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# Double Invisibility

**Industry Closures, Contractual Labour,  
and Compromised Worker Protection in  
Maharashtra's Industrial Sector**

An Output of the Social Impact Design Fellowship 2026

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As part of the Fellowship, she undertook field-based research across industrial clusters in Pune, Maharashtra, examining the impact of industry closures resulting from environmental violations on contractual labour, particularly in relation to compromised worker protections. Her study covers the Bhosari MIDC, RMC, Tarapur MIDC, and Ichalkaranji industrial clusters.



# Table of Contents

|                                       |    |
|---------------------------------------|----|
| List of Abbreviations                 | 4  |
| List of Figures and Tables            | 5  |
| Executive Summary                     | 6  |
| Keywords                              | 8  |
| Acknowledgements                      | 8  |
| A. Introduction and Literature Review | 9  |
| B. Methodology                        | 13 |
| C. Results                            | 16 |
| D. Discussion                         | 22 |
| E. Policy Recommendations             | 25 |
| F. Conclusion                         | 27 |
| Bibliography                          | 28 |
| Annexures                             | 30 |
| Design Application                    | 31 |

# List of Abbreviations

| Abbreviation     | Full Form                                                           |
|------------------|---------------------------------------------------------------------|
| BOCW / MAHA BOCW | Building and Other Construction Workers (Maharashtra Welfare Board) |
| CAG              | Comptroller and Auditor General of India                            |
| CETP             | Common Effluent Treatment Plant                                     |
| CPCB             | Central Pollution Control Board                                     |
| CREDAI           | Confederation of Real Estate Developers' Associations of India      |
| CSDDD            | Corporate Sustainability Due Diligence Directive (EU)               |
| DDU-GKY          | Deen Dayal Upadhyaya Grameen Kaushalya Yojana                       |
| ESIC             | Employees' State Insurance Corporation                              |
| EUE              | Ecologically Unequal Exchange                                       |
| FSSIA            | Forum of Small Scale Industries Association                         |
| GRAP             | Graded Response Action Plan                                         |
| GR               | Government Resolution                                               |
| IDA              | Industrial Disputes Act, 1947                                       |
| ILO              | International Labour Organisation                                   |
| KII              | Key Informant Interview                                             |
| MIDC             | Maharashtra Industrial Development Corporation                      |
| MLWF             | Maharashtra Labour Welfare Fund (1953)                              |
| MoEFCC           | Ministry of Environment, Forest and Climate Change                  |
| MPCB             | Maharashtra Pollution Control Board                                 |
| MSEB             | Maharashtra State Electricity Board                                 |
| NGT              | National Green Tribunal                                             |
| NPA              | Non-Performing Asset                                                |
| PHH              | Pollution Haven Hypothesis                                          |
| PF               | Provident Fund                                                      |
| PLFS             | Periodic Labour Force Survey                                        |
| PMKVY            | Pradhan Mantri Kaushal Vikas Yojana                                 |
| PPP              | Polluter Pays Principle                                             |
| RGSKY            | Rajiv Gandhi Shramik Kalyan Yojana                                  |
| RMC              | Ready-Mix Concrete                                                  |
| RIA              | Regulatory Impact Assessment                                        |
| SCGJ             | Skill Council for Green Jobs                                        |
| PMEGP            | Prime Minister Employment Generation Programme                      |
| CMEGP            | Chief Minister Employment Generation Programme                      |

# List of Figures and Tables

| No.      | Title                                                                     | Type      |
|----------|---------------------------------------------------------------------------|-----------|
| Figure 1 | Maharashtra Polluted River Stretches 2015–2024 vs. Enforcement Events     | Dot chart |
| Table 1  | Skilling Schemes: Target Groups and Gaps for Displaced Industrial Workers | Table     |
| Table 2  | Field Research Sites: Profile and Interview Summary                       | Table     |
| Table 3  | Results Mapped to Research Objectives                                     | Table     |

# Executive Summary

There are primarily three laws governing environmental enforcement against industries: the Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981, and the Environment Protection Act, 1986. However, these laws do not contain provisions to protect workers whose livelihoods are affected when the factories which employ them are closed. The implementation of these laws are also leading workers to lose their jobs in Maharashtra, while no government body is required to track what happens to them. This paper attempts to address that gap through publicly available government records, data analysis and interviews with industry association leaders across four Maharashtra industrial clusters: Bhosari MIDC (engineering and small-scale auto-ancillary), the Pune Ready-Mix Concrete (RMC) cluster, Tarapur MIDC (chemical and pharmaceutical industries), and Ichalkaranji (textile processing), and a labour union leader in Pune, Maharashtra.

Maharashtra records 154 industrial pollution complaints between 2021 and 2024 (PIB, 2024), and has 54 polluted river stretches that have not reduced since 2018 (CPCB, 2024). The Ministry of Environment, Forest and Climate Change (MoEFCC) reported that 23,981 industries violated environmental norms and 3,600 closure orders were issued nationally as of February 2026 (MoEFCC, Lok Sabha AU1571, 2026). In spite of this data on enforcement, the Ministry of Labour and Employment's Industrial Disputes Act Report for 2021 records zero industries closed due to pollution. This apparent gap in government records is partly explained by the way the IDA mechanism records closures. It captures data of industries employing more than 100 workers through voluntary submissions; leaving regulatory closures, specifically SMEs, and the workers affected by them, outside the official closure data. Since State Pollution Control Boards have no statutory obligation to compile data of closure directions, no centralised publicly accessible database of Maharashtra Pollution Control Board (MPCB) or Central Pollution Control Board (CPCB)

of it exists. The Industrial Relations Code, 2020 has further widened this gap by raising the prior-permission threshold from 100 to 300 workers.

Primary research from three locations in Maharashtra supports this gap through lives experiences. According to industry experts interviewed, when MPCB issues a closure order, no welfare scheme is activated, and they do not receive any direct support from the Labour Department. Additionally, workers often struggle to access Provident Fund and Employees' State Insurance Corporation (ESIC) benefits due to a lack of bank accounts and frequent changes in employment and location. These benefits are often routed through contractors instead. ESIC's Rajiv Gandhi Shramik Kalyan Yojana (RGSKY), explicitly designed for workers displaced by involuntary closure, admitted only 892 claims nationally in 2024–25, disbursing Rs. 5.37 crore (ESIC Annual Report, 2024–25), against a backdrop of thousands of regulatory closures and a total ESIC corpus of Rs. 1.61 lakh crore. The Atal Beemit Vyakti Kalyan Yojana (ABVKY), providing 90-day cash relief to unemployed insured workers, admitted 1,978 claims in the same year, disbursing Rs. 2.72 crore. Both schemes are accessible only to employer-registered insured workers; when a factory closes, accessing either entitlement becomes more difficult.

The Building and Other Construction Workers [Maharashtra Welfare Board] (MAHA BOCW) welfare board holds Rs. 8,612 crores in unspent funds (CAG, 2025), with 73 percent of sampled construction workers unregistered, and has no provision to disburse benefits when closure is set off by a regulatory order. The Maharashtra Labour Welfare Fund (MLWF), 1953, the state's oldest and broadest worker welfare instrument, applicable to all factories and shops with five or more employees also contains no provision triggered by a regulatory closure order. In 2024-2025, MLWF's Annual report states that 2 lakh rupees were spent on the skilling of unemployed workers' families to set up small businesses, but the report contains no data on actual businesses

set up or monetary benefit gained from the skilling. The MLWF is also partly funded by unclaimed wages and employer fines remitted when dues go unclaimed. This means that a displaced worker’s unpaid wages may remain within the MLWF corpus without a set pathway for the worker to claim them.

The paper introduces the concept of ‘double invisibility’: workers displaced by environmental closures are rarely visible in official data because labour systems do not record regulatory closures. When they try to avail benefits of welfare schemes, none of those are triggered by an enforcement order, causing a second invisibility. The problem emerges from the way three systems — environmental law, labour law, and welfare architecture — operate separately with no interaction. The gap becomes most visible when an enforcement order affects workers and the welfare system also relies heavily on the employer to connect workers to the state.

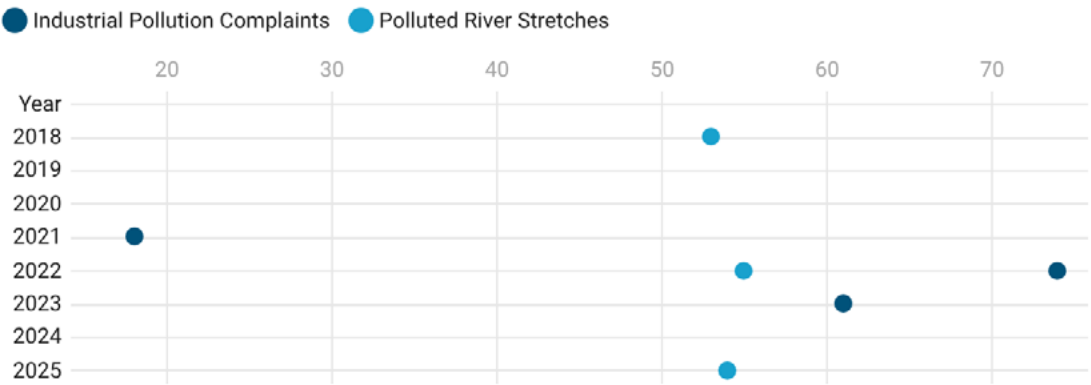
Interview with a Pune-based labour union leader also sheds light on an important facet of this problem in global value chains: sugarcane workers in the Kolhapur–Sangli–Belgaum belt remain invisible not only to Indian labour and environmental institutions but also to the multinational buyers whose product manufacturing depend on their labour. This paper establishes that Maharashtra’s

enforcement gap causing double invisibility of workers also reflects a broader pattern in which production risks and environmental costs are borne locally, while value is realised by global conglomerates outside regulatory reach of state bodies, while placing that observation within the Pollution Haven Hypothesis (Copeland & Taylor, 2001) and ecologically unequal exchange literature (Hornborg, 1998; Llaverro-Pasquina, 2025).

The paper proposes nine policy recommendations, based on the field findings and secondary data. Four are actionable through existing Maharashtra state-level instruments: a mandatory pre-closure Labour Department notification protocol; activation of the MAHA BOCW and MLWF funds for regulatory closures; a Regulatory Impact Assessment requirement for cluster-level closures; and Common Effluent Treatment Plant (CETP) infrastructure mandates for legacy MIDCs. Five require cross-ministry action with the most important being a shift from employer-led access to worker benefits towards direct government notification, including operationalising the IRC 2020’s unnotified Worker Re-skilling Fund and piloting a Direct Benefit Transfer mechanism for workers displaced by closures, modelled on PM-KISAN.

## Maharashtra- Industrial pollution complaints and polluted river stretches

Industrial pollution complaints rose sharply, while Maharashtra's polluted river stretches changed little



River stretches were assessed by CPCB only in 2018, 2022 and 2025. Complaint figures are annual MPCB records.  
Source: CPCB (Central Pollution Control Board) • Created with Datawrapper

## Keywords

Industrial pollution  
Maharashtra  
Environmental enforcement  
Industry closure  
Worker rights  
Contractual labour  
Worker welfare  
Just transition

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# A. Introduction and Literature Review

## Global Framework: The ILO Just Transition Guidelines

The International Labour Organisation's (ILO) Guidelines for a Just Transition towards Environmentally Sustainable Economies and Societies for All (2015, updated ILC Resolution 2023) establish the international normative framework which identifies both opportunities and challenges in environmental transitions. It notes that economic restructuring due to the greening of industries, resulting in worker displacement and job losses, requiring a focused policy response. The guidelines are explicit that there is no 'one size fits all' and that policies must be designed for specific sectors and enterprise sizes. And most importantly, just transition is defined to apply to all economic sectors, not only energy generation. The ILO's nine policy areas for just transition include macroeconomic policies, industrial and sectoral policies, skills development, social protection, and active labour market policies — and it stresses that these must operate coherently, stressing on coordination between employment authorities and their counterparts in environment, energy, transport, and health, which this paper documents as absent from Maharashtra's industrial enforcement architecture.

## India's Policy Response: Coal Only

The NITI Aayog's Report of the Inter-Ministerial Committee on Just Transition from Coal (November 2022), prepared under the India-US Strategic Clean Energy Partnership, is documentary evidence of the India's government first efforts to shape a formal just transition framework. Its first key concern is jobs and incomes: closure of coal mines would impact local economies, cause the loss of formal and informal jobs, and affect small enterprises, instructing that any strategy for promoting just transition must address this challenge. The report recommends a dedicated non-lapsable Green Energy Transition India Fund, regional development frameworks, and inter-ministerial coordination.

Every one of these recommendations applies to the chemical clusters of Tarapur, the dyeing units of Ichalkaranji, and the ready-mix concrete industry in Pune. Yet the document covers coal alone and has never been extended. India has a just transition framework in embryonic form, applicable only to one sector, covering only formal workers, leaving every informal industrial worker displaced by environmental enforcement outside its scope.

## The Nature of Labour in India: Structural Informality

The ILO's Working Paper on Informal Employment Trends in India (2019) establishes that larger share of informal labour market in the Indian economy is produced by policy. The paper traces how post-independence growth strategies — heavy-industry focus, small-firm reservations, weak labour inspection and entrenched informality across manufacturing. The report also highlights that workers in contractual employment are structurally excluded from the formal data systems maintained by the government and legal protections designed for organised labour.

Sanyal and Bhattacharyya, 2009 ('Beyond the Factory: Globalisation, Informalisation of Production and the New Locations of Labour') extend this argument: informality is actively produced by modern capitalism. Global firms outsource labour-intensive activities using subcontractors and avoid direct employment relationships, transferring risk onto smaller producers and workers while also denying them rights as employees due to the contractual nature of relationship. The result is what they call 'invisible labour': employment relationships that are structurally obscured, responsibility fragmented, and workers unable to identify the ultimate buyer of their product — let alone the institution responsible for their welfare.

The share of informal workers employed in registered factories increased from 12% in 1985 to 51% in 2011 (NSS 2012, as cited in Agarwala 2020) clearly reflecting the growing informalization of labour within the formal manufacturing sector. More recent evidence from the Annual Survey of Industries (ASI) (2023-2024) points to the persistence of this trend: contract workers accounted for approximately 42% of all workers in registered manufacturing in 2023–24, up from 38% in 2019–20. While contract employment is not synonymous with informal employment, the high and sustained share of contract workers demonstrates the extent to which non-direct employment has become embedded within India's formally registered manufacturing sector. Jan Breman ('Footloose Labour in South Asia'), published in 1996 by Cambridge University Press characterises this workforce as entrapped in an ongoing state of casualisation, paid flexible piece-wage rates. They are, as Breman argues, the foundation of India's non-agricultural employment growth and purposely kept invisible because visibility would create legal obligations.

## The Stress of Industrial Production on the Global South

A further strand of literature situates Maharashtra's enforcement gap within a global pattern. The Pollution Haven Hypothesis (PHH), first formalised in the environmental economics literature of the 1990s, holds that industries facing strict environmental standards in wealthier economies relocate their most polluting processes to economies with weaker enforcement and lower compliance costs, predominantly in the Global South.

Relocation of pollutant-intensive production from the Global North to the Global South raises global emissions, because the production then operates at higher emission intensity than it did in its country of origin once the environmental legislation and compliance standards weaken, as confirmed by cross-country evidence using gravity and multi-regional input-output (MRIO) models (Copeland & Taylor, 2001; Liu et al., 2021).

A parallel and complementary body of work, the literature on ecologically unequal exchange (EUE), extends the same logic from emissions accounting to how values are distributed between the Global North and Global South. Hornborg's foundational formulation of EUE describes a structural pattern in global trade whereby resources, energy, embodied land, and labour flow from the Global South to the Global North, while the socio-ecological burdens of extracting and processing them, pollution, land degradation, and health deterioration, remain concentrated in the South. Llaverro-Pasquina's (2025) 'Driving Ecologically Unequal Exchange: A Global Analysis of Multinational Corporations' Role in Environmental Conflicts' tracing over 3,300 environmental conflicts and 5,500 companies through the Global Atlas of Environmental Justice multinational corporations are disproportionately present in environmental conflicts in the Global South, and that conflicts involving foreign companies with a power imbalance are associated with worse socioeconomic outcomes than conflicts without them. The same body of research finds that foreign multinational enterprises contribute more to carbon emissions along their supply chains than they do to the value added captured by the countries hosting their production, meaning host economies absorb a disproportionate share of the ecological cost relative to the economic benefit they create and retain.

Some of the same literature that documents this asymmetry also points toward emerging instruments for addressing it. Germany's Supply Chain Due Diligence Act and the proposed EU Corporate Sustainability Due Diligence Directive (CSDDD) impose due-diligence obligations on lead firms for labour, environmental, and human rights conditions across their supply chains. However, as the respondent observed, these obligations are typically triggered only once a product is shown to reach the regulating jurisdiction's market, typically in the Global North, limiting their applicability to supply chains in the Global South where the manufacturing takes place, such as domestic Indian sugar-to-beverage chains. The entity with the greatest capacity to bear the cost of compliance (the state, in the domestic case; the multinational

lead firm, in the global value chain case) is the entity least exposed to legal consequence and systemically outside the purview of policy, when that cost is instead displaced onto labour and the local environment.

## The Maharashtra Worker Welfare Fund

Maharashtra maintains a broad, cross-sector worker welfare instrument: the Maharashtra Labour Welfare Fund (MLWF), which now functions under the Maharashtra Labour Welfare Board. Where MAHA BOCW applies only to registered construction workers, the MLWF applies to all factories and shop establishments covered under the Factories Act and the Shops and Establishments Act with five or more employees, a category that includes every site examined in this paper's fieldwork: Bhosari's rubber and engineering units, Tarapur's chemical and pharmaceutical plants, and Ichalkaranji's textile processing units.

The fund is financed through half-yearly employer and employee contributions. It is also largely supplemented by unpaid wage accumulations and fines collected from employers, which are required to be remitted to the board when not claimed by workers within a prescribed period. This financing design means that wages and dues left unclaimed by workers displaced through industry closure might form a significant portion of the very funds that flow into the MLWF corpus. The fund's contribution structure was revised in March 2024, and online remittance through the Board's portal became mandatory from June 2024 — indicating an active, currently operating scheme rather than a defunct one. The MLWF requires a total contribution of ₹100 per eligible employee every six months. The employee contributes ₹25 and the employer contributes ₹75. Contributions are deducted twice a year (from June and December salary) and must be remitted to the Maharashtra Labour Welfare Board (MLWB). Interest is not received on these payments but the employer is liable to pay simple interest on the outstanding contribution when contributions are not made on time.

What can be established from the fund's statutory design is structural, and it mirrors precisely the gap this paper identifies in MAHA BOCW. The MLWF Act and Rules contain no provision activating disbursement, outreach, or registration in response to an MPCB closure order. The MLWF therefore extends the paper's double invisibility argument beyond construction and beyond the BOCW Act to the entire formal factory and shop workforce of Maharashtra, including every non-construction site this paper examines.

## Maharashtra's Industrial Labour Context

According to the Periodic Labour Force Survey (PLFS) 2023–24, Maharashtra recorded an unemployment rate of approximately 3.1% and a Labour Force Participation Rate (LFPR) of around 60%. The e-Shram portal recorded more than 1.83 crore registered workers in Maharashtra (as accessed in 2025), highlighting the state's large informal workforce. Meanwhile, the Economic Survey of Maharashtra 2024–25 (based on PLFS 2023–24 workforce estimates) shows that manufacturing employed 12.1% of the state's workforce, while agriculture's share had declined to 43%, reflecting the state's gradual structural shift away from farm employment to industrial employment.

Maharashtra records one of the highest numbers of industrial pollution complaints,<sup>154</sup> nationally (PIB, 2024), with 54 polluted river stretches, a figure that has remained almost static since 2018 despite growing enforcement activity. The Comptroller and Auditor General (CAG's) Subject Specific Compliance Audit on MPCB (tabled March 2026) found inspection shortfalls of 53–68 percent, with visits to highly polluting industries (sugar, paper, pharmaceuticals) falling short by 58–84 percent. Enforcement is, in the CAG's own word, 'systemically weak' — and when it does occur, it is shock-driven rather than preventive.

## The Legal Framework: Closure Without Worker Protection

Four statutes empower MPCB to issue closure orders, as discussed, however none contains any worker welfare provision. The Commission for Air

Quality Management in the NCR and Adjoining Areas Act, 2021 is the only statute under which worker compensation has been judicially ordered, exclusively for NCR construction workers under GRAP.

**“We make it clear that hereafter whenever construction activities are required to be closed due to implementation of GRAP measures, compensation shall be paid to the affected workers.”**

— Supreme Court of India, 2025,  
M.C. Mehta v. Union of India

For every other sector and every other state, no such mandate exists.

India's Polluter Pays Principle (PPP), analysed by Singhal and Koonan (2021), focusses entirely on environmental restoration sparing no funds for the workers affected. The National Green Tribunal (NGT) has awarded hundreds of crores in environmental compensation since 2010, and there is no documented evidence of funds which have been directed to the welfare of displaced workers. The Supreme Court's GRAP order in M.C. Mehta v. Union of India requiring NCR states to compensate construction workers from BOCW cess funds is the only exception.

## The Research Gap

This paper investigates a specific and previously unstudied policy failure: when the Maharashtra Pollution Control Board (MPCB) issues a closure order against a polluting industry, no institution is required to ask what happens to the workers.

This is about workers losing jobs because their industries violated environmental laws. No study has traced the specific mechanism by which environmental enforcement orders produce worker harm without triggering any compensatory or protective response, particularly for informal and contractual workers in non-coal industrial sectors. The Labour Bureau's data records zero pollution-driven closures. Just transition literature covers coal only. This paper fills that gap, through key informant interviews across four Maharashtra industrial sectors: engineering and rubber, ready-mix concrete, chemical and pharmaceutical, and textile processing. Along with a cross-sector labour union perspective, this paper attempts to produce the first documented mapping of how double invisibility operates at the point of environmental enforcement.

## B. Methodology

### Research Design

This research adopts a qualitative design based on Key Informant Interviews (KII). The central research question — what happens to workers when MPCB issues a closure order — cannot be answered from available datasets alone, as these workers do not appear in official records. KII methodology is appropriate when access to the primary affected population is structurally limited and when the research objective is to document an institutional gap rather than measure a population outcome.

The research is grounded in two analytical frameworks: the Regulatory Impact Assessment (RIA) framework, which holds that every major regulation should include an assessment of its social costs; and the ILO Just Transition Guidelines (2015/2023), which establish that active labour market policies must be combined with income support rather than offered as standalone training. India's environmental enforcement statutes contain no RIA requirement — a parliamentary record confirms this: the Minister of State for Environment told the Lok Sabha in March 2023 that the government has not conducted any studies on the impact of new regulations on workers.

### Secondary Data Sources

| Source                                            | Data Used                                                                                                              | Key Limitation                                                                       |
|---------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| CPCB Polluted River Stretches (NMCG 2024)         | 54 polluted river stretches in Maharashtra; near-static 2018–2024 (53–56)                                              | Tracks pollution levels, not industry-specific closure causes                        |
| MoEFCC, Lok Sabha Q. AU1571 (Feb 2026)            | 23,981 violating industries nationally; 3,600 closure orders                                                           | Maharashtra-specific breakdown requested via RTI — awaited                           |
| Labour Bureau, IDA Report 2021                    | Zero industries closed due to pollution — structural proof of worker invisibility                                      | 100+ worker formal threshold only; excludes all regulatory closures                  |
| CAG MPCB Audit (March 2026)                       | 53–68% inspection shortfall; enforcement 'systemically weak'                                                           | Confirms shock-driven enforcement; no worker welfare dimension                       |
| PIB Environmental Complaints 2024                 | Maharashtra highest nationally for industrial pollution complaints                                                     | Complaint data only; no closure or outcome linkage                                   |
| PLFS Maharashtra 2025                             | 3.1% unemployment; 1.83 crore unorganised workers on e-Shram                                                           | Headline figures; does not disaggregate by closure cause                             |
| CAG MAHA BOCW Audit (2025)                        | Rs. 8,612 crore unspent; 73% of sampled workers not registered                                                         | Confirms welfare fund exists and is not reaching workers                             |
| Maharashtra Labour Welfare Fund Act, 1953 / Rules | Statutory basis for MLWF; applies to all factories/shops with 5+ employees; funded partly by unclaimed wages and fines | No public closure-linked audit located; utilisation data requested via RTI — awaited |

## Primary Research: Key Informant Interviews

| Site                           | Industry / River                                        | Respondent                                                                               | Status                                     |
|--------------------------------|---------------------------------------------------------|------------------------------------------------------------------------------------------|--------------------------------------------|
| Bhosari MIDC, Pimpri-Chinchwad | Engineering, rubber, auto-ancillary (Mula-Pawna rivers) | President, Forum of Small Scale Industries Association (FSSIA); 50-year industry veteran | Complete                                   |
| Pune RMC Cluster               | Ready-mix concrete; construction sector                 | Head Pune RMC Association / Sai Industries (12 years in RMC)                             | Complete                                   |
| Ichalkaranji                   | Textile industry                                        | Owner of textile plant employing around 200 workers                                      | Complete                                   |
| Tarapur MIDC, Palghar          | Chemical and pharmaceutical; Red Category cluster       | Industry representative, Tarapur MIDC                                                    | Complete                                   |
| Hamal Manch office, Pune       | Cross-sector worker perspective                         | Labour union representative                                                              | Complete                                   |
| MPCB / District Labour Office  | Government perspective on closure process               | Outreach made — no response                                                              | Not obtained — acknowledged in Limitations |

## Interview Protocol

A semi-structured guide was used across all interviews. Core question areas: (a) employment profile before and after closure events; (b) worker notification, severance, PF, and ESIC disbursement; (c) Labour Department involvement in closure process; (d) post-closure worker trajectories; (e) knowledge of skilling and welfare schemes; (f) policy improvement recommendations. Interviews were conducted in Hindi, English, and Marathi. Verbatim notes were taken and recordings too with respondents where possible.

## Site Profiles

**Bhosari MIDC:** Established in 1968, Bhosari MIDC is among Maharashtra's oldest industrial zones, comprising rubber, plastics, and auto-ancillary units operating as sub-contractors to Pune's automobile manufacturing sector. The district hosts approximately 60,000–70,000 enterprises, of which an estimated 25 percent employ between 200 and 500 workers; the remainder are MSME units with predominantly contractual and unorganised workforces. Despite

56 years of continuous operation, the cluster has no Central Effluent Treatment Plant (CETP).

**Pune RMC Cluster:** The Pune ready-mix concrete (RMC) cluster comprises operations distributed across three jurisdictions — the Pune Municipal Corporation (PMC), Pimpri-Chinchwad Municipal Corporation (PCMC), and the Pune Metropolitan Region Development Authority (PMRDA). The industry is not formally classified under Maharashtra's industrial categorisation framework and is consequently subject to commercial rather than industrial electricity tariffs. Over 300 plants were operational prior to the October 2025 Government Resolution. Despite a significant and growing volume of operations, the sector lacks recognition as a distinct industry category, with no standardised regulatory or welfare framework applicable to its workforce.

**Tarapur MIDC:** Tarapur MIDC is designated a Red Category industrial cluster and is among six Volatile Organic Compound (VOC)-monitored chemical industrial areas identified by the Maharashtra Pollution Control Board (MPCB Annual Report 2022–23). It constitutes the largest

concentration of chemical and pharmaceutical manufacturing units in Maharashtra outside Greater Mumbai. The cluster operates under relatively systematic regulatory oversight, with MPCB conducting inspections regularly. The workforce is characterised by a two-tier structure comprising permanent skilled workers and casual informal workers, with markedly divergent outcomes on closure between the two categories. **Ichalkaranji:** Ichalkaranji hosts one of Maharashtra's largest textile processing clusters,

with an estimated more than 50,000 worker families dependent on the sector. Despite the scale of industrial activity, the cluster does not hold MIDC designation, placing it outside the administrative and regulatory framework that governs formally notified industrial areas. The workforce comprises both skilled and unskilled labour engaged primarily in power loom and textile processing operations, with a high proportion of piece-rate and informal employment arrangements.

## C. Results

### Research Objective 1: Job Losses and the Effectiveness of Environmental Enforcement

#### Scale of Environmental Non-Compliance

The conclusion is significant: enforcement activity is growing, but environmental outcomes are not improving. Closure orders are being issued but not producing the intended result on the ground. The CAG Compliance Audit (March 2026) explains why: MPCB inspection visits fall short of scheduled targets by 53–68 percent. Visits to highly polluting industries including pharmaceuticals fall short by 58–84 percent. The CAG describes enforcement as ‘systemically weak.’ All KII respondents confirm that when action does come, it arrives suddenly — as shock enforcement — rather than as a planned compliance journey.

#### Labour Data Gap

The Ministry of Labour and Employment’s Industrial Disputes Act Report 2021 records zero industries closed due to pollution. The IDA mechanism captures only establishments with 100 or more workers that voluntarily filed closure notices. The Industrial Relations Code (2000) has increased this number to 300. Contract workers, establishments below the threshold, and all regulatory closures are excluded. An MPCB closure direction does not appear in this data. The workers it displaces are, in the official record, not displaced at all meaning that it is not a statistical gap to be filled by better data collection but a structural feature of a system designed without regulatory closures or informal workers in view.

### Research Objective 2: Worker Protection and Skilling — What Existing Schemes Provide

| Scheme                       | Target Group                             | Gap for Displaced Industrial Workers                                                                      |
|------------------------------|------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| PMKVY 4.0                    | 15–59 years; demand-driven; open access  | No enforcement-triggered activation. CAG 2025: only 18% of trained candidates secure formal placements.   |
| PM-NAPS                      | Workers seeking apprenticeships          | Requires a willing employer. Inaccessible to a worker who has just lost their job.                        |
| DDU-GKY                      | Rural youth aged 15–35                   | Restricted to rural youth. MIDC workers in Bhosari, Tarapur, Pune are excluded.                           |
| Jan Shikshan Sansthan        | Non-literate, school-dropout populations | No referral mechanism from MPCB. Industrial workers are not the target demographic.                       |
| Skill Council for Green Jobs | New entrants to green sectors            | No pathway from displaced chemical or RMC worker. Forward-looking; not displacement responsive.           |
| MAHA BOCW Welfare Board      | Construction workers — if registered     | Rs. 8,612 crore unspent (CAG 2025). 73% of sampled workers not registered. No regulatory closure trigger. |

The common thread: not one of these six schemes contains a trigger linked to an MPCB closure order. No MPCB notice has ever activated a PMKVY enrolment drive, a BOCW registration camp, or an ESIC disbursement process. The schemes are designed for workers who come to the welfare system, yet the workers displaced by environmental enforcement, the welfare system cannot find.

## Field Research Findings by Site

### Case Study 1: Bhosari MIDC — The Erosion of Permanent Employment

Bhosari MIDC was established in 1968 as a hub for Pune's automobile supply chain. Of Pune district's approximately 60,000–70,000 companies, roughly 25 percent are large enterprises employing 200–500 workers, according to the interviewee. The remainder — the overwhelming majority — are small-scale sub-contractors. Pre-liberalisation, workers held permanent positions; closure triggered union consultation, voluntary retirement offers, and severance. The Industrial Disputes Act protections operated as intended because the workers they protected were formally employed.

After 1992, multinational enterprises introduced the contractual labour model. Small-scale industries, unable to match the productivity of capital-intensive machinery on identical electricity tariffs, began to close or relocate to other states. The land was absorbed by real estate interests. Workers returned to villages. Union court cases from this transition period remain pending today — an indication that even formal dispute resolution has not resolved the displacement produced three decades ago.

COVID-19 compressed this structural vulnerability into months. Around thirty percent of Bhosari companies converted assets to Non-Performing Assets (NPAs) as owners paid worker wages through the shutdown with no working capital, according to the interviewee, the President of the Forum of Small Scale Industries Association. Neither PMEGP nor CMEGP provided credit. MPCB inspections remain rare — closures arrive in response to deaths or severe pollution events, not systematic monitoring. Bhosari has

operated for 56 years without a CETP. Hazardous waste disposal costs Rs. 25,000 per tonne via a single private vehicle from Ranjangaon — unaffordable for SMEs, who give waste to scrap processors instead. Bhosari also highlighted that MPCB has insufficient staff, according to him, to carry out regular inspections. The Subject Specific Compliance Audit on the role of MPCB in the prevention of water pollution, covering the period from 2017-2018 to 2021-2022, found that MPCB was wanting in enforcement and stated that many industries were operating without mandatory consents, thereby weakening compliance to environmental regulations, and the board's monitoring was severely constrained due to shortage of manpower, resulting in fewer inspections.

**“It is not a simple problem. Many of these workers are from different states and are not even registered or don't even have a bank account in their name. In the case of industry closure, the Provident Fund will be provided to the contractor, but I have rarely seen the benefits reach the workers operating on ground.”**

— President, Forum of Small Scale Industries Association (FSSIA), Bhosari MIDC

### Case Study 2: Pune RMC Cluster — Regulatory Fragmentation and the BOCW Gap

Ready-mix concrete (RMC), the second most widely used material in the world after water, (European Ready Mixed Concrete Organisation (ERMCO), is not classified as an industry in Maharashtra. These plants receive electricity at commercial rates and face 10–12 separate licences across three different municipal jurisdictions (PMC, PCMC, PMRDA) without a unified SOP. On October 17, 2025, MPCB issued a Government Resolution mandating all RMC operations be enclosed in factory sheds — piloted in Mumbai and extended state-wide without consulting Pune operators.

RMC is a proximity industry: fresh concrete must be poured within 60–90 minutes of mixing, requiring plants near construction sites. Factory-shed enclosure is commercially unworkable for most

operators. The RMC Association collectively shut 300+ plants in protest. MPCB audited and issued 84 closure notices in January 2026. A Collector-facilitated SOP, along with CREDAI (Confederation of Real Estate Developers' Associations of India), eventually allowed operations to resume — but workers received no welfare activation, no notification, and no compensation through any government mechanism during the closure period.

**“The Labour Department is not featured anywhere in this process. MPCB visits, checklist, notice if not following, then closure. Even when MPCB informs MSEB to cut electricity to a defaulting industry, many times even that is not followed — and the industry continues to operate.”**

— Head, Pune RMC Association

The MAHA BOCW finding is starkest here. RMC workers are, in principle, construction-sector workers covered under the BOCW Act. Yet BOCW registration requires workers to queue for hours at board offices. Benefits are being availed by people other than the construction workers the scheme was designed to serve. The Rs. 8,612 crores sitting unspent in Maharashtra's BOCW fund while 84 plants' workers received nothing during the closure period is a specific, recent, documented instance of a welfare system failing its exact intended beneficiaries.

### **Case Study 3: Tarapur MIDC — A More Formalised Cluster, the Same Institutional Gap**

Tarapur MIDC in Palghar district is one of Maharashtra's six VOC-monitored chemical industrial areas and its largest Red Category chemical and pharmaceutical cluster outside Greater Mumbai. Unlike Bhosari's small-scale engineering profile, Tarapur hosts larger units with more formalised employment structures. The workforce is explicitly two-tier: permanent workers handling chemical processes and payroll-registered with formal protections; and casual workers performing loading, unloading, cleaning, and waste handling on an informal contractual basis.

MPCB inspection frequency at Tarapur is significantly higher than at Bhosari — the industry representative confirmed visits every two to three months rather than the complaint-driven inspections described at the smaller cluster. This difference is important: it suggests that enforcement regularity correlates with cluster scale and industry profile, with smaller informal clusters receiving less systematic oversight and therefore facing more shock-driven closures when action eventually comes.

In 2016 approximately 76 industries in Tarapur MIDC shut for 100 days following MPCB enforcement action. The settlement approach adopted: permanent workers were retained on 50 percent salary during the layoff period, given maintenance and repair work, and encouraged to attend the factory weekly to preserve continuity. Casual workers were not bound by this arrangement, and many took up employment in Vapi, Lote Parshuram, Pune, and other chemical cluster locations.

**“When MPCB announces a closure, industry associations are clearly informed. The government is least bothered about industry then. Labour department not involved at any step of closure by MPCB — onus on industry owners and workers and nothing on MPCB or Labour Department.”**

— Industry representative, Tarapur MIDC

Raut confirms that for permanent workers, PF, gratuity, leave balance, and bonus are usually settled between owner and worker. But he makes a crucial qualification: if a company in financial difficulty cannot settle, workers must file independent complaints with the Labour Court — a process that is slow, costly, and inaccessible for workers without documentation. For casual workers who relocate, as many did in 2016, there is no settlement process at all. The Labour Department was not involved at any step of the MPCB closure process. Its role begins only if a worker files an independent complaint afterward.

1 Red category: Industrial areas with a pollution index (based on air, water and hazardous waste) of 60 and above

**“Textile more contractual, chemical less — more formalised. If the labour is specialised in chemicals, then they usually get options nearby. Feels no blockages in this and labour connections within industries is strong in the region for the worker(s) to get a new job.”**

— Industry representative, Tarapur MIDC

This is the Tarapur distinction: skilled chemical workers have transferable expertise and industry networks that allow them to relocate within the chemical cluster geography (Vapi, Lote Parshuram, Pune). The policy gap is not absent here — it is just less visible because the skilled worker finds their own way out. The casual worker, who handles waste and loading without sector-specific skills, has no equivalent network and no settlement entitlement.

#### **Case Study 4: Ichalkaranji**

The textile hub of Ichalkaranji in Maharashtra is currently facing widespread disruption, with about 150 processing units and 70 percent of local plain power loom factories forced to operate at reduced capacity (often single shifts) or shut down entirely. Around 50,000 worker families are affected. The closure was triggered by civil action from the nearby village of Shirol, which threatened to cut Ichalkaranji’s water supply if textile units continued to dump CETP-treated water into the Panchganga river — water that, despite an existing CETP, had no agricultural land available for safe discharge. More than 100 plants have shut since April 2026, and the impact of closure is still being felt. Ichalkaranji produces textiles at large scale but has still not been declared an MIDC. As with the other sites, the Labour Department has not been involved in these closures. The workforce is a mix of skilled labour, required in processes such as milling, and unskilled labour. According to the respondent, majority of the workers availed the benefits of Provident Fund and were registered on ESIC. Others who were not, had migrated from other states for work and not permanent, contractual, hence not registered to avoid repeated paperwork and bureaucratic troubles.

#### **Cross-Sector Worker Perspective: Hamal Manch, Pune**

A Hamal Manch leader provided a cross-sector labour perspective that extends the paper’s findings beyond individual industrial closures to the structure of global supply chains and the practical inaccessibility of existing labour protections.

The interviewee traces the production chain of sugarcane workers — many of them migrants from Bihar travelling to Kolhapur, Sangli, and Belgaum — through to sugar mills and onward to bottling companies, which manufactures non-alcoholic products. By his estimate, sugar constitutes a substantial share of input cost for several such products, yet the conditions under which sugarcane workers live and labour remain disconnected from the profits realised downstream.

**“If I want to do anything for sugarcane workers in Maharashtra, I ultimately have to talk to non-alcoholic products manufactures to move things rapidly.”**

—Leader, Hamal Manch

The interviewee also raised concerns about effluent from a non-alcoholic product manufacturer plant in Ahilyanagar district (previously known as Ahmednagar district), allegedly damaging agricultural land, and about the limited responsiveness of pollution authorities once a major global brand is implicated. He argued that effective advocacy must target capital and ownership structures rather than individual factories, citing international supply-chain due diligence frameworks (Germany’s Supply Chain Due Diligence Act; the EU’s proposed CSDDD) and shareholder pressure — including the Norwegian sovereign wealth fund’s reported investment in a non-alcoholic product manufacturing company and its Ethics Council’s capacity to recommend divestment — as emerging accountability mechanisms.

On industrial closure specifically, the interviewee’s assessment aligns closely with the paper’s central finding: Indian labour law provides for compensation, consultation, and worker takeover

rights during retrenchment and closure in principle, but workers typically lack the money, knowledge, legal resources, functioning unions, or accessible tribunals to exercise them in practice. He further described how companies structure contracts around the 240-day threshold to avoid conferring

permanency and characterised the new labour codes as reducing appeal opportunities and strengthening employer discretion at the point of contract termination.

## Cross-Cutting Findings: The Double Invisibility

| Finding                                                                  | Bhosari MIDC                                                         | Pune RMC                                                                                                                                                                       | Tarapur MIDC                                                                                                                                                                | Ichalkaranji                                                                        |
|--------------------------------------------------------------------------|----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 1. Shift from permanent to contractual labour undermines all protections | Pre/post 1992 shift; union cases still pending; reverse migration    | MNC-to-local transition; contractor model dominant                                                                                                                             | Two-tier: permanent vs. casual; casual workers entirely unprotected                                                                                                         | Mix of skilled labour, required in processes such as milling, and unskilled labour. |
| 2. PF/ESIC rarely reaches workers on the ground                          | PF goes to contractor; workers unregistered, no bank accounts        | BOCW registration burden; benefits not reaching intended beneficiaries                                                                                                         | Permanent workers usually settled; casual workers receive nothing; Labour Court inaccessible                                                                                | Workers were believed to have been registered on ESIC                               |
| 3. Labour Department absent from MPCB closure process                    | Implied by complete absence of Labour Dept from compliance narrative | Confirmed by primary KII — Labour Department has no institutional role in the MPCB closure process; closure proceeds without any labour authority notification or involvement. | Confirmed by primary KII — Labour Department is absent at every stage of the MPCB enforcement and closure process; no mechanism exists for inter-departmental notification. | Confirmed; compounded by absence of MIDC status removing even nominal oversight     |
| 4. MPCB enforcement is shock-driven, not systematic                      | Closures triggered by deaths/complaints; no periodic inspection      | 84 closures from single audit; October 2025 GR without consultation                                                                                                            | CONTRAST: MPCB visits every 2–3 months at Tarapur — more systematic than smaller clusters                                                                                   | Shutdown due to civic action and outrage and not MPCB                               |
| 5. Compliance infrastructure unavailable for SMEs                        | No CETP since 1968; Rs. 25,000/tonne hazardous waste unaffordable    | 10–12 licenses; no SOP for functioning and licensing process; not recognised as industry; commercial tariffs                                                                   | Tarapur has CETP and better infrastructure — contrast confirms scale matters                                                                                                | CETP exists but non-functional for discharge; lacking infrastructure                |

| <b>Finding</b>                                  | <b>Bhosari MIDC</b>                                  | <b>Pune RMC</b>                                                 | <b>Tarapur MIDC</b>                                                                                       | <b>Ichalkaranji</b>                                                                     |
|-------------------------------------------------|------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 6. Welfare schemes not reaching workers         | No scheme activated on closure                       | BOCW Rs. 8,612 crore unspent; PMKVY 18% placement; no trigger   | No scheme activation on closure; Labour Department onus only if worker complains                          | MIDC-less status removes further alienates workers from benefits                        |
| 7. No green economy reabsorption pathway exists | Implied — workers return to villages or daily labour | Implied — contractor relocates workers; no green skills pathway | Chemical workers relocate within sector, but to the same polluting industry profile — no green transition | No green economy analogue; piece-rate textile workers have no lateral transition option |

## D. Discussion

### Interpreting Findings Against Research Objectives

The primary research objective was to document job losses from environmental enforcement closures and assess whether existing policies address them. This study produces two clear conclusions, Job losses are real, ongoing, and structured. It cannot be precisely quantified because the data systems that would record them were designed without this category in mind. The Labour Bureau's zero industries closed due to pollution figure for 2021 is not an anomaly; it is evidence that the data system was never built to see these workers. The quantification gap is itself a policy finding.

The secondary objective was mapping existing schemes, producing an equally definitive result. None of the six schemes assessed contains a trigger linked to an MPCB closure order. It is not a design flaw in the schemes, rather a categorical omission. The scheme designers did not consider workers displaced by regulatory enforcement as a target group, because no regulatory framework required them to.

### The Double Invisibility: A Structural Argument

The paper's central conceptual contribution is the concept of 'double invisibility.' Workers displaced by environmental enforcement are invisible at two distinct moments: at the point of data capture, and at the point of welfare delivery. These are not the same failure — they are two separate structural features of systems designed in isolation.

At the point of data capture: the Labour Bureau's threshold (100+ workers, voluntary, formal sector) excludes all regulatory closures and most informal workers. The MPCB's mandate covers pollution, not people; its closure directions generate no labour data whatsoever. The result is that 3,600 national closure orders produce zero entries in the Labour Bureau's records.

At the point of welfare delivery: BOCW registration requires workers to come to the state, not the state to reach workers. PMKVY is demand-driven and open-access — it requires a worker to seek it out, with no outreach triggered by enforcement events. PF and ESIC flow through contractors who, across all sites, rarely disburse them to casual workers. The infrastructure of welfare exists; the pathway from 'worker displaced by MPCB order' to 'worker accessing welfare' does not.

Sanyal and Bhattacharyya's (2009) argument that informal labour is 'actively produced' by capitalism, not a leftover, applies here with precision. The contractual system that makes workers invisible to welfare systems is not a failure of the system — it is how the system was designed to function.

### Why Scale and Formalisation Matter

The contrast between Tarapur and the smaller Bhosari and RMC clusters is one of the paper's most important empirical findings. Tarapur sees more regular MPCB inspection, more formalised employment for permanent workers, and better settlement outcomes for skilled chemical workers on closure. This is not a contradiction — it confirms the paper's core argument by showing its inverse: where formalisation is higher, the policy gap is less catastrophic. It is not the environmental enforcement that produces worker harm; it is the combination of enforcement with informality and the absence of any institutional bridge between the two.

Critically, even Tarapur's more formalised environment does not close the gap for casual workers. Loading and cleaning workers at Tarapur, when displaced, receive no settlement, no BOCW activation, and no government contact. They relocate to Vapi or Lote Parshuram — not into a green economy, but into the same industrial profile at a different location. Raut's observation that 'there are no blockages' for skilled chemical workers finding new jobs is accurate — and

it highlights that the just transition problem is not about skilled permanent workers, who can navigate the labour market. It is about the casual tier, which is entirely outside the frame of every policy instrument reviewed.

## **Beyond Maharashtra: Domestic Enforcement Gaps as a Local Instance of a Global Pattern**

Hamal Manch's testimony on sugarcane labour and non-alcoholic product manufacturer adds a dimension to the double invisibility argument to the paper's core fieldwork. Focused on MPCB closures, it does not by itself capture invisibility produced due to the absence of a domestic regulatory trigger, but by the structure of the global value chain itself. Read against the Pollution Haven Hypothesis and ecologically unequal exchange literature, Kumar's account of effluent damage near a bottling plant supplying a global beverage brand, and the limited regulatory responsiveness. He describes that once that brand is implicated, environmental conflicts involving multinational lead firms in the Global South are associated with worse outcomes than conflicts without them and these findings are consistent with the broader empirical finding. The mechanism in both cases — domestic MPCB closures and global sugar-to-beverage supply chains — is the same: the institution with formal authority to act (MPCB, in the domestic case; the lead firm's home-country regulator, in the global case) is structurally distant from the workers and communities bearing the cost, and no institution sits at the point where authority and proximity overlap.

This parallel should not be overstated. The paper's primary fieldwork is about domestic environmental enforcement and Indian labour and welfare law; the global value chain dimension was raised by a single respondent and is not independently substantiated through this paper's own data collection. It is presented here as a literature-supported observation that situates the domestic finding within a wider frame, and as a direction for the future research agenda — not as a second empirical claim with the same evidentiary weight as the MPCB closure findings. The emerging supply-chain due diligence instruments Kumar

referenced (Germany's Supply Chain Due Diligence Act; the proposed EU CSDDD) indicate that this is an active area of policy development internationally, even though, as he noted, their applicability to chains that do not directly reach the regulating jurisdiction's market remains limited.

## **Comparison with Existing Literature**

The findings agree with the ILO's warning about economic restructuring resulting in displacement of workers and its call for coordinated policies across environment and labour portfolios. They confirm the NITI Aayog's identification of livelihoods as the first concern in any just transition — and extend that concern beyond coal to enforcement-driven closures in all polluting sectors. The Agora Energiewende analysis of Germany's coal commission provides a useful design contrast: Germany's 2 billion euros annually in structural support (Agora Energiewende, 2019), its guarantee that 'no worker will be left high and dry,' and its consultative commission structure represent what deliberate design looks like. Maharashtra's enforcement architecture represents the opposite — enforcement without consultation, closure without transition, regulation without an accompanying welfare mandate.

The key contradiction with existing literature is this: ILO guidelines assume that social dialogue and stakeholder consultation will precede environmental policy changes. The RMC case shows a GR issued without industry consultation; Bhosari shows compliance infrastructure that has not been built in 56 years; Ichalkaranji shows a community-triggered shutdown with no institutional buffer for either side; Tarapur shows casual workers settling their own claims against companies that may have no assets. Social dialogue, in practice, either does not occur or occurs too late.

## **Broader Implications**

The findings have implications beyond Maharashtra. As India pursues net-zero commitments and green economy targets, more industries will face tighter environmental regulations. The demographic of affected labour

will grow. Workers with skills in dyeing, chemical processing, brickmaking, and construction materials face displacement into an economy that has not designed a pathway for them. 1.83 crore workers were registered on the e-Shram portal as of January 2026 in Maharashtra alone are a measure of the scale of the population that sits outside every just transition framework currently operational.

The gender dimension, while not directly researched in this paper due to access constraints, is significant. ILO guidelines note that policies and programmes need to consider the strong gender dimension of many environmental challenges. Women in informal industrial labour — handling piece-rate tasks in chemical units, processing in textile dyeing — are doubly disadvantaged: informal workers who are also outside the institutional structures through which unions, associations, and welfare boards operate. This paper's methodology did not capture women's experience; future research must.

## **Strengths, Limitations, and Future Research**

The paper's primary methodological strength is triangulation across independent KII respondents from different sectors, all describing the same institutional patterns — without prompting. This convergence is methodologically significant. A secondary strength is the use of government sources (CAG, Labour Bureau, PIB, MoEFCC

Lok Sabha answer) to establish secondary data findings, meaning the paper's primary factual claims are based on official government records rather than researcher inference.

Limitations: Three limitations are acknowledged. First, government official interviews were not obtained; institutional process findings are based on industry association accounts and secondary data. Second, direct worker interviews were not secured; worker experience findings are mediated through industry representatives and partially addressed through the labour union leader's interview. Third, the KII sample covers western and central Maharashtra only — Vidarbha's coal and thermal clusters are not included, narrowing the generalisability of findings. These limitations are partially offset by triangulation across independent respondents who, without prompting, describe the same institutional patterns. The difficulty of accessing workers and government officials is itself methodologically relevant: it demonstrates the structural invisibility this paper documents.

Future research priorities: a survey instrument administered directly to informal workers displaced by environmental closure events; a quantitative mapping of closure orders against Labour Bureau and EPFO records to estimate the true scale of undercounting; and an analysis specifically of women's experience in informal industrial labour during enforcement-driven closures.

## E. Policy Recommendations

The following recommendations are grounded in field findings and secondary data. Recommendations 1–4 are actionable through existing Maharashtra state-level instruments without central legislative amendment. Recommendations 5–8 require legislative or cross-ministry action.

**Recommendation 1 — Mandatory Pre-Closure Labour Department Notification:** The District Labour Office must be notified by the MPCB before any closure direction for an establishment with 25 or more workers. The MPCB should be mandated to providing the name, worker count from the Consent to Operate application, and nature of the direction. After MPCB finalises on a closure, a 30-day notification window should be activated which allows welfare activation without delaying enforcement.

**Recommendation 2 — Activate MAHA BOCW for Regulatory Closures:** Amend MAHA BOCW Board guidelines to include regulatory closures (MPCB directions, NGT orders) as a welfare disbursement trigger alongside voluntary employer closures. Mandate simultaneous BOCW notification and on-site registration camps when MPCB closes construction-adjacent industries (RMC, brick kilns, stone crushing). Implementation: state government notification under the BOCW Act, 1996.

**Recommendation 3 — Regulatory Impact Assessment for Cluster-Level Closures:** Require MPCB to conduct a worker impact assessment before issuing closure directions to more than five establishments in a single MIDC cluster within 90 days. Assessment should document worker numbers, employment type, local alternative employment, and welfare referral pathways. A pro forma assessment by the Sub-Regional Officer should create the first official record of worker displacement. Implementation: MPCB internal directive.

**Recommendation 4 — CETP Infrastructure for Legacy MIDCs:** Require MIDC to provide shared effluent treatment and hazardous waste processing infrastructure to all MIDC clusters established before 1990 within five years, with MIDC bearing capital costs and recovering through per-unit levy. Bhosari MIDC (est. 1968, no CETP) is the immediate priority.

**Recommendation 5 — Consultative GR Process for Environmental Directives:** Environmental directives affecting an entire industry's functioning, like the October 2025 RMC shed requirement, must include mandatory stakeholder consultation with the industry representatives from across the region than just selective urban centres before finalisation. This consultation should include sector-specific impact assessments and worker welfare provisions. SOPs should be framed through these consultations too, where permits, functioning processes etc. are explicitly put on a one document than different instructions from different departments and limited coordination.

**Recommendation 6 — Environmental Enforcement Trigger in PMKVY and SCGJ:** Amend PMKVY and Skill Council for Green Jobs scheme guidelines to include a mandatory enrolment drive in any MIDC cluster where MPCB has issued closure orders to more than ten establishments within 90 days. Registration should be conducted on-site, not at skill centre offices. The 18% formal placement rate of current PMKVY beneficiaries must also be addressed through mandatory employer linkage before enrolment.

**Recommendation 7 — Extend the MC Mehta GRAP Precedent:** The Supreme Court's construction worker compensation model — the only instance in India where environmental enforcement has been linked to worker compensation — should be codified into policy through a central Government Resolution extending the principle beyond NCR construction to all sectors and states where environmental

enforcement causes worker displacement. The compliance failure in NCR (zero states complied) must be addressed through dedicated monitoring.

**Recommendation 8** — Extend Closure-Triggered Activation to the Maharashtra Labour Welfare Fund: Amend MLWF Board guidelines so that, parallel to Recommendation 2 for MAHA BOCW, an MPCB closure direction at any factory or shop establishment with five or more employees triggers a Labour Welfare Board outreach and claims process for unclaimed wages and benefits — including those already remitted to the Fund as unpaid accumulations under the Act. Because the MLWF, unlike BOCW, covers non-construction industrial workers, this recommendation directly closes the welfare gap documented at Bhosari, Tarapur, and Ichalkaranji.

**Recommendation 9:** Shift the Trigger for Worker Benefits from Employer Action to Government Notification: India's worker welfare architecture at the point of closure — ESIC unemployment schemes (RGSKY and ABVKY), IDA/IRC retrenchment compensation, and welfare board entitlements — places the employer as the sole conduit between the worker and every available benefit. When an MPCB closure order removes the employer from the picture, every entitlement pathway becomes uncertain simultaneously. ESIC's own data makes the scale of this failure visible: RGSKY admitted only 892 claims nationally in 2024–25, disbursing Rs. 5.37

crore (ESIC Annual Report, 2024–25), in a year when thousands of regulatory closure orders were issued — not because few workers were displaced, but because the access pathway runs through an employer who no longer exists.

Three linked actions are required to shift this. First, the Labour Department notification under Recommendation 1 should automatically trigger an on-site ESIC registration and RGSKY/ABVKY claims camp for all workers in the closed establishment, bypassing the employer-initiation requirement. Second, the Worker Re-skilling Fund introduced under Section 83 of the Industrial Relations Code, 2020 — currently un-operational, should be notified, extended in scope to cover regulatory closures alongside voluntary retrenchment, and disbursed directly through EPFO-linked accounts rather than through the employer. Third, Maharashtra should pilot a state-level Direct Benefit Transfer (DBT) mechanism modelled on PM-KISAN, in which a verified MPCB closure direction, matched against Shram Suvidha portal enterprise data, triggers a time-limited subsistence transfer directly to workers' bank or Jan Dhan accounts — the only measure that reaches informal and contract workers entirely outside the ESIC system. Implementation: state government pilot under MPCB-Labour Department protocol; central notification required for IRC 2020 Re-skilling Fund operationalisation.

## F. Conclusion

This paper set out to answer a deceptively simple question: when Maharashtra's MPCB issues a closure order against a polluting industry, what happens to the workers, and does any government body have a mandate to answer that question? The evidence assembled through secondary data analysis, literature review, and key informant interviews across four Maharashtra industrial clusters produces a clear answer: no government body has such a mandate, and the workers in question are structurally invisible to every institutional system that might otherwise provide one.

The research documents what it terms 'double invisibility.' At the point of data capture, displaced workers do not appear in the Labour Bureau's closure statistics — because the Industrial Disputes Act mechanism was designed for formal-sector voluntary closures, and because regulatory closures are not in scope. The Ministry of Labour and Employment's own data records zero industries closed due to pollution in 2021, the same year thousands of environmental closure orders were issued nationally. This is not an error. It is how the system was designed.

At the point of welfare delivery, the same workers find that every available scheme — PMKVY, BOCW, DDU-GKY, SCGJ — requires them to come to the welfare system. No scheme contains a trigger linked to an MPCB closure order. Maharashtra holds Rs. 8,612 crores in unspent construction worker welfare funds. Workers in RMC plants covered in principle — received nothing during and after the 84-plant Pune closures of 2025–26.

This revision extends the welfare-delivery finding beyond the construction sector. The Maharashtra Labour Welfare Fund, which in principle covers every non-construction factory worker, exhibits the same structural absence of a closure trigger that the more thoroughly audited BOCW fund displays — suggesting that double invisibility

is not a feature of one welfare scheme but of Maharashtra's welfare architecture as a whole. The paper also situates its domestic finding within a wider international literature on the Pollution Haven Hypothesis and ecologically unequal exchange, which documents a structurally similar pattern at the level of global value chains: production risk and environmental cost absorbed locally, value captured by lead firms positioned beyond the reach of the regulatory system best placed to act.

Field research at Bhosari MIDC, the Pune RMC cluster, Tarapur MIDC, and Ichalkaranji confirms the pattern consistently, with an important nuance from Tarapur: where clusters are larger, inspection more regular, and employment more formalised, outcomes are marginally better for skilled permanent workers. The casual tier — loading workers, waste handlers, piece-rate operators — remains unprotected regardless of cluster profile. This is not a failure of individual employers; it is a feature of an industrial system in which informality transfers risk entirely onto workers while keeping them invisible to every institution designed to manage that risk.

As India accelerates environmental enforcement toward net-zero targets and green economy commitments, the number of workers displaced by enforcement actions will grow. The paper's recommendations require, in most cases, no new legislation. They require only that the state's environmental enforcement architecture acknowledge, for the first time, that the workers at the end of the closure chain exist.

The Supreme Court has already said they do. In *M.C. Mehta*, the court established that environmental enforcement creates a worker welfare obligation. That principle is in Indian jurisprudence. It has not been generalised, not been legislated, and not been complied with even where it was ordered. The question is how much longer it will be allowed to remain the exception.

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# Annexures

## Annexure A — Respondent Profile

| Respondent       | Organisation                                | Site                  | Industry                            |
|------------------|---------------------------------------------|-----------------------|-------------------------------------|
| President, FSSIA | Forum of Small Scale Industries Association | Bhosari MIDC, PCMC    | Engineering, rubber, auto-ancillary |
| Pradip Walhekar  | Pune RMC Association / Sai Industries       | Pune (PMC/PCMC)       | Ready-mix concrete                  |
| Arihant Patil    | Textile industry                            | Ichalkaranji          | Textile                             |
| D.K. Raut        | Industry representative                     | Tarapur MIDC, Palghar | Chemical and pharmaceutical         |
| Chandan Kumar    | Hamal Manch                                 | Pune                  | Cross-sector labour                 |

## Annexure B — RTI Applications

| RTI No. | Addressed To                             | Information Requested                                                                                                                                                             | Status  |
|---------|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| 1       | MPCB Pune Regional Office                | District-wise closure directions by industry type, 2018–2025                                                                                                                      | Awaited |
| 2       | Maharashtra District Labour Office, Pune | Total ESIC fund corpus as of March 2025; disbursements FY 2022-23 to 2024-25 by benefit type; registered beneficiaries by sector; disbursement linkage to MPCB closures 2020–2025 | Awaited |

## Annexure C — Key Legislation

| Act                                                    | Section                          | Relevance to Paper                                                                                                                                                                                                                    |
|--------------------------------------------------------|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Water (Prevention and Control of Pollution) Act, 1974  | S.33A                            | Empowers SPCB to issue immediate closure — primary MPCB enforcement tool; no worker welfare provision                                                                                                                                 |
| Air (Prevention and Control of Pollution) Act, 1981    | S.31A                            | Equivalent powers for air violations; no worker welfare provision                                                                                                                                                                     |
| Environment (Protection) Act, 1986                     | S.5                              | Central/state closure authority; no worker welfare provision                                                                                                                                                                          |
| Commission for Air Quality Management in NCR Act, 2021 | GRAP provisions                  | Only statute with judicially-ordered worker compensation — NCR/construction only; compliance near-zero                                                                                                                                |
| Building and Other Construction Workers Act, 1996      | Welfare Board provisions         | Basis for MAHA BOCW. Rs. 8,612 crore unspent. Recommendation 2 proposes regulatory closure trigger amendment.                                                                                                                         |
| Industrial Disputes Act, 1947                          | Chapter V-B; reporting mechanism | Governs Labour Bureau closure data; 100+ worker formal threshold excludes all regulatory closure workers                                                                                                                              |
| Maharashtra Labour Welfare Fund Act, 1953              | S.6BB; Rules 3–4B                | Cross-sector welfare fund covering all non-construction factory/shop workers in this paper's fieldwork. No worker welfare or closure-linked disbursement provision identified. Recommendation 8 proposes a closure-trigger amendment. |



SPRF.IN



Social Impact Design Fellowship 2026

## When Polluting Factories Are Closed, Workers Vanish From Government Records

A study of pollution-driven industrial closures and the invisible impact on workers in Maharashtra

FELLOW PROJECT I 04  
SHALMALI BHAGWAT





**5,44,364**

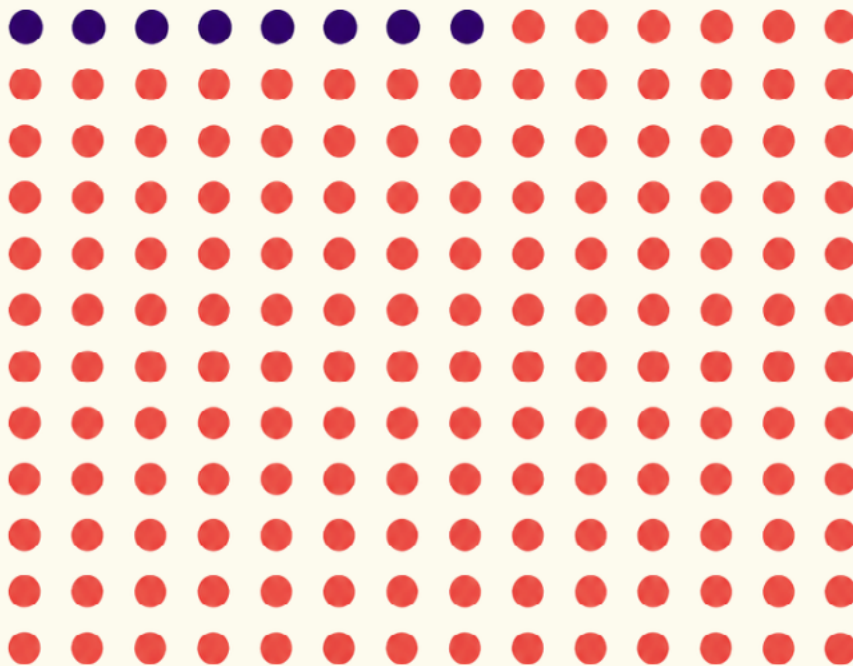
operational industries



**23,981**

industries non-compliant with environmental standards

*February 2026 (MoEFCC).*



**154 industrial pollution complaints recorded in Maharashtra alone 2021 – 2024**

● = 3240 industries





As factories shut in the name of **environmental protection**, one question remains unanswered:

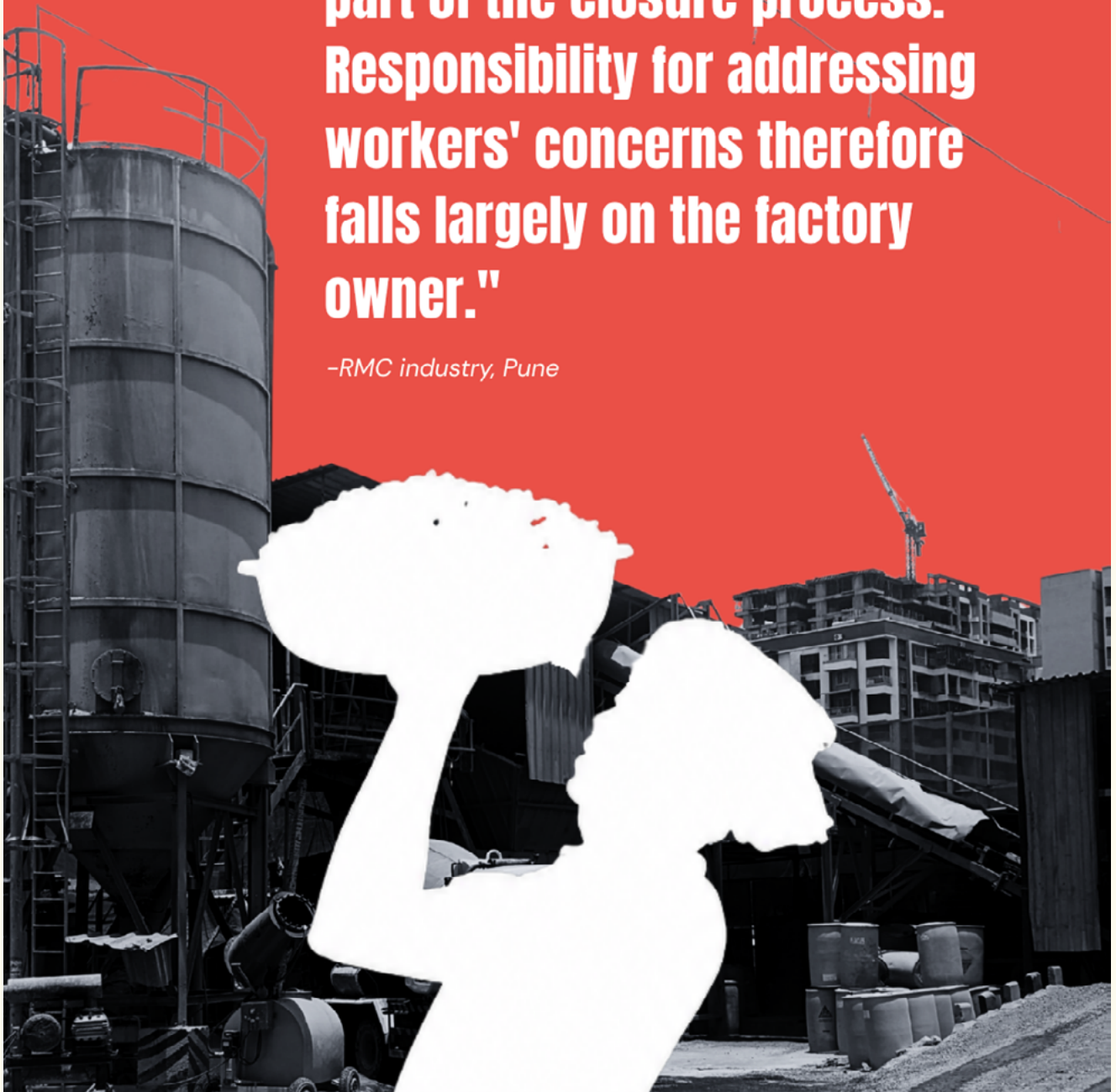
# What happens to the workers?





**“The Labour Department isn't part of the closure process. Responsibility for addressing workers' concerns therefore falls largely on the factory owner.”**

*-RMC industry, Pune*





**“Compensation  
and welfare  
schemes rarely  
reach workers.”**

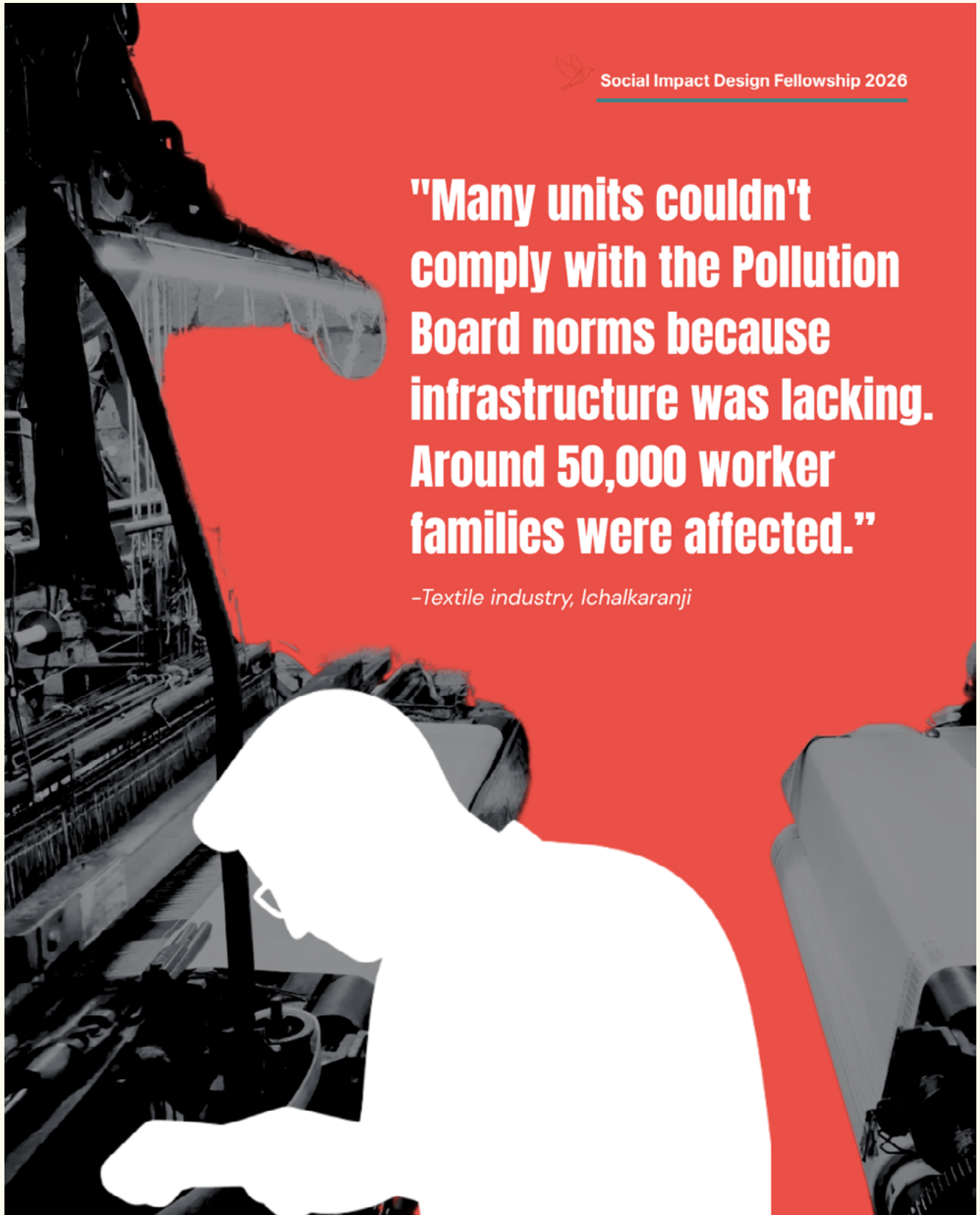
*–Rubber industry, Pune*





**"Many units couldn't  
comply with the Pollution  
Board norms because  
infrastructure was lacking.  
Around 50,000 worker  
families were affected."**

*-Textile industry, Ichalkaranji*





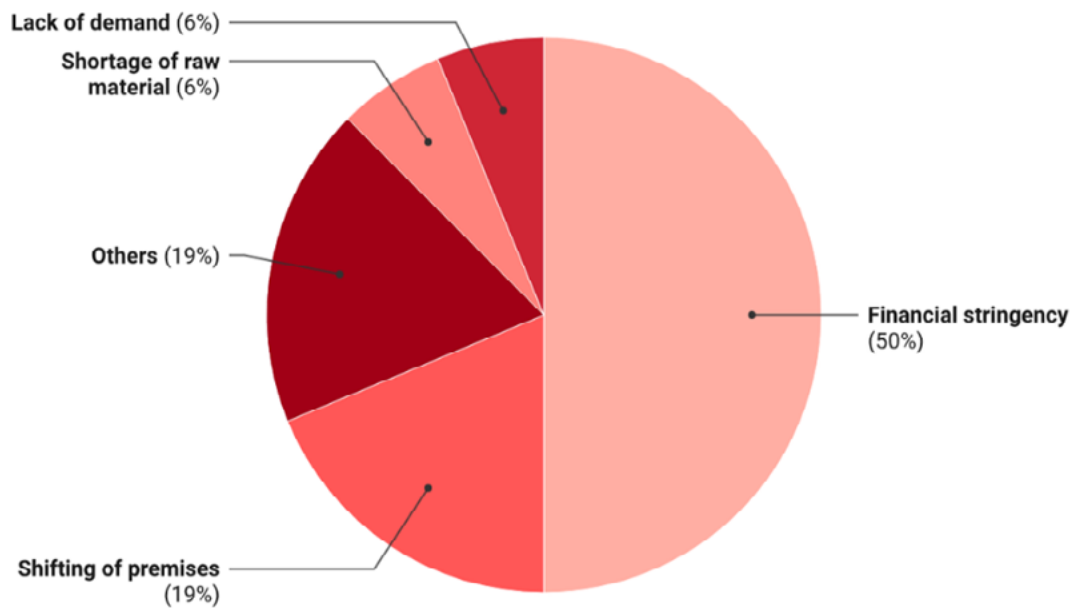
**“Permanent workers were retained. Casual workers had to find work elsewhere.”**

*–Chemical industry, Tarapur*





The Labour Department's reporting system for industrial closures relies on voluntary returns, leaving pollution-control enforcement largely invisible in official labour records. Hence among different reasons for industrial closures.





Although welfare schemes exist, workers often cannot access them directly after factory closures because they are **dependent on employer-linked registration** and institutional coordination.

**“Many of these workers don't even have a bank account in their name, the Provident Fund will be provided to the contractor, but I have rarely seen the benefits reach the workers operating on ground.”**

*– President, Forum of Small Scale Industries Association (FSSIA), Bhosari MIDC*



The problem is not the absence of welfare systems, it is the failure to connect displaced workers to them.

Maharashtra's Building and Other Construction Workers (BOCW) Welfare Board currently holds **₹8,612 crore in unspent funds**, while workers affected by regulatory closures receive no automatic support.

ESIC's Rajiv Gandhi Shramik Kalyan Yojana approved **only 892 claims** across the country in 2024-25, despite thousands of regulatory closures.





This paper doesn't argue against environmental enforcement. It argues that **worker protection** should be built into it.

Read the full research for evidence, case studies and actionable policy recommendations.



