

# THE FUTURE OF GOVERNANCE:

## *Protecting India's Workers from Climate Extinction*

A POLEMIC REPORT TO THE ALL INDIA TRADE UNION CONGRESS (AITUC)

**536**

heatwave days

*across India, 2024*

**380M**

heat-exposed workers

*India informal economy*

**40%**

earnings collapse

*during heatwave days*

**-19%**

net earnings

*per 1°C temperature rise*

## Executive Summary

The All India Trade Union Congress (AITUC) stands at an existential crossroads. Climate change, the defining megatrend of the twenty-first century, is not a distant environmental threat but a present-day emergency already destroying the livelihoods of India's 380 million heat-exposed workers (Changoiwala, 2024). This report argues, with force and urgency, that AITUC must fundamentally reimagine its governance approach or risk becoming irrelevant as the crisis it was founded to address becomes unrevivable for its members.

The evidence is overwhelming. In 2024, India experienced 536 heatwave days across its meteorological subdivisions (India Meteorological Department, 2024), with official reports recording 360 heat-related deaths and independent analysis documenting 733 fatalities (Down to Earth, 2025). Epidemiological modelling estimates a conservative lower bound of approximately 150,000 excess deaths each summer under current trajectories (Down to Earth, 2025). For every 1°C increase in mean temperature, informal workers in Delhi suffer a 16 percent decrease in net earnings; during heatwaves, earnings collapse by 40 percent (Das and Somanathan, 2024, p. 2). These are not abstract numbers; they are the livelihoods of gig delivery workers forced to continue riding in “hellfire” conditions because stopping means losing income (Al Jazeera, 2024). A very disturbing example of this is Rajkumar Rao, a 28-year-old gas cylinder delivery worker in Mumbai who watched his colleague collapse from heatstroke (Changoiwala, 2024), and Suvarna Yadav, a sugarcane worker who fractured her wrist but continued working because stopping meant losing her job (Yale Climate Connections, 2025).

This report presents three scenarios for 2040: a worst case in which 4°C warming makes outdoor work lethal and collapses the informal economy; an intermediate case in which 2°C warming creates a two-tier labour market of protected formal workers and expendable informal workers; and a best case in which 1.5°C warming is achieved alongside comprehensive governance reform, creating a climate-resilient workforce. AITUC must plan for the intermediate scenario while fighting to achieve the best case. The current governance framework, voluntary heat advisories, an Occupational Safety Code that does not recognise heat as a hazard, and a Just Transition limited to coal are not merely inadequate. It is actively dangerous. It creates the illusion of protection while leaving workers exposed to systematic, lethal harm.

# **PART 1: WHY: The Climate Megatrend and the Transformation of Indian Labour**

## **1. Introduction to the All India Trade Union Congress**

The All India Trade Union Congress was founded on 31 October 1920 in Bombay, with Lala Lajpat Rai as its first president, making it the oldest and most significant trade union federation in India (India Labour Archives, n.d.). Established to represent Indian workers at the International Labour Organization, AITUC has historically positioned itself as the vanguard of the working class struggle, advocating for social justice, higher wages, job security, and the fundamental dignity of labour. With a membership of 14.2 million as of 2013, AITUC is the third largest trade union confederation in India, representing workers across organised and unorganised sectors, from coal mines in Jharkhand to construction sites in Delhi (India Labour Archives, n.d.).

AITUC interacts with government policy and legislation in the public domain, promotes labour standards and good practices to its members, and represents members' interests through lobbying and advocacy (Vajiram and Ravi, 2026). The union has faced ideological splits in 1929, 1931, and 1945, yet has remained a consistent institutional voice for worker welfare across a century of Indian economic transformation (Vajiram and Ravi, 2026).

The business environment AITUC must navigate in 2026 is radically different from that of even two decades ago. Approximately 85 percent of India's workforce operates outside formal systems of registration, taxation, and regulation (Amulya Charan, 2025). These 380 million workers lack contracts, social security, and occupational safety protection (Changoiwala, 2024), yet they constitute the backbone of the Indian economy, contributing approximately half of GDP (Amulya Charan, 2025). The climate crisis threatens to unravel this precarious stability. The governance question is not whether AITUC should respond; it is whether AITUC can respond in time.

## **2. The Climate Megatrend: A Structural Force Reshaping Indian Labour**

Climate change constitutes a megatrend of first-order significance, a long-term, large-scale shift that influences global systems and reshapes how societies function (Project Management Institute, 2022). The Intergovernmental Panel on Climate Change has established unambiguous links between anthropogenic greenhouse gas emissions and the rising frequency, severity, and duration of heatwaves. For India, the implications are not theoretical but already operational. The year 2024 was the hottest calendar year globally, and India experienced 536 heatwave days across its meteorological subdivisions, with over 44,000 heatstroke cases reported nationwide (India Meteorological Department, 2024).

The economic impact of rising temperatures on labour is well-documented through rigorous peer-reviewed research. Das and Somanathan (2024) studied informal workers in Delhi over a month in which wet bulb temperatures ranged from 24°C to 30°C and maximum temperatures reached 48°C. Their findings are precise and alarming: for every 1°C increase in mean temperature, gross earnings fall by 13 percent and net earnings fall by 19 percent; during heatwave days, net earnings are 40 percent lower than on non-heatwave days (Das and Somanathan, 2024, p. 2). Workers are also 2 percentage points less likely to work at all during heatwaves (Das and Somanathan, 2024). The mechanism is supply-side, not demand-side: it is workers' bodies failing under extreme heat, not customers staying home, that drives these losses, a finding that transforms climate adaptation from a discretionary activity into a legal and ethical obligation.

The physiological consequences compound the economic ones. Das and Somanathan (2024) document that for every 1°C increase in temperature, the probability of a worker or family member being sick increases by 6 percentage points, hours slept fall by 0.16 to 0.21 hours, and medical expenditure rises by 9 to 15 percent. Over 2.4 billion workers globally

are exposed to excessive heat, resulting in 22.85 million occupational injuries and 18,970 fatalities each year (Yale Climate Connections, 2025). The climate crisis is not evenly distributed: marginalised caste groups face up to 150 percent higher heat exposure during work compared to dominant caste groups (Behanbox, 2025), and 97 percent of informal women workers report income losses during peak summer months, averaging 1,500 rupees per month (Bhowmick, 2025).

The critical inference from this evidence is that climate change is not an environmental phenomenon exogenous to the labour market: it is a structural force directly reshaping the terms on which labour is performed, compensated, and protected. The situation this report puts to AITUC is that a governance model designed for the stable-climate, coal-and-manufacturing economy of the twentieth century cannot protect workers in the warming. Informalising the economy of 2040. It was not built for this world. And this world is already here.

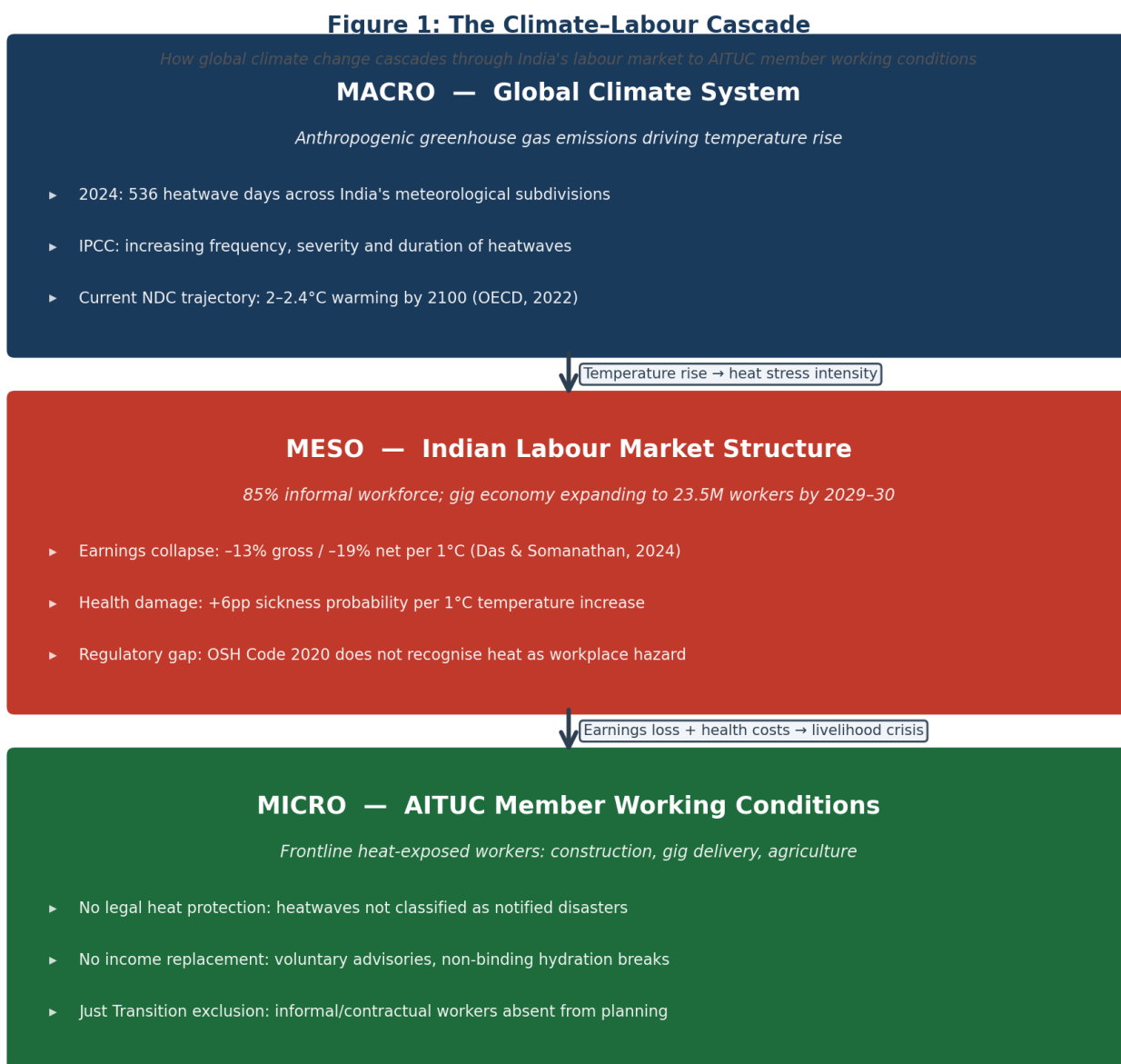


Figure 1: The Climate-Labor Cascade. Source: Author's own, drawing on India Meteorological Department (2024), Das and Somanathan (2024), OECD (2022), and Prevention Web (2024).

### 3. Three Scenarios for 2040: The Future of Work in a Warming World

To understand what governance choices must be made today, this report projects three scenarios for 2040 based on different climate and policy trajectories. Each scenario applies the same key variables—worker protection, gig economy growth, Just Transition coverage, and AITUC's institutional relevance - across different temperature outcomes.

| Variable               | WORST CASE: 'The Heat Abyss' (4°C warming)   | INTERMEDIATE: 'The Unjust Transition' (2°C warming)  | BEST CASE: 'Climate-Resilient Workforce' (1.5°C warming)   |
|------------------------|--|--|--|
| <b>Worker health</b>   | Indo-Gangetic Plain periodically uninhabitable; outdoor work lethal in summer months | Persistent heat stress; 34 million FTE jobs lost by 2030 (ILO, 2019); health costs uncompensated                 | WBGT standards enforced; heat-related illness treated as compensable occupational injury                     |
| <b>Gig economy</b>     | Platforms abandon Indian market as conditions become uninsurable                     | 23.5 million gig workers by 2029–30; 'digitally visible but legally invisible' (Malhotra and Agrawal, 2025)      | Gig workers reclassified as employees; full employment law coverage  |
| <b>Just Transition</b> | Coal collapse unmanaged; 739,000 workers abandoned without transition support        | Just Transition limited to formal coal workers; contractual and informal workers excluded (Mangang et al., 2024) | Just Transition extended to all climate-vulnerable sectors; informal workers hold formal institutional voice |
| <b>AITUC role</b>      | Dissolved: membership evaporated; formal employment collapses                        | Declining: fighting for inclusion of workers already losing ground   | Leading: statutory seat at tripartite climate-labour governance table  |
| <b>Probability</b>     | 15%  | 60%  | 25%  |

Table 1: Three Scenarios for 2040; Key Variables across Climate Trajectories

#### 3.1 Worst Case: 'The Heat Abyss' (4°C Warming)

In this scenario, global temperatures rise by 4°C above pre-industrial levels by 2040. The Indo-Gangetic Plain, which supports hundreds of millions of people, becomes periodically uninhabitable during the summer months, with wet bulb temperatures exceeding the threshold for human survivability (World Bank, 2022, cited in The India Forum, 2025). The informal economy collapses. Street vendors, construction workers, agricultural labourers, rickshaw pullers, and waste pickers; the workers AITUC has historically failed to represent and now critically needs to reach out to find their livelihoods destroyed. Mass migration from unlivable hot zones overwhelms cooler urban centers. AITUC loses its membership base as formal employment evaporates, and the union that has protected Indian workers since 1920 dissolves in the heat of a crisis it was not structured to confront. This scenario is catastrophic and unlikely, but it is not impossible, and planning for it would mean reverting to crisis management rather than governance.

#### 3.2 Intermediate Case: 'The Unjust Transition' (2°C Warming)

This is the most likely scenario based on current policy trajectories and represents the future for which AITUC must urgently plan. Global temperatures rise by 2°C by 2040. The gig economy expands to 23.5 million workers by 2029–30 (Malhotra and Agrawal, 2025), but these workers remain 'digitally visible yet legally invisible,' excluded from employment law, occupational safety protections, and income replacement during heat events. Gig workers already describe riding and delivering in conditions they characterise as working in "hellfire", with no employer obligation to

stop operations during extreme heat (Al Jazeera, 2024). The National Disaster Management Authority's 2025 advisory, while significant in naming gig workers, is followed by only a minority of states and cities (Pandey, 2025). Only 30 percent of heat action plans mention funding (Behanbox, 2025). The Labour Ministry's advisory on hydration breaks remains non-binding. A two-tier labour market emerges: formal sector workers in air-conditioned offices receive some climate adaptation support, while 85 percent of India's workforce in informal arrangements are left to absorb climate shocks on their own. The Just Transition framework, developed initially for coal, partially covers formal coal workers—but contractual workers, the most vulnerable within the sector, remain excluded from union membership and therefore from the stakeholder processes that determine their futures (Mangang, Swarnakar and Pai, 2024). AITUC persists but loses ground; a union in decline, fighting for inclusion of workers already being left behind.

### **3.3 Best Case: 'The Climate-Resilient Workforce' (1.5°C Warming)**

This scenario requires transformative policy changes not yet visible in current trajectories, but it is achievable with the advocacy AITUC must now urgently mount. Global warming is limited to 1.5°C through aggressive mitigation. Universal heat protection standards, wet bulb globe temperature thresholds, mandatory rest periods, and compensation for heat-related income loss are codified in law and enforced with criminal penalties. The Just Transition framework is extended from coal to all climate-vulnerable sectors, with a statutory Just Transition Commission where AITUC holds a mandated seat. Gig and platform workers are reclassified as employees under a revised employment law framework. Parametric climate risk insurance, triggered automatically by temperature thresholds, provides income replacement for informal workers without requiring complex claims. AI and digital technology are deployed for climate adaptation, optimized work scheduling, heat early warning systems, and health monitoring, rather than worker surveillance. By 2040, AITUC leads governance reform rather than reacting to a crisis.

## **4. Scenario Selection: Why AITUC Must Plan for the Intermediate Future**

This report selects the intermediate scenario as the planning basis for AITUC's governance response for three reasons that flow directly from the evidence.

First, the intermediate scenario is what the data predicts. Current commitments under the Paris Agreement are projected to deliver approximately 2–2.4°C of warming by 2100; the trajectory for 2040 aligns with the intermediate scenario (OECD, 2022). Temperatures are already rising, heatwaves are already killing workers, and governance responses, as this report demonstrates, are already proving inadequate. The worst case is catastrophic but not yet the most likely outcome; the best case is aspirational and achievable but would require transformative changes not currently visible in India's policy trajectory.

Second, the intermediate scenario is the one where AITUC's intervention matters most. In the worst case, traditional trade union strategies become irrelevant; in the best case, they are already succeeding. The intermediate scenario is precisely the contested space where a strengthened, reformed AITUC can make the decisive difference, where governance advocacy, legal reform, and inclusive planning can prevent the two-tier labour market from becoming permanent.

Third, the intermediate scenario is the only one where the evidence of harm is sufficient to motivate action, but the window for prevention has not yet closed. Das and Somanathan's (2024) finding that heat causes 13–19 percent earnings losses per 1°C is not a projection; it is a measured, present-tense fact. The 23.5 million gig workers who will be 'digitally

visible but legally invisible' by 2029–30 (Malhotra and Agrawal, 2025) are not a hypothetical population. The coal workers excluded from Just Transition planning (Mangang et al., 2024) are already being failed. The intermediate scenario is not a warning about the future. It is a description of the present, extrapolated forward. AITUC must act now, or that future will arrive by default.

The business environment AITUC's members face in this scenario is characterised by three compounding features: persistent heat stress that erodes incomes without institutional compensation; an expanding gig economy that normalises informality and algorithmic indifference to worker safety; and a decarbonisation transition that is already excluding the most vulnerable workers from the planning processes that will determine their futures. AITUC cannot govern this environment with the tools it designed for the twentieth century. The following sections of this report, and its companion Part 2, will make the case for what must change and how.

## **5. The Governance Gap: Why the Business Environment Must Be Governed Differently**

The core governance failure identified by this report is structural, not incidental. India's current labour governance framework was designed for a stable climate and a predominantly formal workforce. Neither of those conditions will hold in 2040. Four specific governance failures require urgent redress.

First, the Occupational Safety, Health and Working Conditions Code (2020) does not recognise ambient heat as a workplace hazard. It mentions temperature regulation only in the context of dock workers, leaving 380 million heat-exposed informal workers with no legal protection (PreventionWeb, 2024). The Building and Other Construction Workers Act (1996) is entirely silent on heat-related risks (The Leaflet, 2025). Heatwaves are not classified as notified disasters under the Disaster Management Act (2005), limiting budgetary allocations for worker protection (TERI, 2025). These are not oversights; they are governance choices that systematically transfer climate risk from employers and the state to individual workers who have no capacity to bear it.

Second, the Industrial Relations Code (2020), implemented in November 2025, raised the threshold for government permission for layoffs from 100 to 300 workers (ICEA, 2025). The government presents this as promoting ease of doing business (ICEA, 2025). In the context of escalating climate disruption, it functions as a mechanism for mass abandonment of workers during economic stress caused by heat events, a governance choice that moves in precisely the opposite direction from the security workers require.

Third, the Just Transition framework being developed in India's coal sector is structurally incapable of protecting the workers most at risk. Mangang, Swarnakar and Pai (2024) document that the concept has barely reached grassroots union leaders, that informal and contractual workers, the majority of those employed in and around coal, are absent from union membership and therefore from stakeholder processes, and that unions have been excluded from both the Jharkhand Just Transition Task Force and the Just Transition Cell within Coal India Limited. A union representative's warning is precise: 'If unions are excluded, there might be significant resistance at the grassroots level' (Mangang et al., 2024). The inference is not merely that this is a bad process; it is that a just transition without the most vulnerable workers at the table is not a just transition at all.

Fourth, the 2025 Labour Code reforms, while significant as a formal step in including gig workers in social security architecture, remain insufficient without an enforcement infrastructure. As the ICEA (2025) statement, which represents an industry perspective and must be read critically as such, promotes the reforms primarily in terms of their benefits for

business productivity, it is silent on implementation challenges. Malhotra and Agrawal's (2025) respondents described fake insurance that paid no claims and social security contributions that never materialised. Legislative inclusion without enforcement is not protection; it is the appearance of protection, which may be more dangerous than its absence.

The inference across all four governance failures is the same: the current framework was not designed for the workers who most need it, in the climate conditions that are already arriving. AITUC must advocate for a governance transformation that puts the most vulnerable workers at the center, and the evidence base for that advocacy, as this report demonstrates, is already overwhelming.

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