researcher in finding sustainable and urgent strategies in this regard.

## 12. CONCLUSION: CONTEXTUALISING SOCIAL REALITY

The availability of skilled labourers is dwindling day by day, since working in other industries and even in agriculture has become more remunerative. People from the hinterland seem to be losing interest in getting trained in foundry techniques (Mitra, 2001). Many are migrating to other states where similar foundry clusters have developed, as there are additional opportunities to earn more. The findings also suggest that the increased cost of inputs, and the resulting low value-added castings do not bring in enough profit to make the entrepreneur interested enough to take risks and invest in modernization and diversification.

Many of the respondents believe that modernization or structural change is not possible in most of the foundries because of their small size, lack of investment capacity and interest, total profit orientation, lack of social responsibility and a lack of vision. There is also the constant threat of unionised labour disruption, ambiguous environmental laws against the industry, depleting market demands, indebtedness, etc. resulting in the unit's closure, demolition, and displacement. Across all the problems discussed, some agencies that found repeated favours among the participants have been the issues of Government intervention, work culture improvement, labour union assistance, better facilities, strengthening co-operative measures, and revamping current corruption in the administration, among others.

Many of the respondents agree that the prospects of the Howrah foundries look rather depressing. The answer might lie in modernization and producing high-quality output for capturing emerging sectors like automotive industry. But most have neither the capacity nor the willingness to invest. This is an alarming trend unique for Howrah cluster as existing literature suggest entrepreneurial work structure of small enterprises are exemplary for technology absorption performance (Roy and Sikdar, 2003). Many units have closed down in the last few years. Some of the workers hope that with modern machineries, productivity will be improved and their earnings will increase. This is a rather wishful thinking, as one does not know whether increased company profits will directly result in employee benefits. The fact remains that presently the units are more concerned about subsistence than modernization. With out-dated technology and increased cost-to-output ratio, they are facing stiff competition from other regional clusters with competitive advantages. A sense of insecurity has crept into the minds of the employers as well as the labourers. This insecurity highlights the social and cultural

fragility of the workforce already hit by the crisis in traditional values of family, religion, and community. Future scope of work lies in exploring this complex value system of the working class, and the intricate web of linkages that forms symbiotic relationship between the Howrah Foundry units with other associated industries.

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<sup>i</sup> In the case of the enterprises engaged in the manufacture or production of goods pertaining to any industry specified in the first schedule to the Industries (Development and Regulation) Act, 1951, as (i) a micro enterprise, where the investment in plant and machinery does not exceed twenty five lakh rupees; (ii) a small enterprise, where the investment in plant and machinery is more than twenty five lakh rupees but does not exceed five crore rupees; or (iii) a medium enterprise, where the investment in plant and machinery is more than five crore rupees but does not exceed ten crore rupees (MSMED Act, 2006; Govt. of India; vide notification No. S.O. 1722(E) dated October 5, 2006).

<sup>ii</sup> "In its most characteristic form it involves the ethnographer participating, overtly or covertly, in people's daily lives for an extended period of time, watching what happens, listening to what is said, asking questions - in fact, collecting whatever data are available to throw light on the issues that are the focus of the research" (Hammersley and Atkinson 2007, p.3)

<sup>iii</sup> Participant observation as a method which "involves getting close to people and making them feel comfortable enough with your presence so that you can observe and record information about their lives"... (Bernard 1995: 136)

<sup>iv</sup> Minimum monthly wages of workers in an iron foundry as declared under the Minimum Wage Act, (1948, 2012) is Rs. 5394/- (207/- daily) (Zone A) and 5115/- (197/- daily) (Zone B) for Unskilled; Rs. 5394/- (Zone A) and 5626/- (Zone B) for Semi-Skilled; and Rs. 6528/- (Zone A) and 6189/- (Zone B) for Skilled workers in West Bengal. Only the skilled workers in Howrah actually have a monthly income above this minimum level and the unskilled workers often receive much lower than the scheduled minimum wages. [Zone A: (i) Area Notified under Kolkata Metropolitan Development Authority (KMDA), (ii) Asansol Municipal Corporation, (iii) Durgapur Municipal Corporation, (iv) Siliguri Municipal Corporation, (v) Digha-Shankarpur Development Authority, (vi) Thermal Power Plant areas including Township areas, (vii) All the Municipal areas in different districts. (viii) All the Municipal areas Howrah, Hoogly, Burdwan and 24- Parganas (N) [exclusive Barasat and Basirhat], (ix) Alipor Sub-Division and Baruipur Sub-Division in the District of 24- Parganas (S), (x) Midnapore Sadar Sub-Division and Kharagpur Sub-Division in the district of West Midnapur, (xi) Siligure Sub-Division in the district of Darjeeling, (xii) Bankura Sub-Division and Bisnupur Sub-Division in the district of Bankura and (xiii) Raghunathpur Sub-Division in the district of Purulia; Zone B: Rest of West Bengal.]

<sup>v</sup> Total quality management (TQM) consists of organization-wide efforts to install and make permanent a climate in which an organization continuously improves its ability to deliver high-quality products and services to customers. While there is no widely agreed-upon approach, TQM efforts typically draw heavily on the previously-developed tools and techniques of quality control. TQM enjoyed widespread attention during the late 1980s and early 1990s before being overshadowed by ISO 9000