



## OCCUPATIONAL SAFETY AND HEALTH ISSUES AMONG FOUNDRY WORKERS IN WEST BENGAL

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### ABSTRACT

This study examines the occupational safety and health (OSH) conditions of foundry workers in Howrah, West Bengal, through a rights-based social work perspective. This study is based on qualitative data collected through interviews with 40 contract labourers engaged on a daily wage and paid on a monthly basis. This study reveals that there is a considerable amount of neglect and gaps in the labour welfare mechanisms. Key areas of improvement that have been identified are inadequate sanitation facilities, poor enforcement of overtime payment, exclusion from gratuity, exploitation of the leave encashment policy, and disparities in minimum wage payment. Although benefits under the Employees' State Insurance (ESI) and Provident Fund (EPF) are extended, their impact is undermined by low wages and a high rate of labour outflow. The study urges an urgent need for policy reforms to uphold the labour welfare mechanism and workplace dignity for the contract labourers. Findings are grounded in Occupational Justice theory and the ILO's Decent Work framework, with implications for both social work practice and labour policy.

**Keywords:** Foundry Workers; Occupational Safety; Contract Labour; Labour Welfare Laws; Social Protection; West Bengal.

### I. Introduction

The foundry industry is an important area in the State of West Bengal because it not only providing employment to thousands of workers but also serves as an economic welfare for the neighbouring regions. Despite its contribution in the GDP, the mode of operation of the foundry industry is often characterized as hazardous working conditions involving high temperature, heavy machinery, and systemic neglect of workers' rights. The foundry industry demands extreme physical labour conditions, and the workers are always subjected to inhaling harmful gases and dust. This poses a significant occupational safety and health (OSH) risks for the foundry workers.

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Beyond these physical hazards, many fundamental issues remain unappreciated such as the lack of access to basic amenities like washrooms, toilets, drinking water, glucose drinks, rest rooms, which are wholly attached to the workers' well-being and dignity. Legal provisions related to leave entitlements or encashments and gratuity are either entirely absent for contract workers or are determined as per the whims and fancies of the management. Further, the discrepancies between State and Central minimum wage regulations exacerbate the disparity in purchasing power. However, there are many labour welfare statutes, such as the Contract Labour (Regulation and Abolition) Act, 1970, and the Factories Act, 1948; still, the hazardous working conditions leave no room to make up one's mind to revisit social security schemes for workers.

This study aims to investigate the multifaceted OSH challenges faced by foundry workers in West Bengal, highlighting both workplace hazards and shortcomings in the legal and welfare frameworks governing their rights. From a rights-based social work perspective, the paper proposes actionable reforms to improve the health, safety, and dignity of these labourers. To contextualise these challenges, the present study specifically examines foundry workers in the industrial region of Howrah, West Bengal an area with a dense concentration of small and medium-scale foundry units.

## II. Theoretical Framework

This study is grounded in the Occupational Justice Theory, which highlights the right of all workers to have a safe working environment adding value to a dignified and meaningful life. The occupational justice involves removing barriers that prevent a worker to have a healthy and dignified working conditions. Working conditions of the marginalized and vulnerable labour groups particularly in the heavy industries like foundry solicits immediate attention.

Additionally, the Rights-Based Approach to labour welfare, as promoted by the International Labour Organization's Decent Work Agenda, emphasizes the importance of fair labour standards, social protection, and inclusive participation in economic activities. This approach resonates with Amartya Sen's (1999) concept of development as freedom, which focuses on expanding individuals' capabilities and enhancing their freedom to lead the lives they value, including safe working conditions and social security.<sup>1</sup>

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<sup>1</sup> Amartya Sen, *Development as Freedom* (Oxford University Press, Oxford, 1999).

Together, these frameworks provide a comprehensive lens to analyse the socio-legal challenges faced by foundry workers, especially contract and informal labourers, whose occupational health and social security rights are frequently compromised.

### III. Literature Review

The Employees' State Insurance (ESI) scheme has been implemented to provide health and social security to employees, but the Act applies to employees earning up to Rs 21,000/- per month. Studies have shown that there is non-alignment between the contribution periods and benefit eligibility, leading to the exclusion of many contract workers, because of the high volume of inflow and outflow in the organization.<sup>2</sup>

Additionally, there is a shortage of medical clinics and emergency medical facilities in the areas where the contract workers reside. Aside from the distant location of the hospitals from the factories' sites, it also hinders workers from getting medical facilities in a timely manner.<sup>3</sup>

The studies on occupational safety and health (OSH) in foundry industries indicate that foundry workers are exposed to multiple health-hazardous elements like extreme heat, inhaling toxic air and dust, and heavy physical labour conditions. These risks are further enhanced by the scarcity of basic sanitation facilities, washing rooms, rest rooms, etc., coupled with the absence of post-retirement benefits like gratuity.<sup>4</sup>

The minimum wage inequalities notified by the appropriate Governments (State and Central government) has have been inconsistent which affects the standards of living among contract workers.<sup>5</sup>

The Payment of Gratuity Act, 1972 or the Contract Labour (Regulation & Abolition) Act does not contain any explicit provisions of for the payment of gratuity to the eligible contract labourers. This led to the escape of from the payment of gratuity by the principal employer.<sup>6</sup>

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<sup>2</sup> International Labour Organisation, "Accessing Health Benefits under the ESI Scheme: A Demand-Side Perspective" (ILO, Geneva, 2022) available at: <https://www.ilo.org/media/246946/download> (Last accessed on July 17, 2025).

<sup>3</sup> N. Shivakumar and R. RamPrakash, 'How India's Employee State Insurance Scheme Lets Down Low-Wage Women Workers' *BehanBox* (3 September 2024) available at : <https://behanbox.com/2024/09/03/how-indias-employee->. (Last accessed on July 17, 2025).

<sup>4</sup> G. Gokulkrishnan and Balamurugan, 'Workplace Safety and Health Conditions in Small-Scale Foundries' (2024) *International Journal of Research Publication and Reviews* 5234–5238.

<sup>5</sup> S. Khurana, K. Mahajan and K. Sen, 'Do Minimum Wages Reduce Inequality in India?' (February 2025) <https://www.wider.unu.edu/publication/do-minimum-wages-reduce-inequality-india>. (last accessed on July 17, 2025)

There is an urgent need for policy reform to promote occupational justice for vulnerable labour groups. Scholars have emphasized the need of for explicit provisions in labour welfare statutes to ensure workers' dignity and welfare.<sup>7</sup>

#### **IV. Hypothesis**

Contract workers in West Bengal's foundry industries are exposed to hazardous working conditions, highlighting a clear disconnect between policy formulation and effective policy implementation.

#### **V. Methodology**

##### **Research Design**

This paper is a qualitative research paper aimed at studying the working conditions of the foundry workers. This study has tried to find out whether the workers are working in a hazardous condition or not, and further tried to bridge the gap between policy formulation and policy implementation.

##### **Study Area**

This study has been conducted in selected foundry industries located in the industrial complex of Domjur in Howrah district, a major industrial hub in the State of West Bengal known for its extensive foundry industries.

##### **Sample Selection**

A random sampling technique was adopted to select 40 foundry workers, who are mainly the contract workers working on daily rates paid monthly. This random sampling technique was used because all the targeted workers were working in the foundry industry for more than five years and selecting one or not selecting one would only consume time and energy.

##### **Data Collection Methods**

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<sup>6</sup> Khaitan & Co, 'Payment of Gratuity to Contract Workers: Whose Liability It Is?' (30 April 2025) *available at*: <https://www.lexology.com/library/detail.aspx?g=096a4ab2-efde-4982-a811-307f60d595b7> (last accessed on July 17, 2025).

<sup>7</sup> B.P. Vareed, C. Plante and R. Sebastian, 'Positioning Structural Social Work in Indian Context' (2022) *International Social Work*, Sage Journals *available at*: <https://doi.org/10.1177/00208728221083773>. (last accessed on July 18, 2025).

- i. In-depth interviews were conducted to obtain information on occupational safety, quality of working conditions and access to labour welfare benefits.
- ii. Discussions and dialogues with workers and supervisors were organized to know the common challenges the workers are facing, and the supervisors are facing, and to extend the welfare provisions.

### **Data Analysis**

Qualitative data from interviews and FGDs were transcribed verbatim and analysed using *thematic analysis* to identify recurrent patterns related to occupational hazards, social security gaps, and workers' rights. Legal and policy documents were reviewed to assess their alignment with workers' experiences.

### **Data Validation**

To ensure the credibility of the interview, supervisor verification and feedback were employed. Supervisors are the best people to know in detail about a worker and whether the worker is mature enough to answer the questionnaire or not.

### **Ethical Considerations**

Proper consent was obtained from all samples to ensure ethical consideration and the maintenance of confidentiality and anonymity. The samples were approached through the supervisors, and the samples participated voluntarily. The samples were assured that their identity would be kept anonymous and that the inputs would be exclusively used for research purposes without any adverse effects.

## **VI. Data Summary**

The study reveals that foundry workers in the Howrah area are working in poor working conditions. The workers often face hazardous challenges like long standing without any rest, no proper place for cooking food, insufficient glucose drink, drinking water, extreme heat, unhygienic toilets, unhygienic wash basins, extremely populated toilets, no proper rest rooms, no adequate overtime payments and 12 hours of duty with inconsistent bonus payment and non-payment of gratuity. Notably, it has been observed that in the Howrah foundry industry, no women workers were employed, which symbolize a gender sensitiveness in this sector.

These findings underscore the urgent need for more effective implementation of existing labour laws and labour welfare measures to improve the quality of working conditions.

## **VII. Data Analysis**

The working conditions among foundry workers in Howrah, West Bengal, reveal exploitative labour practices, hazardous working conditions and lack of post retirement. benefits. The data which have been collected from the samples has been critically assessed to determine whether the working conditions can be intersected with the existing legal framework or if there is any need for a revised policy frame work.

### **Lack of Basic Sanitation Facilities**

At the most basic level, workers reported the absence of adequate toilet facilities near their workplaces. Many are compelled to walk long distances to relieve themselves, which are also often overpopulated. This results in queues and unhygienic toilets where many times the toilets are smelled bad and not maintained by the employer. Hardly any naphthalene, Dettol or phenyl are used in the toilets and the toilets' flush systems and taps are either broken or no water comes out from them. This not only affects dignity but also exposes them to health hazards. This is in clear violation of Section 19 of the Factories Act, 1948, which mandates the employer to maintain hygienic latrines and toilets for every male and female worker.

### **Separate Canteen**

It has been observed that though the workers bring food with them in their tiffin box, in many cases, they feel so hungry that they require need to cook food in the factory. Many of the workers are so tired because of their hard physical labour and victims of household circumstances that they sometimes fail to carry their tiffin boxes. Despite the statutory requirement that mandates having a canteen in factories employing more than 250 workers (Section 46 of the Factories Act, 1948), workers confirmed that canteen facilities are only available for executives or management staff.

### **Continuous 2-3 days Working**

Workers also reported that during shutdowns, the mechanical departments go to repair or service the machines. The personnel of the mechanical department often require continuous

period of 2–3 days to complete their jobs. The workers are though paid overtime, but the overtime is not double the basic, which is the statutory provision.

### **Extreme Heat**

Working conditions in the foundry industry are often related to extreme heat, particularly around the blast furnaces and casting areas where the fire does not extinguish and remains live all year round. This prolonged exposure results in excessive sweating, respiratory problems and various health problems. Further, the Domjura area is already congested due to dense population which consequently restricts proper natural air circulation in the region adding to the rising temperature.

### **Absence of Awareness and Non-Accommodation**

While the workers are covered under the Employees' State Insurance Scheme (ESIC), the same is used by the workers in respect to meet their medical needs. Although ESIC has many other benefits which are more than any health insurance like disability benefits, funeral benefits, dialysis for the insured and their family members etc. The workers are not aware of the several benefits and the welfare officer, or the human resource officer also does not accommodate them in case of special needs. Hence, they are deprived of the ESIC benefits despite the fact that the Government has framed necessary frameworks.

### **Unpaid Overtime and Record Tampering**

Workers consistently reported that they are paid overtime for their work, but it was revealed that the overtime wages are fixed by the employer, and it does not correspond with the Factories Act 1948 and the Contract Labour (Regulation and Abolition) Act, 1970. Also, there is no proper documentation to show that how many hours the worker has worked over his working hours. Section 59 of the Factories Act, 1948 provides that the worker should be paid twice the rate of daily wages for overtime. Labour inspectors are manageable, and they often become deaf and dumb in case of statutory non-compliance.

### **Contract Labour Exploitation**

It has been found that a significant proportion of foundry workers are engaged under the Contract Labour (Regulation and Abolition) Act, 1970. Despite this continuous round the year of employment, they are not regularized. Therefore, in that respect, the employer often bypasses the Paying gratuities to the workers. The contractors are not financially sound

enough and more often they themselves are dependent on the principal employer for disbursing of the gratuity amount. A gratuity amount can serve as helpful means in case of retirement or family purposes. There is no explicit provision in either the Payment of Gratuity Act 1972 or the Contract Labour (Regulation and Abolition) Act, 1970 that the contract labourers are also entitled to gratuity amount irrespective of the nature of their employment.

### **Disparities in Wage Structures**

The Minimum Wages Act, 1948, empowers the “appropriate government,” either the central government or a state government, to notify minimum wages for the workers of scheduled industries. In the case of the foundry industries, the State Government is considered as the appropriate government. However, it is often observed that the minimum wages notified by the Central Government stand higher compared to those fixed by the State Governments. This has resulted in a persistent disparity in wage structures affecting the standard of living of workers across the states. Foundry workers in states like West Bengal, therefore, often receive lower wages than workers in other sectors, even in industries where the Central Government is the appropriate government.

### **No Leave or Maternity Benefits for Male Workers**

Most of the foundry workers are migrants who live in nuclear families, away from their extended family networks. They do not live with their parents and lead a nuclear family life. While maternity leave under the Maternity Benefit Act 1961 is applicable only for female employees, male workers especially those living in nuclear families or whose family condition is such that no elders are available for help or accommodate them often face significant stress during pre and postnatal periods. As there is no provision for paternity leave either in the CLRA Act, the Factories Act, in the Maternity Benefit Act or under the ESIC Act, the absence has become a source of labour dominance for the employer. On many occasions it was revealed during the interview that the workers were compelled to take unpaid leave or were compelled to be absent from work without information. In many cases, such absence has led to replacement with new workers or termination from duty which further worsens their job security.

### **High Worker Turnover and Instability**

The Howrah foundry industries are affected by a high rate of inflow and outflow of contractual workers. The interview revealed that this high rate of outflow and inflow is

largely driven by two key factors: the search for higher-income opportunities and the low daily wage rate.

Frequent job displacement will affect their long-term financial prospects and weaken their purchasing power. Although highly skilled workers such as fitters or forklift drivers in the foundry industry have experienced slightly greater job continuity, they too are also employed under contractors and are paid on a daily wage.

### **Satisfaction with EPF and ESIC, but Low Wages Persist**

The study shows that, although the ESIC and EPF are applicable in the foundry sector, the low rate of basic wages does not serve any benefit. On the other hand, after statutory deductions the workers are left with low amounts of 'take-home' with pay.

It has been analysed that the benefits extended by the ESIC is comparatively higher than the contributions paid by the workers and the employer. However, it cannot be blown out of the purpose of fixing the daily wage rate, that no matter howsoever the worker is doing overtime, the monthly payment will be approximately Rs 15,000/-.

### ***Chronic Diseases and Health Vulnerabilities***

The interview reveals that most of the workers are suffering from chronic disease. Further, the interview suggests that the employer is reluctant to provide adequate medical treatment to the workers. Even though it was revealed that there is a private doctor engaged as a consultant for the industry who lacks competency, and more often, the supervisors are dependent on the ESIC clinic or hospitals.

### **Lack of Awareness on Labour Rights**

A significant number of workers interviewed during the field study showed that they, calculate their monthly wages based on their daily wage rate. They have little or no awareness of their legal rights with respect to the payment of wages, or the payment of minimum wages, or the welfare provisions of the Factories Act.

This lack of awareness of labour rights is both a cause and symptom of the job-related exploitation. Without access to accurate information and legal literacy, workers are unable to claim their rights, which affects their decision-making process and well-being. . .

### **VIII. Discussions**

Primarily, it was assumed that contract workers in the State of West Bengal's foundry industries are exposed to hazardous working conditions, highlighting a clear disconnect between policy formulation and effective implementation. After the commission of the field interview of the samples the results show that the assumption was correct to the extent that the workers are working in a hazardous environment and are often subjected to exploitation. The applicability or complying compliance with the various labour welfare legislation does not necessarily indicate that the labours are living a standard of life which is not only secured but also enables them to lead a dignified life.

It is all accepted notion that females are more efficient in negotiation, efficient managers and more likely to raise their voice against exploitation. The complete absence of female workers in the foundry industry is believed to be a stage showcasing not only gender bias but also a strategic move to dominate the labour class exploit the male workers, and to do away with the female leadership from the contract labourers.

The lack of supply of glucose to the workers who are exposed to extreme heat corroborates with the previous research, which voiced for providing sufficient safety equipment and health drinks to sustain excessive secretion of sweat. This underlines that the same circumstance prevails in the State of West Bengal too, of labour exploitation.

Non-documented overtime registers indicate that the legal entitlements are quashed by the employer's black legs. These intersections reaffirm the need for a more robust legal framework and monitoring mechanism to bridge the gap between practice and theory aside to deal with the entrenched capitalist mentality that believes in accumulating wealth in the hands of few at the expense of the labour rights.

This explicit connection between welfare of the contract labourers and empirical evidence forms the foundation for this research paper which has led towards subsequent policy recommendations, aimed in addressing the structural challenges faced by foundry workers in Howrah.

### **IX. Recommendations**

The findings from this study indicate significant areas for improvement in the health, safety, and social security of foundry workers in Howrah, West Bengal. To improve the welfare and

working conditions of this vulnerable workforce, the following recommendations have been formulated:

### **Provision of Adequate Sanitation and Welfare Facilities**

Factory owners should be compelled to provide clean and hygienic toilet facilities for all workers in the premises. This can be enforced by periodic audits by the labour inspectors. Additionally, canteen facilities should be implemented at every factory to ensure the availability of glucose water and a designated space for workers to cook their own meals, if needed. This will ensure that the workers don't run from hunger or a growing appetite due to hard labour.

### **Implementation of Heat Stress Mitigation Measures**

As the workers have been subjected to excessive heat inside the factory, there should be proper restrooms with regular intervals to mitigate the excessive secretion of sweat. The rest rooms should be spacious, well-ventilated and should have big windows for natural air to pass enabling the room temperature to be lower than the surrounding factory temperature. Further there should be adequate drinking water facilities aligned with the number of workers and placed throughout the premises for all workers to have access properly.

### **Expand Social Security Coverage, Including Life Insurance**

While ESIC and EPF schemes are beneficial, the amount of contribution is based on the basic and DA. If the worker is drawing a lower number of basic wage, there will be less accumulation of funds in the EPF, and naturally, the worker will get low amounts at the time of cessation from the job, be it termination or superannuation. The government should consider bringing a standard of the minimum wages for the scheduled industries, irrespective of the appropriate government, and aiming towards ensuring a more dignified standard of living.

### **Enforce Overtime Compensation and Accurate Record-Keeping**

There is an utmost need in strict implementation of the Factories Act provisions related to maintaining of overtime register. Labour inspectors must be empowered to enter the factories without notice and seize statutory registers for proper verification.

### **Address Contract Labour Issues and Gratuity Rights**

Even though the contract labourers are working throughout the year, their service is not regularised. Therefore, in the absence of a specific, explicit provision, contract labourers are

not provided with a gratuity like regular employees. Even the contractor dares to demand a contract. To curb this exploitation and entrenched capitalism, the government must enact measures to close these loopholes. Like minimum wages, gratuity payments should be made mandatory for contract labourers.

### **Standardize Leave Policies**

Explicit leave policies, including paternity leave, should be implemented for the contract workers. Necessary provisions should be incorporated either in the Maternity Benefit Act, 1961 or under the Contract Labour (Regulation and Abolition) Act, 1970 (CLRA Act).

### **Strengthen Labour Inspection and Worker Representation**

Labour inspections conducted by labour inspectors must be carried out at proper intervals. During the interview, it was revealed that the labour inspectors are managed, and non-compliance is swept under the carpet. Therefore, the law must ensure that labour inspection is carried out in the presence of Senior Advocates or trade union leaders.

### **Promote Skill Development and Employment Stability**

A short-term skill-building course should be implemented for the foundry workers to enhance their productivity. Further, the Government should collaborate with industry professionals to ensure that the skill-based courses are delivered by industry experts.

## **X. Conclusion**

This study is grounded in the principles of Occupational Justice Theory, which is based on the notion that all individuals have the right to safe, dignified, and meaningful work. If the labour welfare legislation, despite having necessary provisions, is not achieving the intended objective, then the problem lies not only in its implementation but also in a lack of understanding of ground-level realities. Therefore, there is a need to investigate the grassroots working conditions. Though the sample size is too short which does not symbolize the whole number of workers, the findings which came out of the interviews are very much significant to provide a valuable insight into the working conditions of the foundry industry workers. Further, there are many foundries in the industry in Domjura, located in the district of Howrah. Above all, only a factory was selected to conduct the study. While the other factories were not included in the process, the harsh realities showed that the contract workers have limited access to welfare entitlements, face health risks, and are at high risk of job loss.

The occupational safety and health conditions of foundry workers in Howrah reveal that the workers are facing significant challenges to sustain a dignified lifestyle, although they have access to social security provisions like the CLRA Act, Factories Act, ESIC Act, and EPF Act, these benefits are often insufficient in addressing and uplifting their poor working conditions. Issues such as inadequate sanitation, prolonged exposure to hazardous heat, unpaid overtime, and the denial of gratuity payments cannot be addressed by ESIC or EPF, the Factories Act, or the CLRA Act.

Further, as per the International Labour Organization's Decent Work Agenda, which advocates for social protection, fair wages, and security in the workplace, the findings of the research solicit immediate addressing of the poor working conditions. The lack of leave provisions for male workers during childbirth makes them more vulnerable to loss of job. By invoking Amartya Sen's (1999) concept of 'development as freedom', the study supports the importance of expanding the scope of worker's freedoms while emphasizing their capabilities in enhancing their living standard and a dignified working condition.

Addressing these complex and interrelated challenges requires a multi-pronged approach that includes a robust policy framework, as suggested in the above recommendations, and the stringent enforcement of existing labour laws. Such comprehensive and inclusive reforms are essential not only to uphold the health and dignity of foundry workers but also to cultivate an equitable and sustainable work culture that supports economic development within the State of West Bengal.